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Lasallian Research Forum

Editorial Board

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Foreword

True to being multidisciplinary, Lasallian Research Forum Volume 18 Number 1 is composed of articles from the different disciplines. Four studies in this issue are submitted from the School of Tourism and Hospitality Management faculty, two from the College of Nursing faculty and College of Computer Studies while one article comes from the College of Engineering. The concepts and discoveries of the diverse authors made this new collection rich and exceptional. Rich because it brings ideas and realization; exceptional because the studies lined up for this publication are not chosen in themes. Studies in this issue vary from product and program development, uncovering perceptions and practices to tracing graduates.

The study by Wiliva Andoy and Maritess Tapitan paved the way to discover healthy shake that may be introduced to the market for profit while the study of Leslyn Bonachita, Erbeth Gerald Delvo and Jay Harold Reazon profits the school to bring enhancement for its OpenLab Monitoring System Using Biometric Device. Knowing and understanding people's perceptions would bring one to understand one's decisions. The study of Xysa Quimno discovered that nurses' decision on using restraints among the elderly patients is due to their perception that restraints safeguard elderly patients against accidental falls.

The findings of Jeoffrey Balucan on hand washing practices of the elementary pupils hopefully guide the administration to establish mechanisms that ensure their students' good health. Dana Bandala on her article, took part in addressing environmental issues by showing the extent of plastic bag usage by vendors. Further, John Ernie Anggot and Agnes Cherie Baluran bring possibilities of reaching out to the elders in the partner community while Julieta Betonio and Teddie Paul Tejano presented activities that the School of Tourism and Hospitality Management can get involved with in helping the food handlers improve their food handling practices. All these articles provide information as to what to improve and or how

to solve problems in the society.

Lastly, with an effort to improve curriculum, Edna Ney Hazaymeh and Mark Krisli Dela Pena trace Engineering graduates. The study found out that LSU's graduates from the College of Engineering are easily employed.

The editorial board would like to thank all the writers for supporting this issue. It is hoped that unending support by the faculty be given to continue bringing in exciting discoveries and continually informing readers of stimulating realities.

Preparation and Acceptability of Vegetable Honey Milk Shake

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Abstract

The present investigation was done with the goal of studying and formulating the standard procedure of milk preparation and honey shake blended with green leafy vegetables and studied for its acceptability. Vegetable honey milk shake was prepared from green leafy vegetable combinations with milk, honey and ice. Treatment 1 is with vegetable combination of saluyot leaves and alugbati; Treatment 2 is of malunggay and kangkong while Treatment 3 is a combination of pechay , five fingers vegetables. It was observed that the vegetable honey milk shake prepared from saluyot-alugbati and pechay-five fingers combination were acceptable since they were liked moderately by the respondents while malunggay-kangkong combination was disliked slightly by the respondents. To improve flavor, slight modification in the milk and honey formulation is recommended.

1. Introduction

Vegetables play a vital role in diets since they support the normal functioning of the different body systems. They contain low amounts of fats and calories. They are also a good source of dietary fibers. Vegetables provide human cells with vitamins, minerals, essential oils and phytonutrients. While eating cooked vegetables can be healthy, in certain instances, eating them raw can also be advantageous. It is a known fact that most vitamins and phytonutrients are destroyed or damaged when cooked or processed above 130 degrees, so they are less available for assimilation, killing vital enzymes that help the body digest foods.

According to House (2005), there are six classifications of vegetables, namely: Fruit vegetables, Stem vegetables, Root and Bulb vegetables, Seeds and Pods vegetable, Flower vegetables and the Leafy vegetables.

Leafy greens are full of vitamins and minerals and disease-fighting photochemical. They are rich in fiber which aids in attaining weight loss by controlling hunger, maintaining lower cholesterol, blood pressure and blood-sugar by slowing absorption of carbohydrates into the bloodstream after meals. Leafy greens also contain lots of water, which keeps the body hydrated making one's skin and hair beautiful. Further, the green leafy vegetables are also rich in calcium, which helps keep the teeth and bones strong and reduces the overall risk of osteoporosis, contributing to function and blood pressure management. The green leafy vegetables are also known for its antioxidants like vitamin C which responsible for reducing the risks of cataract, aiding the body to make collagen which is a major component of cartilage that aid in joint flexibility reducing the risk of arthritis, slowing bone loss and decreasing the risk of fractures. Lastly, leafy greens' beta –carotene contributes to the growth and repair of the body's tissues and protects the skin against sun damage. Thus, vegetable preparation without heat involved is important to ensure nutrient retention in green leafy vegetables.

With all these benefits, consuming leafy greens is advised to all ages especially the young ones. Healthy lifestyle means incorporating vegetables in the diet and it is a must and starting it earlier in life is ideal to enjoy its effects in later life. However, one knows that most of the young generations have difficulty accepting vegetables in their meal plan as they find them taste awfully bad. Hence, this study is conducted to creatively introduce vegetables to people's diet.

This study aimed to determine the preparation and acceptability of vegetable honey milk shake. Specifically, it sought to determine the acceptability level of the Vegetable Honey Milk Shake in terms of its color and appearance, flavor, consistency and mouth feel.

Finding out the acceptability of these vegetable honey milk

shakes ultimately brings a new nutritious, healthy product to the market which will incur less cost as it use common leafy greens that are easily grown at the backyard. Acceptability level were measured from 29 respondents only.

2. Method

The study used a descriptive type of research which is designed to show products' level of acceptability of Vegetable Honey Milk Shake prepared in different varieties of leafy greens as basis for product development. Four faculty members from Reled department of La Salle University- Ozamiz City and the 25 Technology and Livelihood Education (TLE) major students were used as the respondents of the study . They were asked to answer the checklist that measured the sensory evaluation of Vegetable Honey Milk Shake.

The shake was subjected to sensory evaluation by 29 respondents composed of students and faculty using a 7 point hedonic or likeability scale. It was judged for color and appearance, flavor, consistency, mouth feel and overall acceptability. The results obtained were subjected to statistical analysis by percentage and mean to determine its acceptability. Figure 1 shows the flow diagram of Vegetable Honey Milk Shake.

Figure 1.
Preparation Process of
Vegetable Honey Milk Shake

Green leafy vegetables required for the study was obtained from the Ozamiz City Public Mall. Evaporated milk and honey were procured from Gaisano Supermarket, Ozamiz City. For the preparation of the vegetable honey milk shake, the following blends were prepared.

Treatments	Formulation
1	100g saluyot leaves + 100g alugbati + 2/3 cup evaporated milk+ 1/3 cup honey + 2 cups crushed ice
2	100g malunggay leaves+100g kangkong +2/3 cup evaporated milk + 1/3 cup honey + 2 cups crushed ice
3	100g pechay +100g five fingers + 2/3 cup evaporated milk+ 1/3 cup honey + 2 cups crushed ice

Vegetables were washed with clean water. Together with the other liquid ingredients, it was converted into a homogeneous mass by putting into a blender.

3. Results and Discussion

The vegetable honey milk shake prepared from different kinds of green leafy vegetables were subjected to sensory evaluation and the scores recorded for different parameter are presented in Table 1.

Table 1
Acceptability level of Vegetable Honey Milk Shake in different treatments

T reat-ment	Color and appearance	flavor	consistency	Mouth feel	Overall acceptability
1	6	5	6	5	6
2	4	2	3	2	3
3	6	6	5	6	6

Legend: 7-very much acceptable; 6-moderately acceptable; 5-slightly acceptable; 4-neither acceptable nor unacceptable; 3-slightly unacceptable; 2-moderately unacceptable;1-very much unacceptable

Color and appearance

It has been noted that all shakes in three preparations that were presented to the respondents are colored green. As observed, however, treatment 2 was heavily greened. When respondents were asked to rate color and appearance, scores for different treatments of the vegetable honey milk shake ranged from 4 to 6. Both treatments 1 and 3 are at par with each other and are moderately acceptable than treatment 2. As shown, respondents are undecided as to whether they can accept or not accept Vegetable Honey Milk Shake using Malunggay.

Flavor (strong and mild)

Flavor in this study is measured in terms of goodness or appealing taste of the vegetable honey milk shake. It has been observed that the vegetables in treatment 1 and 3 were blended well with the honey and milk which could be a factor why they are appealing to the respondents. Malunggay and kangkong combination did not blend well with honey and milk since as

observed, malunggay flavor specifically dominated when tasted making a tangy flavored shake. As shown in the table, the mean score for flavor of treatments 1 and 3 is 5 and 6 respectively while treatment 2 is rated 2. Though treatments 1 and 3 were accepted by the respondents, vegetable honey milk shake using pechay and five fingers is more acceptable than the vegetable shake made of saluyot and alugbati. Respondents claimed they cannot accept the shake made of malunggay and kangkong combined.

Consistency

As defined, consistency in this study refers to the density or firmness or viscosity of the vegetable honey milk shake. North Carolina Dietetic Association Nutrition Care Manual (2005) presents liquid consistencies as Thin, Honey-like, Nectar-like and Spoon Thick. The Vegetable honey milk shake is expected to fall on Honey-like consistency which is described to have medium viscosity liquids. However, respondents claimed that only treatments 1 and 3 can be considered nectar-like giving acceptability mean score of 6 and 5 respectively. Treatment 2 as rated was significantly inferior in terms of consistency as the shake made up of this vegetable combination became spoon-thick, too sticky, that respondents claimed moderately unacceptable.

Mouthfeel

Mouthfeel refers to the sensation that the food or drink brings to the mouth. As shown in the table, respondents' evaluation on the vegetable honey milk shake mouthfeel's acceptability for treatments 1 and 3 ranged from mean scores of 5 to 6. This implies that honey milk shake combined with saluyot with alugbati and pechay with five fingers can be accepted in the market. Honey milk shake combined with maluggay with kangkong is evaluated by respondents as moderately unacceptable.

The overall mean score for acceptability of shake in different treatments as presented in Table 1 shows that respondents moderately accept Vegetable Honey Milk Shake made of saluyot with alugbati

4. Summary of Findings, Conclusion and Recommendations

Based from the findings, combination of Vegetable Honey Milk Shake made of saluyot with alugbati and pechay with five fingers may be produced and be introduced to the market as it is moderately acceptable by the respondents. Malunggay-kangkong combination is not suitable for making shakes.

It is recommended that to improve flavor, milk and honey formulation can be modified. Further, future researchers may explore combinations of Malunggay and kangkong on shakes by reducing its formulation or may replace them by other green leafy vegetables

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Nutritional Risk Assessment of the Elderly in Dona Consuelo, Ozamiz City

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Abstract

The study was conducted to assess the nutritional risks' of the elders in Dona Consuelo, Ozamiz City. The Nutritional Risk Assessment Tool by Janet Weber, et al. was used to evaluate the nutritional risks' of the respondents. Among the 170 respondents, 152 (89.4%) of them scored a total of 6 or more. This indicated that the majority of the Senior Citizens of Dona Consuelo is in high nutritional risk. Based on the result of the study, the researchers recommended to conduct activities that will help the respondents improve their nutritional health status. One of which is to provide health teaching in order for the respondents to have proper knowledge with regard to their health. Another is to initiate a sustainable livelihood program that will help cater their financial needs that in return will enable them to sustain their nutritional health. Third, offer a feeding program and lastly is to invite health care professionals, namely dietitian and nutritionist to further assess their nutritional status.

1. Introduction

Nutrition is a process in animals and plants involving the intake of nutrient materials and their subsequent assimilation into the tissues. The World Health Organization (WHO) defines nutrition as the intake of food considered in relation to the body's dietary needs. The nutritional requirements include the quantity and quality of food consumed, the efficiency of the digestive system in absorbing and utilizing the nutrients from the eaten food and biochemical availability (Hare, n.d.). More so, Hare (n.d.) said that the nutritional requirements of different persons vary and are influenced by several factors, including age, growth, sex, pregnancy and breast feeding, illness, psychological and emotional stress, activity level and other factors like drinking and smoking. These factors play roles resulting

in either having adequate, a well balanced diet that brings good health or inadequate, unbalanced diet bringing poor health.

In as much as infants and the young need extra care in attaining their nutritional requirements, the elders need extra care too to be able to contribute for a healthy community. Giving extra care to the elderly can be shown in ensuring that they are given proper nutrition, ensuring that their immunity is boosted, susceptibility to diseases decreased so that their physical and mental development are not impaired to continue becoming productive in the society they are living in. The aging process will naturally deteriorate the human being's immunity and will make that person very susceptible to any infection (Woods et al., 2013). Meanwhile, good nutrition is very indispensable in ensuring a strong immunity that will significantly protect the person from acquiring any diseases and infection (Mauk, 2010; Cunningham, 2015). Further, according to Wells et al. (2006), nutrition is one of the most significant determinants of elderly overall health status but it is not given much attention. They also identified factors contributing to elderly malnutrition and they are as follows; involuntary weight loss, abnormal body mass index (BMI), specific vitamin deficiencies, and decreased dietary intake. In all developmental groups, they are also at risk of experiencing malnutrition.

One way of determining whether one has either good or poor nutrition can be done by assessing nutritional risks. Nutritional screening and assessment does not only help in identifying malnutrition but it also aids in identifying nutritional problems. This is done to detect problems early so that initial management will be given. Various tools as well are available that can be used by health care professionals in the entire assessment process (Perry, 2007). Furthermore, the purpose of nutritional assessment is to identify client's risk for malnutrition and those with poor nutritional status. In most health care facilities, the responsibility for nutritional assessment and support is shared by the physician, the dietitian and the nurse (Kozier, 2010).

In the Philippines, there were few only research conducted focusing on elderly nutritional status. This is one of the reasons that ignited the researchers' drive to look into and assess the nutritional health status of the elderly populates of Dona Consuelo, Ozamiz City. Specifically, this is aimed at identifying the nutritional risk behaviors and level of nutritional risk of the elderly. Hopefully, the results of this study may serve as a basis of an intervention program that will address the nutrition and overall health of the elderly in the community where this research is conducted. This may also be used by the College of Nursing department in coming up with sustainable Community Health Programs like lifestyle modification, health education and in coming up with mechanisms regarding referrals to appropriate professionals for nutrition and health guidance. Information gathered in this paper is confined only to the elders living the partner community. They were taken regardless of whether they are already diagnosed with certain diseases or any nutritional problems by health professionals.

2. Method

The researchers utilized a descriptive type of research design that will gather information regarding the level of nutritional health status of the elderly in Doña Consuelo, Ozamiz City. The respondents of the research were the residents of Dona Consuelo aged 60 years old and above. Of the 282 population of Senior Citizens in the barangay, only 170 elder residents were chosen to represent the total population. These are the only ones who gave consent to participate in the study. Ethical considerations are observed during the entire research process. Informed consent was secured before the actual data gathering procedure. Anonymity and confidentiality were maintained at all times.

The Nutritional Risk Assessment Tool by Nutrition Screening Initiative 2008 was used to assess the nutritional risks of the respondents. In this assessment tool, the total nutritional scores were interpreted as follows:

Score	Level	Interpretation
0-2	Good	Recheck the score in 6 months
3-5	Moderate	To check what can be done to improve eating habits and lifestyle. Recheck score in 3 months.
6 or more	High	To consult a physician, dietitian or other qualified health or social service professional

Data gathering proceeded after approval from the Barangay Captain was sought and informed consent forms from the research respondents were secured. Frequencies and Percentages were used to identify the nutritional risk behaviors of the respondents and describe their level of risk.

3. Results and Discussion

Mauk (2010) shared that older adults are susceptible to malnutrition than other age groups. Older adults are also susceptible to other risks that maybe associated to poor nutrition. Among the risk factors are social isolation, dental problems, medical diseases and medication usage. Nutritional assessment is of significant importance to successfully diagnose and develop an intervention plan for malnutrition among the respondents.

Table 1 gives an idea about the percentage of nutritional risk behaviors or conditions of the respondents. Most of the elders lacked funds to buy food that they need which cover 82.94% of the respondents. Another behavior that contributed to the respondents' nutritional risk is that most of them did not eat fruits, vegetables or milk products,138 out of 170 also did not eat fruits, vegetables or milk products.

Table 1
Elders' Nutritional Risk Behaviors/Conditions

Nutritional Risk Behaviors	Frequency	Percentage
I do not always have enough money to buy the food that I need	141	82.94
I eat few fruits, vegetables or milk products.	138	81.18
I am not always physically able to shop, cook or feed myself.	136	80
I have an illness or condition that made me change the kind or amount of food I eat	113	66.47
Without a warning, I have lost or gained 10 pounds in the last 6 months.	101	59.41
I eat alone most of the time.	77	45.29
I have tooth or mouth problems that make it hard for me to eat.	64	37.65
I take three or more different prescribed or over the counter drugs a day.	47	27.65
I eat fewer than two meals per day.	23	13.53

As shown in the table, majority of the elders in the adopted barangay are financially incapacitated to buy their personal need like food by claiming that they do not have enough money to buy their needed food to aid proper nutrition. The financial condition the elderly are currently in can be thought as the reason why they only eat a few fruits, vegetables and milk products. Further, majority of these people claimed that they are physically weak to perform tasks like shopping, cooking and feeding their own selves, while more than half claimed that they are faced with illness or condition that affected their appetite resulting to lose weight for the last 6 months. Those elders, however who can still eat claimed that they are eating alone, which implies that they might be also living alone or are separated from their family during mealtime. More than one third of the old populace in the partner community needs dental help as they claimed they are having a tooth or mouth problems. Though there are only about 13.53%, it is sickening to note that about 23 elders in the community eat only one meal a day.

Table 2 showed the distribution of respondents' in terms of level nutritional risks by gender.

Table 2
The Level of Nutritional Risks among the Elders

Level of Nutritional Risk	Frequency	Percentage
Good	10	5.88
Moderate	8	4.71
High	152	89.41
Total	170	100

The data shown in Table 2 confirm the information reflected in Table 1 showing that a majority are exposed to high nutritional risk. This indicates that they need help to improve their nutrition to be physically fit. The result also implies that the respondents should be given assistance to assess and help their health status. Further, this result depicts the need of the elders to be given medical and dental mission to provide them with competent health professionals

4. Conclusion and Recommendations

Based on the results of the study, the researchers concluded that the elders living in Brgy. Doa Consuelo need assistance as they are facing high nutritional risk. It is therefore recommended that the College of Nursing must help by providing activities that will improve respondents' nutritional health status through its Community Extension Program. Health teaching may be designed educate the senescents as regards their health status. Livelihood program may also be planned to help meet respondents' financial needs that in return will enable them to sustain their nutritional health. The idea of having a feeding program may be explored to help elders who had difficulty meeting 3-meal daily requirements. Lastly, the nursing department can also conduct medical and dental mission by inviting professionals, namely physician, dentist, dietitian and nutritionist to further assess and improve their nutritional status. After the program implementation, future researches may conduct assessment to investigate its effectiveness.

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Hand Washing Practices of Elementary Pupils in Binuangan Elementary School - Oroquieta City

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Abstract

The study aimed to determine the hand washing practices of elementary pupils in Binuangan Elementary School, Oroquieta City in relation to the standard prescribed by the Department of Health (DOH). Respondents used in this study include ninety-six (96) pupils, mostly females, currently enrolled in the S.Y. 2013-2014. The findings revealed that of the eleven steps in hand washing, four are observed by the pupils based on the standard of hand washing procedure while 3 are not practiced at all. Health teaching program is recommended to be designed by the school administration to improve students awareness and see the importance of handwashing.

1. Introduction

Hand washing is an act of washing one's hands to eliminate the dirt present with the application of soap or detergent to eliminate the spread of bacteria that may harm one's body. According to the World Health Organization (WHO) hand washing with soap and water is an important barrier to many infectious diseases and promotes better health and well-being. Hand washing is one of the most practical and effective ways of preventing the spread of diseases.

Today, many children failed to wash their hands at all times, even before and after they eat. Failure to wash expose these children to bacterial and viral infection. Diseases which are believed to be brought about by preventable infections make children die at young age or incur absences in the class. These diseases include pneumonia and diarrhea (Pittet, 2005). It was found out in the work of Rabie and Curtis (2006) that hand washing is associated with lower risk of respiratory infections. These diseases can be prevented through

proper hand washing which will make pupils reduce the absences in the classroom (Inge, 2009). With this, a school policy regarding hand hygiene and teaching of hand hygiene must be warranted. Such policy may serve as the framework for integrating in the curriculum lessons on handwashing practices for pupils to observe inside and outside school.

With all things mentioned in preceeding paragraphs, this study is conducted to assess the hand washing practices of elementary pupils in Binuagan Elementary School (BES), Oroquieta City using the hand washing standard set by the DOH. Results of this study is seen to contribute to improve the health status of the pupils. This would also give feedback to teachers and administration as to the success of implementation of the educational campaign on the need to wash hands especially among the kids in school and in the community. Given research-based information, teachers and administrators may be guided in the formulation of safety measures to address such concern. When properly educated, pupils will be able to live a healthy life making their parents spend less money for medical care. Information needed for this papers is gathered solely from elementary pupils of Binuangan Elementary School, Oroquieta City Misamis Occidental who are currently enrolled in the school year 2013-2014 through a researcher-made checklist designed by the researcher for the study.

2. Method

The study used the descriptive design of research as it only describes the hand washing practices of the elementary pupils under the study, which was conducted at Binuangan Oroquieta City, Misamis Occidental, specifically in Binuangan Elementary School where the elementary pupils were visited, observed, and assessed. This study employed the ninety-six elementary pupils, composed of 39 males and 57 females. They were told to wash hands three times in different occasions where the researcher observed their handwashing practices, record observation on the checklist which

contains the standard procedures set by the Department of Health (DOH).

Frequency is used to present the study's data considered for interpretation.

This study uses frequency percentage to present the hand washing practices of elementary pupils of Binuangan Elementary School in Oroquieta City. To come up with the average handwashing practices of pupils per grade level, the following scoring range was adapted:

Range	Verbal Equivalent
2.00-3.0	Practiced
1.0-1.99	Less Practiced
0.99-0	Not practiced

3. Results and Discussion

Department of Health (DOH) (2009) states that hand washing must be in accordance with the standard and procedures that would take 40-60 seconds. In particular orders here are the sequence; first wet hands with water, second apply enough soap to cover all hand surfaces, third rub hands palm to palm. Fourth rub right palm over left dorsum with interfaced fingers and vice versa. Fifth rub palm to palm with fingers interlaced. Sixth rub back of fingers to opposing palms with fingers interlocked. Seventh rotational rubbing of left thumb clasped in right palm and vice versa. Eighth rotational rubbing, backward and forward with clasped fingers of right hand in left palm and vice versa. Ninth clasped fingers of right hand in left palm and vice versa. Tenth dry hands thoroughly. Lastly use towel to turn off the faucet. All these, give premise to this study.

Table 1 shows the respondents profile in term of grade level.

Table 1
Respondents' Hand washing Practices

Standard Hand Washing Procedure	Practiced	%
1. Wet hands with water.	96	100
2. Apply enough soap to cover all hand surfaces	96	100
3. Rub hands palm to palm.	94	98
4. Rub right palm over left dorsum with interfaced fingers and vice versa.	59	61
5. Rub palm to palm with fingers interlaced	22	28
6. Rub back of fingers to opposing palms with fingers interlocked.	0	0
7. Rotational rubbing of left thumb clasped in right palm and vice versa.	0	0
8. Rotational rubbing, backward and forward with clasped fingers of right hand in left palm and vice versa	2	2
9. Rinse hands with water.	96	100
10. Dry hands thoroughly with a single use towel.	16	16.67
11. Use towel to turn off the faucet	0	0

As revealed in Table 1, the hand washing procedures set by the Department of Health (DOH) that were observed by the majority of the respondents were only wetting of hands, applying soap, rubbing of palm to palm, and rinsing of hands in water. Specifically, out of 11 steps in the handwashing standards, only 4 were practiced by almost all respondents. The results imply that pupils in the school where the study is conducted are not aware of the standard handwashing procedure set by the DOH. Pupils might have been taught the proper way to wash hands, however, as observed, the school does not have designated washing area for pupils and have insufficient water supply. These might have attributed to the results depicted in the table. As shown, rubbing and back of fingers to opposing palms with interlocking fingers, rotational rubbing of

left and right thumb clasped in the palms, and using towel to turn off the faucet are not practised by the respondents when they wash their hands. These imply that students might have soaped and rinsed their hands, contamination by bacteria and or virus is still possible. Because of this, pupils might be put at risk by catching bacterial and or viral infection.

4. Summary of Findings, Conclusion, and Recommendation

As observed by the researcher, elementary pupils in Binuangan Elementary School-Oroquieta City practiced only 4 out of 11 steps in standard handwashing procedures set by the DOH. These practiced procedures only include the wetting of hands, applying soap, rubbing of palm to palm, and rinsing of hands in water. Meanwhile, of the 11 steps three were not practised by all respondents which include rubbing and back of fingers to opposing palms with interlocking fingers, rotational rubbing of left and right thumb clasped in the palms, and using towel to turn off the faucet.

Based on the findings of the study, it can be drawn that pupils of Binuangan Elementary School-Oroquieta City are not aware and did not observe the proper procedure of handwashing prescribed by the Department of Health. With their insufficient handwashing, pupils are prone to bacterial and or viral infection. Health teaching program including handwashing demonstration should be facilitated in by the school administration which may benefit both pupils and parents. Teacher should also facilitate in developing the habit of proper hand washing among their respective advisory class.

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Food Handling Services of the Restaurants at Las Aguadas Street: Basis for an Extension Program

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Abstract

This descriptive research type of study aims to find out the food handling services of the operators of the fast food restaurants at Las Aguada Street in terms of Food Handling Practices, Food Storing Practices and Personal Hygiene. The respondents were limited only to the nine most visited fast food restaurants by students, young professionals and workers of the establishments near Las Aguadas Street in Ozamiz City. Data was gathered through the use of questionnaire substantiated with information acquired through interview. Weighted mean was used to describe the food handling services of the operators. The data reveals that majority of the food handlers of the fast food operators at Las Aguadas Street properly observe 7 out of 11 food handling practices and 7 out of 14 food storing practices . It was found out that food handlers properly observed 4 out of 14 indicators measuring personal hygiene. The researchers conclude that food handlers may not be aware of the standards of food handling and storing as well as personal hygiene.

1. Introduction

Preparing food that is safe for consumption is everybody's responsibility that often requires the individual to be extra careful when preparing and handling food either at home, in schools and even in public places. It involves one's discipline in handling and storing of food in ways that prevent food borne diseases. When one has to engage in selling fresh produce products such as vegetables, fruits, meat and even food stuffs which are ready-to-eat, one should always bear in mind that safety and precaution must not be taken for granted to avoid complaints from customers.

In today's trend of operating a business, customer satisfaction has become a key performance indicator for restaurants and other forms business establishments. Customer service is not

just all about customer relations or how good and polite frontline workers are to clients, rather delighting and satisfying customers are the goal of excellent customer service. Customer's demand and expectations are never ending and ever increasing and changing at a rapid rate. They expect value, high quality and low costs of all types of services that they want to enjoy or purchase from business entities in order to satisfy their needs and wants (Staubach, 2010).

It is very important for business operators to understand, recognize and anticipate clients' needs and wants so that their clients will be satisfied with what the business operators have to offer them. Moreover, customer satisfaction is considered a concrete reflection of how well an enterprise is functioning hence the need to deliver quality customer service. Nash in Brown, (2011) opined that entrepreneurs who are quick in responding to their clients' needs and wants make more profits than those who failed to do so. Since customer vary in their likes and dislikes for services rendered by business operators, therefore, customer service strategies must also be tailored to the chosen clientele. This is the very reason why successful companies place customer satisfaction at the top of their list of priorities (Buckler, 2010).

One of the services that clients seek is quality delivery of services from the restaurants and other food outlets where they dine in. Often, those who love to eat in fast food restaurants want good food at affordable costs. This pertains to the variety of food served, well-balanced and nutritious meal at a reasonable price. In this context, providing proper and high quality food handling services can create customers' confidence, commitment and increase loyalty that could assure the high possibility of clients to keep coming back to these restaurants knowing that foods offered are safe. Lum (2010) postulated that to keep away from high risk of food contamination, food handlers must prepare and handle food correctly to ensure its safety. Food naturally contains bacteria and some may contain food poisoning that is why it is very important to separate raw food from cooked or ready-to-eat foods.

Results from the focus group study conducted by Green and Selman (2010) on Food Workers' Food Preparation Practices,

disclosed that some food handlers are practicing unsafe food handling and failed to observe personal hygiene like, not wearing and changing gloves after one food preparation activity, touching their hair and other parts of the body that could possibly carry bacteria and transmit it to the food. Furthermore, hand washing is only done when workers are not busy and in restaurants that provide training to their food handlers.

Food can transmit diseases from one person to another hence the need to strictly follow the correct way of storing food in containers and places where it should be stored and observed the accurate temperature needed in storing foods to prevent food borne illnesses and potentially severe health hazards (Green, et.al, 2010).

Findings and ideas presented by the different authors prompted the researchers to conduct this study. So much so that the researchers have observed that a lot of students, and even the young professionals and workers from the different business establishments flock at the fast food restaurants that operate in Las Aguadas Street, Ozamiz City. This study would like to determine the food handling services operators are practicing as they render serve their clients. Specifically, the study aimed at presenting the food handling, storing and personal hygiene of the food handlers as assessed by the operators. The results of this study will be used as basis for an extension program to improve the areas that need to be addressed to.

The results of this study will be beneficial to the business operators of the fast food restaurants giving them baseline information to improve the level of their food handling services. Further, with the information, the School of Tourism and Hospitality Management will be given idea as to what Community Extension Program may be designed to help the operators improve their food handling services. When services are improved, customers will ultimately become favored as they will be served with clean and healthy food. Data used in this study is based only from the nine business operators of the most visited fast food restaurants that operate in Las Aguadas Street, Ozamiz City.

2. Method

The study used the descriptive research method as it presents the food handling services of the respondents. A survey questionnaire adapted from Oliver, (2013) was used to gather data which was subjected to reliability test. Purposive sampling was used in choosing the respondents. The responses and the results of the interview conducted were were collated and are presented using weighted mean. For presentation of the level of their food handling services, the scoring guide below was used.

Scores	Verbal Interpretation
4.20 – 5.00	Excellent
3.40 - 4.19	Very Satisfactory
2.60 – 3.39	Satisfactory
1.80 – 2.59	Fair
1.00 – 1.79	Poor

3. Results and Discussion

Food handling services of operators in this study, is measured in terms of food and handling and storing practices and the personal hygiene of the food handlers. The food handlers may include operators themselves if they personally handling and operating at the same time and their fast food helps. Table 1 presents the food handling practices of the most visited fast foods.

Table 1
Food Handling Practices

FOOD HANDLING PRACTICES	Weighted Mean	Verbal Description
1. The water that will be used for washing the ingredients is clean.	5.0	Excellent
2. All ingredients must be washed before using it.	5.0	Excellent
3. Changes water for washing for the next set of ingredients to be washed.	4.89	Excellent
4. Discard any damaged foods prior to selling	4.89	Excellent

5.	Always clean the display area of the foods to prevent contamination	4.78	Excellent
6.	Segregate ingredients fit for consumption from those that are not fit for consumption	4.56	Excellent
7.	Carefully check the packaging materials in order to prevent ingredients from any bruises and damages.	4.22	Excellent
8.	Carefully handle the newly cooked foods to prevent any contamination	4.11	Very Satisfactory
9.	Keep water temperature low to ensure better quality of ingredients	4.0	Very Satisfactory
10.	Follow the good sanitation practices, both inside and outside of the facility.	3.89	Very Satisfactory
	Overall Mean	4.40	Excellent

With an overall mean of 4.40, handling practices of food handlers as assessed by operators is excellent. As depicted in Table 1, operators claimed that they are excellent in making sure that water used in preparing food is clean and that ingredients are washed before they are cooked. Further, the table reveals that food handlers exert effort in preventing contamination by changing water from time to time as another set of ingredients will be washed, discard spoiled food before selling, carefully handling newly cooked and by always cleaning the display area. Further, operators asserted that they display newly cooked food instead of displaying old stocks.

Food storing practices of food handlers are presented in Table 2.

Table 2
Food Storing Practices

FOOD STORING PRACTICES		Weighted Verbal	Verbal Description
1.	Separate vegetables with any hazardous material such as chemicals	4.89	Excellent
2.	Keep the storage area clean, dry and free of trash, pests and other animals.	4.22	Excellent

3. Provide any storage areas that could maintain the quality the vegetables.	4.22	Excellent
4. Maintain the cleanliness of the storage sites to reduce microbial activity.	4.22	Excellent
5. Store vegetables in clean and dry areas and free from contamination	4.22	Excellent
6. Maintain the cleanliness of the storage areas for vegetables	4.22	Excellent
7. Observe FI-FO (First In – First Out) Method in using ingredients	4.22	Excellent
8. Ensure protective packaging material to prevent it from any rodents.	4.22	Excellent
9. Have an adequate number of drains that are properly distributed throughout the facility	4.11	Very Satisfactory
10. Ensure that the storage of product maintains quality and reduces microbial contamination.	3.89	Very Satisfactory
11. Do not directly place vegetables on the floor to prevent microbiological and physical contamination.	3.89	Very Satisfactory
12. Keep containers and boxes off the floor	3.89	Very Satisfactory
13. Allocate enough space in between containers and wall for air circulation and ease access for cleaning and pest inspections	3.78	Very Satisfactory
14. Always monitor the proper storage temperature for the vegetables.	3.33	Satisfactory
Overall Mean	**4.05**	**Very Satisfactory**

The overall mean rating of 4.05 signifies that food storing practices of food handlers as assessed by fast food operators is very satisfactory. They claimed that vegetables are separated from other ingredients and are kept away from hazardous chemicals and ingredients are stored in a clean and dry storage free from contamination to reduce microbial activity. They said that maintenance of first in, first out method in using ingredients is

observed. However, they operators shared that they cannot always monitor the proper storage temperature of the vegetables, keeping storages off the floor, allocating space in between for air circulation and cleaning purposes to free ingredients from microbiological and physical contamination. Bruhn et al. in Lum, (2010) reported that about half of the food handlers in California and Illinois erroneously thought cooling foods at room temperature was safe. This simply gives one an idea that since vegetables and raw food have different levels of storing temperature, then there is a need for food handlers to observe strictly and follow the storage temperature required for vegetables and raw foods to prevent it from being contaminated with harmful bacteria that could endanger the health of the customers due to bacteria that causes food borne diseases.

Table 3 indicates the result of the study of the personal hygiene of the food handlers of the fast food restaurants operating at Las Aguadas Street.

Table 3
Personal Hygiene of Food Handlers

PERSONAL HYGIENE	Weighted Mean	Verbal Description
1. Nails must be properly trimmed because untrimmed nails are potential sources of contamination	4.89	Excellent
2. Hand washing is properly and always observed by food handlers before and after having a contact with unsterile objects.	4.56	Excellent
3. Work clothes that include a kitchen uniform and an apron must be worn inside the kitchen.	4.33	Excellent
4. Neat haircuts and shaving of facial hairs is a must as hairs are sources of contamination.	4.33	Excellent
5. Smoking and eating inside the food establishment is strictly prohibited	4.00	Very Satisfactory
6. Use close footwear exclusively for kitchen use.	3.78	Very Satisfactory

7. Wearing of jewelry is prohibited at all times.	3.44	Very Satisfactory
8. Wearing of Nail Polish/ False/ Artificial Fingernails is not allowed at all times among food handlers	3.56	Very Satisfactory
9. Wear Facial masks at all times to prevent direct contact of the hands with the nose and mouth that are sources of confirmation.	3.44	Very Satisfactory
10. It is a must to wear hair restraint to prevent hair from falling into the food.	3.11	Satisfactory
11. Gloves must be worn at all times that acts as a barrier between hands and food to prevent contamination.	3.00	Satisfactory
12. It is a must to take a bath daily as it ensure cleanliness.	3.00	Satisfactory
Overall Mean	**4.10**	**Very Satisfactory**

The overall rating of 4.10 as shown in Table 3 depicts that personal hygiene of food handlers as assessed by the fast food operators is very satisfactory. This may mean that handlers satisfactorily observe proper hygiene and sanitation while serving customers in their respective restaurant. Food handlers are seen by their operators coming to work with their nails trimmed and hair cut and facial hair shaved. They are also observed wearing apron while in the kitchen and wash hands regularly as they are exposed to unsterilized objects. However, results showed that not all food handlers wear hair restraint and gloves as they are only rated satisfactory. Further, it was also noted that food handlers may be allowed to come on duty without taking a bath as this personal hygiene indicator is assessed to be only satisfactory by the respondents.

Green et al. (2006) revealed that hand washing, sanitizing and wearing of gloves is recommended to all food handlers for the very reason that they actually engaged in about eight activities per hour every day and that it includes not only food preparation but go beyond handling dirty machines, tools and equipment. Furthermore,

Centers for Disease Control and Prevention (CDCP) (in Lum, 2010), reiterated the importance of hand washing before, during and after food preparation so that harmful bacteria can not spread out into the foods.

Proposed Community Extension Program

The findings of the study as presented in Tables 1-3 suggest that there are still some practices done by food handlers that need improvement. A need to be properly educated regarding food preparation and storing as well observance of personal hygiene is shown in the results. Based on expertise, the researchers proposed an a Community Extension Program to be spearheaded by the faculty members of the School of Tourism and Hospitality Management. This program shall focus on conducting orientation and training of the vendors about handling and storing practices, providing help in monitoring on the proper implementation of food handling and storing standards, and in giving seminar-workshops on personal hygiene and sanitation.

Intervention Program 1: OPLAN MATUTO

Objectives	1) To provide participants the knowledge about importance of properly observing the standards in food handling and storing specifically on rules for safe food preparation and keys to safer food. 2) To provide participants information on the importance of observing personal hygiene and sanitation and how to improve their grooming. 3) To strengthen their skills in terms of handling and storing practices of perishable food item through actual application.
Time Table	Twice a year
Activity	Seminar-workshop will be conducted at the STHM Banquet Hall, La Salle University, Ozamiz City
Resource Person	STHM Department
Persons Involved/ Participants	Las Aguada Fast Food Operators

Intervention Program 2: OPLAN SAGIP PAGKAIN

Objectives	1) To assure safety of the food items and the customers 2) To ensure that the food items they serve are safe for human consumption 3) To maintain the cleanliness of the working area of stall vendors and *carinderias* 4) To ensure vendors are free from infectious diseases 5) To check and monitor acquisition of vendors' sanitary permits and health certificates
Time Table	Every 6 months
Activity	Individual checking and monitoring of LSU street vendors stalls and *carinderias* in La Salle Street, Ozamiz City
Person Responsible	STHM Faculty with Las Aguada Brgy Council and Department of Health

4. Summary of Findings, Conclusion and Recommendation

The data reveals that majority of the food handlers of the fast food operators at Las Aguadas Street properly observe 7 out of 11 food handling practices and 7 out of 14 food storing practices . It was found out that food handlers properly observed 4 out of 14 indicators measuring personal hygiene.

The researchers conclude that food handlers may not be aware of the standards of food handling and storing as well as personal hygiene. Thus, it is recommended that these food handlers be subjected to attend seminar workshops to address their food handling and storing practices. Further, there is also a need for operators to be given information regarding personal hygiene. May the STHM department be able to link with the Brgy. Council and Department of Health and implement the designed Community Extension Program.

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Nurses' Perception on the use of Physical Restraints among Elderly Patients

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Abstract

This study aimed to identify the nurses' perception on the use of physical restraints. The study evaluated the perception of the nurses in three of the largest private hospitals in Ozamiz City utilizing the modified Perception on Restraints Use Questionnaire (PRUQ). This study utilized a descriptive type of research as it described the perception of nurses regarding the use of physical restraints. It was found that nurses consider the use of physical restraints as most important in ensuring client's safety and adherence to treatment. The study found out that nurses perceived physical restraints use as not at all important in preventing an older patient from getting things from others. Based on the findings, it was highly recommended that a nurse must follow institutional protocols in applying physical restraints and that this study may serve as a primer in providing awareness regarding physical restraints.

1. Introduction

Aging, as defined by Tortora and Derrickson in 2011, is a normal process accompanied by a progressive alteration of the body's homeostatic adaptive responses. It produces observable changes in structure and function and increases vulnerability to environmental stress and diseases. They often have very poor regenerative abilities and more prone to diseases and sickness compared to younger populations. It is associated to biological aging or senescence, which implies gradual deterioration of function characteristics of most complex life forms. It is where nursing care is done with utmost caution. Since nursing involves care of patients across the life span, care of elderly seems to be one of the most

critical. According to Abraham Maslow, the elderly are often in the stage of self-actualization, but this stage cannot be possibly met if they are unsafe. To fully protect them, this may involve necessary restrictions of activity to limit the risk for further complications and injury. Physical restraint is one of the commonly used materials to provide effective care among elderly. Its use has been practiced along with the belief that it would promote client safety. Furthermore, Filipinos are known for their exceptionally strong respect for their elders, thus, applying physical restraints may be perceived as form of disrespect.

This study is conducted to identify the nurses' perception on the use of physical restraints among elderly clients. These perceptions may affect their way of rendering holistic care to the elderly. Aside from that, several cases were noted involving registered nurses facing legal, ethical and moral dilemma. They struggle with conflicts stemming from patients' rights of freedom, feelings of obligation to protect clients and pressure to use restraints. According to a study conducted by Canadian researcher, elderly abuse is a growing social concern but is no longer new.

In the Philippine setting, uses of physical restraints are often associated with negative perceptions. High-level-need clients and short staffing can increase the chances for error, but nurses can minimize their liability by focusing on risk management which is very common in the Philippines. This leads nurses to resort on the use of physical restraints.

Restraints, as defined by Mosby (2002), are physical, chemical or environmental measures used to control the physical or behavioral activity of a person or a portion of his/her body. Physical restraints may be defined as any device, material or equipment attached to or near a person's body and which cannot be controlled or easily removed by the person, and which deliberately prevents or is intended to prevent a person's free body movement to a position of choice and/ or a person's normal access to their body, according to Australian Society for Geriatric Medicine, 2012. On the other hand, no client may be kept in restraints against his or

her will unless the client's behavior indicates the existence of safety issues (Black and Hawks, 2005). Documentation is an important component of applying restraints to provide tangible data on the performed procedure. Along with it, proper education for significant others, such as, family members and caregivers of clients is a protocol. Meanwhile, elderly care commonly involves the use of physical restraints. According to Black and Hawks, older adults are more likely to suffer from multiple chronic and disabling illnesses associated with physical deterioration.

Alvarez, et.al., 2009 conducted a study that evaluated the registered nurses and nursing attendants perception on the use of physical restraints. It was found out that the staff members had a neutral perception of physical restraints use with a small difference between the scores of RN (2.6) and NA (3.0), where, the overall Perceptions on Restraints Use Questionnaire score for the sample was 2.8. Restraint use has come under harsh scrutiny from both federal regulatory agencies and accrediting agencies because of evidence regarding the hazards of restraint use.

Nurses have to abide with the regulations of the institution in order to avoid legal misconduct regarding the use of physical restraints. Moreover, Ligget, N.L. (2008) stated that a hospital's decision to use restraints on patient is a difficult one, involving complex issues which can pose a significant risk to the hospital. It may be sued due to negligence for not taking adequate precautions to protect impaired, elderly, incapacitated or unstable patients.

This study intended to determine the nurses' perception on the use of restraints among elderly patients. Specifically, it sought to present nurses' perceptions on the use of physical restraints among elderly patients, find out the most important reason for applying physical restraints as perceived by the nurses and explore alternative measures suggested by the nurses which could be used instead of physical restraints.

This study thrusts to determine the nurses' perception on the

use of physical restraints among elderly patients, it was also carried out hoping that it would benefit the following:

Staff Nurses. This study would be beneficial to all staff nurses especially those who were assigned in the care of elderly, as it opens various perceptions on restraints use and aid them in identifying new alternatives rather than restraining the patient.

Hospital / College of Nursing Administrators. It will serve as prime literature to administrators in disseminating further awareness regarding the use of physical restraints.

To Future Researchers. The study will serve as a related literature for those who may be interested to explore a similar study with varied variables.

The study focused on the nurses' perception on the use of physical restraints among elderly patients. It is limited to the perceptions of nurses assigned in Misamis University Medical Center, Medina General Hospital and Faith Hospital in Ozamiz City. This study was conducted from October 2013 to February 2014.

2. Method

This study utilized descriptive research design as it aimed to identify the nurses' perception on the use of physical restraints. It also aimed to identify alternatives in providing clients' safety other than applying physical restraints, thus, preventing any legal charges/ obligations against nurses. This study was conducted in major private hospitals in Ozamiz City namely; Faith Hospital, Medina General Hospital and Misamis University Medical Center. Faith Hospital is a privately owned secondary hospital situated in Brgy. Aguada. Meanwhile, Medina General Hospital and Misamis University Medical Center are both tertiary hospitals located in Brgy. Carmen Annex and Brgy. Bagakay, respectively.

This study took 48 nurses as research respondents (Faith Hospital= 16; Medina General Hospital=16; Misamis University Medical Center= 16). These nurses have worked in the area for more than 2 months, assigned in the medical-surgical area and generally cared for adults more than 65 years of age.

Prior to actual data gathering, permission letters to conduct the study were forwarded to hospital directors. Upon approval, data were collected through the distribution of the modified Perceptions of Restraint Use Questionnaire (PRUQ). The tool was revised and tested for reliability. The questionnaire was 82.8% reliable. Each tool consists of 17-item questions with a three- point Likert response scale. A score of three (3) is interpreted verbally as the most important reason for using restraints. While scores two (2) and one(1) are interpreted as somewhat important and not at all important, respectively.

For the analysis and interpretation of data, weighted mean was utilized to identify the nurses' perception on the use of physical restraints among elderly patients.

3. Results and Discussion

Nurses' Perception on the Use of Physical Restraints

Table 1 below reflects the nurses' perception on the use of physical restraints from various institutions. It also depicted the highest number of responses which they perceived as the most important. Thus, the lowest response score would imply as not at all important.

Table 1
The nurses' perception on the use of physical restraints

Indicator	Nurses' Perception						Grand Mean	VI
Perception	Hos-pital A	VI	Hospi-tal B	VI	Hospi-tal C	VI		
Protecting an older person from falling out of bed	2.81	Most im-portant	2.80	Most impotant	2.79	Most Im-portant	**2.81**	**Most impor-tant**
Prevent-ing an older person from pulling out a feeding tube	2.81	Most im-portant	2.80	Most im-portant	2.85	Most im-portant	**2.81**	**Most impor-tant**
Protecting staff or oth-er patients from physi-cal abusive-ness/ com-bativeness	2.81	Most im-portant	2.80	Most im-portant	2.85	Most im-portant	**2.81**	**Most impor-tant**
Prevent-ing an older person from pulling out a catheter	2.75	Most im-portant	2.73	Most im-portant	2.78	Most im-portant	**2.75**	**Most impor-tant**
Providing for safety when judg-ment is im-paired	2.75	Most im-portant	2.73	Most im-portant	2.78	Most im-portant	**2.75**	**Most impor-tant**
Prevent-ing an older person from pulling out an IV	2.69	Mosr im-portant	2.67	Most im-portant	2.71	Most im-portant	**2.69**	**Most impor-tant**
Prevent-ing an older person from removing a dressing	2.50	Most im-portant	2.47	Most im-portant	2.50	Most im-portant	**2.63**	**Most impor-tant**

Preventing an older person from breaking open sutures	2.63	Most important	2.60	Most important	2.64	Most important	**2.63**	**Most important**
Preventing an older person from getting into dangerous	2.56	Most important	2.54	Most important	2.51	Most important	**2.56**	**Most Important**
Managing agitation	2.56	Most important	2.54	Most important	2.57	Most important	**2.56**	**Most Important**
Preventing an older person from wandering	2.19	Somewhat Important	2.14	Somewhat Important	2.21	Somewhat Important	**2.19**	**Somewhat Important**
Providing quiet time or rest for an overactive older person	2.19	Somewhat Important	2.20	Somewhat Important	2.37	Most Important	**2.19**	**Somewhat Important**
Substituting for staff observation	2.13	Somewhat Important	2.20	Somewhat Important	2.21	Somewhat Important	**2.13**	**Somewhat Important**
Keeping a confused older person from bothering others	1.94	Somewhat Important	1.93	Somewhat Important	1,99	Somewhat Important	**1.94**	**Somewhat Important**

Prevent-ing an older person from taking things from others	1.88	Some-what Important	1.87	Some-what Impor-tant	1.99	Some-what Impor-tant	**1.88**	**Some-what Impor-tant**

Legend: 2.35 – 3.00 (Most Important);1.67 – 2.34 (Somewhat Important);1.00 – 1.66 (Not at all Important)

Table 2 shows the close deviation among the response of nurses from the different private hospitals in Ozamiz City. Hospital A, depicts the Faith Hospital nurses' (n=16) perception on the use of physical restraints. It manifests that their responses do not noticeably vary. They perceived that restraints were only somewhat important in preventing older person from wandering, taking things from others and keeping them from bothering others in the area. They do not find much importance in terms of providing sufficient time to rest for an overactive older. Meanwhile, Medina General Hospital nurses (n=16) believed that restraints were very important in preventing an elderly from getting into dangerous places or supplies as reflected in Hospital B. Physical restraints are also very important in preventing an older person from pulling out a catheter, a feeding tube, an intravenous device and from removing a dressing to maintain asepsis of open body surfaces. It is perceive as most important in ensuring safety especially to those elderly whose judgment was impaired and restraints would protect caregivers from physical abusiveness or combativeness. Lastly, Hospital C shows the nurses in Misamis University Medical Center perceptions' on the use of physical restraints among elderly clients. They believed that restraints were most important in preventing an older person from falling out of bed and chair, against unsafe ambulation and from getting into dangerous places or supplies. Furthermore, physical restraints are most important in preventing an older person from breaking open sutures, removing a dressing and managing agitations.

Further, it depicts the most important use of restraints as perceived by the private hospital nurses in Ozamiz City (n=48). It was found that restraining was most important in preventing an

older person from falling out from bed, pulling out feeding tube and protecting immediate caregivers from physical abusiveness and combativeness. According to the study of McCabe (2010) hospital nursing staff uses restraints so as to prevent patients from pulling out the feeding tube. Meanwhile, nurses believed that restraining an older person in order to prevent them from getting things from others was the least important reason for applying restraints. The findings contradicted the study of McCabe (2010) as it suggests that restraints were least likely substituting staff observations.

According to the Journal of Medical Ethics in 2006, the use of physical restraints to older people is highly associated to various physical risks such as bruises, decubitus ulcerations, respiratory complications, malnourishment, increased dependence in activities of daily living, impaired muscle strength and balance, decreased cardiovascular endurance, increased agitation and may eventually increase the risk for mortality. Further, these risks may not always be directly attributed to the physical restraint itself but more usually to the older person's physical and mental condition. Thus, the nurse's perception does not directly affect the risks of applying restraints to older people. However, most nurses had negative reactions or feelings towards the use of physical restraints, such as feeling of sadness, guilt, conflicts, retribution, security and pity for the restrained older people.

Alternative Measures Used Instead of Physical Restraints

Only 12 among 48 respondents stipulate their proposed alternative measures in providing nursing care without the use of physical restraints. Other nurses, however, cited that it is a must to provide a 24-hour watcher to elderly clients to ensure safety and provide necessary assistance. They have also emphasize the need for effective health teaching, giving clear explanations and building rapport with clients will aid in the protection of the elderly.

4. Summary of Findings, Conclusion and Recommendations

This study aimed to identify the nurses' perception on the use of physical restraints, after a series of data gathering, it was found out that:

a) The nurses responses on the items presented in the modified Perceptions on Restraints Use Questionnaire do not considerably vary. They perceived that restraints were most important in protecting an older person from falling out in bed, preventing an older person from pulling out catheter and feeding tube, also, it was most important in providing safety when judgment is impaired and protecting immediate caregivers from physical abusiveness and combativeness.

b) The use of restraints was somewhat important in:
>Protecting an older person from falling out of chair
>Protecting an older person from unsafe ambulation
>Preventing an older person from wandering
>Preventing an older person from getting into dangerous
    supplies and areas
>Preventing an older person from pulling out an IV, break
    ing open sutures and removing a dressing
>Providing quality time to rest
>Substituting for staff observation
>Managing agitation

c) The nurses perceived that the use of physical restraints were not at all important in preventing an older person from taking things from others.

After analyzing the gathered data, the researcher concluded that nurse generally find the use of restraints as important and a logical part of nursing care despite the fact that there has been lack of evidence regarding the benefits of using restraints and lots of evidences of its adverse effects. Restraints use were not at all important in preventing an older person from getting things from others.

Based on the outcome of this present research, the following points were recommended.

1. The use of physical restraints be applied with strict adherence to institutionally formulated standardized guidelines and usage policies. In this regard, hospital administrators must formulate concise policies and guidelines on the use of restraints.

2. Nurses may know their limitations in applying restraints and ensure that this is the last resort in ensuring clients' safety and adherence to treatment.

3. In order to avoid legal liabilities regarding the use of restraints, nurses may act as an advocate and promoting clients' autonomy by educating them and their significant others regarding the importance of applying restraints and lastly, secure consent to care.

4. Further research be undertaken to identify other means in promoting clients' safety other than applying restraints in order to prevent its undesirable effects. This study also may serve as a basis in conducting primer study in the use of physical restraints.

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A Tracer Study of La Salle University College of Engineering Graduates

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Abstract

This study discusses the results of the tracer study of the College of Engineering and Architecture graduates of La Salle University who graduated between 2009 and 2013. The main objective of this tracer study is to examine the changes in the career pattern of the graduates in order to provide a basis of evaluation of the College of Engineering and Architecture program of La Salle University.

1. Introduction

Institutions involved in developing human resources through long and short term programs have the duty to keep track of the performance of their graduates to determine accountability and whether or not their programs have impacted on the individual, the institution, or the country. Tracer study constitutes one form of empirical study which provides valuable information for evaluating the results of the education and training of a specific institution of higher education. This information may be used for further development of the institution in the context of quality assurance (Schomburg 2003). A tracer study enables the institution of higher education to get information on possible deficits in a given educational programme which can serve as a basis for curricular improvement.

Graduate surveys provide rich experience about the whereabouts of graduates, which might help to broaden perspectives among administrators, faculty and students. Such information like the income, economic sector, current job title, working time, duration of search for the first job, methods of job search, values develop and practice in work, skills acquired are relevant for higher education institutions to note.

One fundamental problem of education and training is that they must be geared to the current and future needs of societies undergoing social and economic change. Education and training cannot be planned to static specifications, but rather must be planned flexibly within the dynamic process. It is, and must always remain capable of change. It must also be ensured that the specific circumstances of the country in question are taken into account, such that education and training are made effective and efficient, in order to make the best possible use of scarce resources (Schomburg 2003).

La Salle University (LSU) formerly Immaculate Conception College- La Salle continues to raise its educational standards to produce graduates who are highly competent, efficient and competitive in the labor market. Efforts have been exerted to provide the students with quality education like providing facilities and instructional materials as well as improving learning experiences and environment to ensure that its graduates acquire the standard competencies that will prepare them to meet the challenges in their chosen profession. (Colarte, 2007). The B.S. Engineering now on its 19th year of operation. After a decade of offering the program, it already has produced batches of graduates. Up until 2013, no tracer study on the engineering graduates was done. Hence this tracer study is undertaken. The researchers undertake this study to determine whether the graduates have achieved the goals to acquire appropriate skills, equipped with the knowledge and right attitudes necessary for engineering practice to be locally and globally competitive and whether it has effectively carried out the vision and mission of the school.

According to Schomburg (2003), graduate and employer surveys constitute one form of empirical study which can provide valuable information for evaluating the results of the education and training of a specific institution of higher education. This information may be used for further development of the institution in the context of quality assurance. In addition Schomburg (2003) cited that a tracer study sometimes also called as "alumni survey" or "follow-up survey" should enable the institution of higher education to get information to indicate possible deficits in a given educational

programme and to serve as a basis for future planning activities. Information on the professional success (career, status, income) of the graduates are needed as well as information on the relevance of knowledge and skills (relationship between knowledge and skills and work requirements, area of employment, professional position). More so, consequences of university expansion can be determined with respect to the relationship between higher education and work through tracer studies (Teichler, 1981).
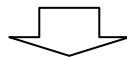
On the other hand, Holtkamp and Teichler, (1983) study conducted concerning the status of graduate surveys for the re-structuring of study programs. These were to identify possible means in order to refer from the professional activities of the graduates to the requirements and potentials of teaching and study programmes. Another importance of tracer study is that it aids to examine the changes in the career pattern of the graduates in order to provide a basis of evaluation of the current programmes and it provides a continuation of the process of evaluation of the performance of the University. A study of Dato' Seri Mohamed Khaled bin Nordin and Menteri Pengajian Tinggi (2006) cited that Graduate Tracer Study has proven to be an effective method in getting accurate and quick inputs for the purpose of ensuring the human capital produced by higher education institutions are at all times relevant and be able to meet the ever changing demand of job market.

This present study is anchored on the theory of evaluation and the teaching effectiveness model. Wolf and Gowin (1980) asserted that the standards for delivering the worth of a program are set by the program's intent. These intents or objectives are measured by its outcomes, establish the criteria for rendering judgement. Gronlund (1981) supports this theory when he stated that the main purpose of evaluation is to determine to what extent the instructional objectives are achieved by the students. Gines (1998) cited that evaluation is the systematic process involving collection and analysis of data in order to make decisions. Leveriza (1990) cited that evaluation is a management responsibility. It is a managerial responsibility designed to maximize the use of the organization's resources in the attainment of its planned goals.

Chen (1996) cited his typology of basic types of evaluation distinguishes between two broad elements: the function(s) performed by an evaluation and the programme stage focused upon. What is immediately apparent from this fourfold typology is that it neither limits process evaluation to issues of programme improvement, nor restricts outcome evaluation to focusing purely on assessing the merit or overall effectiveness of a programme.

In describing process-improvement evaluation he recognizes that evaluation information can be used for either instrumental or conceptual purposes. The former applies when the aim of an evaluation is to detect strengths and weaknesses in programme processes, with a view to making recommendations for altering the structure, or adjusting the implementation, of the program.

```
Computer Engineering Graduates

    General Information
            Age
            Gender
            Permanent Address
            Contact Numbers
            Email Address
            Year graduated
            Graduate studies pursued


    Employment Data
            Present Employment Status
    Current Job
            Previous Job/s
            Type of specific area of work
            Type of institution employed
            Years of working experience
            Current Gross Monthly Income
            First job  obtained
            Length of time  to get a job
            Ways of  acquiring the current job
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        Evaluation of Training Received

     Values develop and practice in work

Competence          Confidence          Committed
Compassion          Faith               Hope
Honesty             Diligence/Hard      Work
Punctuality         Zeal for Service    Creativity
Leadership          Sociability

              Skills acquired

Communication Skills
Critical Thinking Skills
Problem Solving Skills
Research Skills
Entrepreneurial Skills
Application Software Skills
Computer Aided Design Skills
Programming Skills
Network Administration Skills
Database Administration Skills
Software Development Skills
Hardware Development Skills
Hardware Maintenance Skills
Software Implementation and maintenance Skills
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Skills to be developed to meet the demand of work

Activities to improve the B.S. Computer Engineering program

Way/s could LSU help its alumni or graduatesw

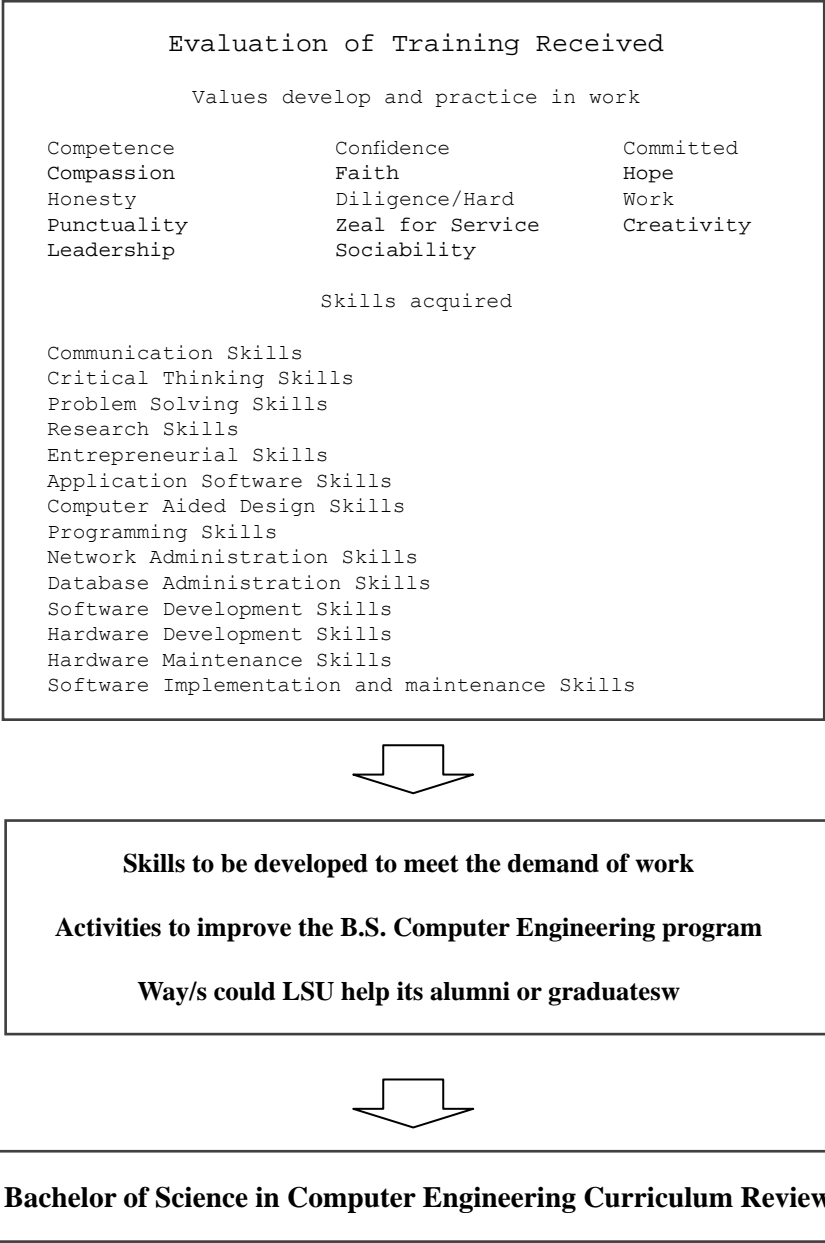**Bachelor of Science in Computer Engineering Curriculum Review**

Figure 1
Schematic Diagram of the Study

Patton (1986) said that program evaluation is the systematic collection of information about the activities, characteristics, and outcomes of programs for use by specific people to reduce uncertainties, improved effectiveness, and make decisions with regard to what those programs are doing and affecting.

Weiss, as quoted by Alkin (1990) cited that evaluation is a type of policy research, designed to help people make wise choices about future programming. Evaluation does not aim to replace decision makers' experience and judgement. Evaluation strives for impartiality and fairness. At its best, it strives to represent the range of perspectives of those who have a stake in the program.

This study aims to follow up the performance of La Salle University Engineering graduates as basis for curriculum enhancement. Specifically, it sought to present profile of the graduates in terms of demographics and employability. It also aimed at exploring the perceptions of the graduates towards competencies developed by La Salle graduates, values that are developed in their alma mater and the skills that should be further developed.

The study only include graduates of B.S. Engineering program from school year 2000-2001 to school year 2012-2013. The results of this study are beneficial to the following recipients:

Administrator. The result of this study may provide guidance to school administrators with the end view of coming up with evidence-based recommendations to be undertaken to improve the employability and eventually, improve the program of studies. Program Head. The result of the investigation will serve as the basis for curriculum review and re engineering of the subject content to meet the global competitiveness.

Faculty . The findings of the study will guide the teachers to plan activities and to stay up to date and improved on its shortcomings in order to meet the demands in the field and consequently assisting in its long term sustainability.

Students. The result of the investigation will serve as eye opener to the students taking the course to triple their effort in preparation for future employment and to be qualified to practice their profession.

Alumni Officer: It will help the office of the alumni to keep in touch with and foster relationship and partnership with its former graduates.

Future Researcher. This study will be of help to other researcher undergoing tracer study. They may be guided on what other variables to consider examining the changes in the career pattern of the graduates in order to provide a basis of evaluation of the current program.

2. Method

The study employed descriptive research design since its purpose is to obtain and present facts regarding graduates demographics and investigate their perceptions regarding competencies and values developed in them by the school and the skills that should further be developed by LSU. Its main respondents are the Engineering graduates from school year 2000-2001 to school year 2012-2013.

The instrument to gather data for this study is consist of three sections. The first section contains general information of the B.S. Computer Engineering graduates which included: (a) year graduated, (b) permanent address, (c) contact numbers, email address and whether he or she pursued graduate studies or other course. The second section described the graduates' employment data which included: (a) present employment status (b) current job (c) previous job, (e) type of specific area of work (f) type of institution employed (g) years of working experience (h) current gross monthly salary (i) first job after graduation (j) length of time to get the first job (k) ways of acquiring the current job. The third section of the questionnaire contained the evaluation of training received by the graduates which

included (a) values develop and practice in work (b) skills acquired in the university. To facilitate the distribution of questionnaire, the researcher personally distributed or contacted using the cell phone or email addresses of the graduates and an on line questionnaire was uploaded in the LSU-Ozamis website at: hppt://www.lsu.ozamiz/ alumni/alumni_tracer_study and can be accessed from a link on the LSU homepage http://www.lsu.com.ph. The questionnaires was filled online or may be downloaded as MS Word document, which can be duly filled in and sent either as email attachment or hard copies by post. The on the questionnaire are assumed to be answered honestly and truthfully by the graduates despite their hectic schedule so that the validity and reliability of the study can be assured.

3. Results and Discussion

Data gathered for this study is presented in this section. Presentation is categorized into respondents' profile and their perception. The total number of respondents for this study is 43 and below are the data gathered. Profile is subcategorized into demographics and employability.

Demographic Profile

Respondents' demographic profile is presented in Tables 1-5. Table 1 presents the respondents' civil status.

Table 1
Civil Status of the Respondents

Civil Status	Frequency	Percentage (%)
1. Single	37	84
2. Married	7	16
3. Separated	0	0
4. Widow(er)	0	0

As shown, majority of the respondents is still single.

Respondents' gender, on the other hand is presented in Table 2.

Table 2
Gender of the Respondents

Gender	Frequency	Percentage (%)
1. Male	37	84
2. Female	7	16

As presented, the majority of the respondents are male graduates.

Program of specialization of the respondents is presented in Table 3.

Table 3
Engineering Course of the Respondents

Course	Frequency	Percentage (%)
1. Civil Engineering (BSCE)	12	27
2. Computer Engineering (BSCpE)	16	36
3. Electrical Engineering (BSEE)	3	7
4. Electronics Engineering (BSECE)	7	16
5. Geodetic Engineering (BSGE	6	14

Table 3 shows that most of the respondents are Computer Engineering graduates and the least number of respondents are Electrical Engineering graduates.

Respondents year of graduation is presented in Table 4.

Table 4
Year of Graduation of the Respondents

Year Graduated	Frequency	Percentage (%)
1990	1	2
1997	1	2
2001	1	2
2005	1	2
2006	2	5
2008	6	14
2009	10	24
2010	6	14
2011	3	7
2012	12	28

Table 4 shows that majority of the respondents are who responded to the study are the graduates of Batch 2012 followed by the Batch 2009 graduates.

The distribution of respondents who pursue graduate studies is presented in Table 5.

Table 5
Distribution of Graduates who Pursue Graduate Studies

	Frequency	Percentage (%)
Pursued Graduate Studies	1	2
Did not pursue Graduate Studies	42	98

As shown, almost all respondents did not pursue any graduate studies

Employability Profile

Respondents employability profile is presented in Tables 6-8. Current employmen status of the respondents is presented in Table 6 while the information on length of time respondents' first job was acquired in presented in Table 7. Table 8 on the other hand,

presents the type of employment status of the respondents.

Table 6
Current Employment Status

Present Status	Frequency	Percentage (%)
1. Employed	29	68
2. Not Employed	13	30
3. Self-Employed	1	2

Table 7
Length of Time the First Job was Acquired

Length	Frequency	Percentage (%)
1. Less than a month	10	38
2. 1-6 months	11	42
3. 7-11 months	1	4
4. 1 year to less than 2 years	3	12
5. 2 years to less than 3 years	0	0
6. 3 years to less than 4 years	0	0
7. 4 years or more	1	4

Table 8
Type Employment Status

Present Status	Frequency	Percentage (%)
1. Full time/Permanent/Regular	18	62
2. Part Time	3	10
3. Probationary	2	7
4. Temporary/Casual	6	21

As revealed in Table 6, the majority of the respondents were already employed and most of them (80%) immediately acquired their first job within 6 months after graduation as shown in Table 7. Table 8 also shows that most of the respondents were already in their Full Time/Permanent/Regular status.

Below is the list of first job acquired by the graduates:

1.   Survey/Cadastral Project
2.   Faculty
3.   Office Engineer
4.   DPWH Iligan Sales Agent
5.   Cultural Arts Trainer
6.   Computer Technician
7.   Test Technician
8.   MEPF-in-charge
9.   Process Engineer
10.   Foreman
11.   Project Supervisor
12.   QC Service Engineer
13.   Jr Engineer at Bosenn Engineering
14.   IT/Software Engineer
15.   Cadet Engineer
16.   Assistant Surveyor
17.   Project Engineer
18.   Inspector/Secretary
19.   Field Engineer
20.   QC/QE

However, the following reasons were stated by those unemployed respondents: no available/vacant job, not available for employment due to family responsibility, and just graduated

Perceptions of Respondents towards their competencies, values and skills

Perceptions of respondents regarding the competencies received, skills acquired and values developed in school are presented in Tables 9-11.

Respondents' perception on usefulness of training received from the school is shown in Table 9.

Table 9
Respondents' Perception on Usefulness of Training Received

Overall Usefulness of Training Received	Frequency	Percentage (%)
1. Extremely Useful	14	33
2. Very Useful	19	44
3. Useful	8	19
4. Somewhat Useful	1	2
5. Not Useful	2	2

As indicated in Table 9, 77% of respondents perceived the training given the La Salle University is at least very usefull to their career life.

Skills acquired by the graduates from the school is presented in Table 10.

Table 10
Skills Acquired among Graduates

Skills Acquired in	Weighted Mean	Verbal Interpretation
Problem Solving	3.82	Moderately Acquired
Communication	3.68	Moderately Acquired
Critical Thinking	3.68	Moderately Acquired
Research	3.66	Moderately Acquired
Application Software	3.66	Moderately Acquired
Construction Project Estimating	3.64	Moderately Acquired
Construction Project Management	3.50	Moderately Acquired
Computer-Aided Design	3.48	Moderately Acquired
Entrepreneurial	3.41	Moderately Acquired
Design and Structural Analysis	3.39	Slightly Acquired
Hardware Development	3.23	Slightly Acquired
Visual Basic Programming	3.18	Slightly Acquired
Surveying	3.18	Slightly Acquired
Network Administration	3.11	Slightly Acquired
Software Development	3.11	Slightly Acquired

Hardware Maintenance	3.11	Slightly Acquired
Database Administration	2.98	Slightly Acquired
Software Implementation and Maintenance	2.98	Slightly Acquired
Other Skill a. Karate-do	0.09	Not Acquired
b. Electrical Estimation	0	Not Acquired

Legend: 4.21-5-highy   acquired;   3.41-4.2-moderately   acquired;   2.61-3.4-slightly acquired;1.81-2.6-fairly acquired;
1-1.8-poorly acquired; 0-.9 not acquired

As shown in Table 10, the respondents in this study claimed that they moderately acquired the skills particularly on the problem solving, communication, critical thinking , research, application software, construction project estimating, construction project management, computer-aided design, and entrepreneurial from the school. Graduates learn little skill in design and structural analysis, hardware development, visual basic programming, surveying, network administration, software development, hardware maintenance, database administration and software implementation and maintenance as the results showed that these skills are just slightly acquired. Further, they claimed that among they do not learn karate-do and electrical estimation. Results could be attributed to the fact that most of the respondents in this study are computer engineering graduates who are not exposed to electrical estimation. Karate-do training is given in school however, it is not compulsory as it only caters students who voluntarily join the club.

Perceived values developed among the graduates while in the school is presented in Table 11.

Table 11
Values Developed among Graduates

Values	Weighted Mean	Verbal Interpretation
Commitment	4.11	Moderately Developed
Faith	4.11	Moderately Developed
Hope	4.09	Moderately Developed
Honesty	4.07	Moderately Developed

Diligence	4.07	Moderately Developed
Compassion	4.00	Moderately Developed
Competence	3.93	Moderately Developed
Zeal for Service	3.93	Moderately Developed
Confidence	3.91	Moderately Developed
Punctuality	3.89	Moderately Developed
Creativity	3.82	Moderately Developed
Leadership	3.80	Moderately Developed
Sociability	3.73	Moderately Developed
Other Values		
God-Centered Self	0.09	Not Developed

Legend: 4.21-5-highy developed; 3.41-4.2-moderately developed; 2.61-3.4-slightly developed;1.81-2.6-fairly developed;
1-1.8-poorly developed; 0-.9 not developed

Table 11 indicates that almost all values listed are moderately developed among College of Engineering graduates. Top three moderately developed values include commitment, faith, hope, honesty & diligence. Given with the core values embedded in the school's vision, it is so alarming that graduates did not consider God as the center of their life.

4. Conclusion and Recommendations

Based from the results of the study, the respondents who are mostly single, dominantly male, who are mostly from BS Computer Engineering and BS Civil Engineering and graduates within 2008-2010 did not pursue Graduate Studies. From the information gathered, these graduates were employable as they got their first job within the first six months after graduation. However, there is a need for Engineering Department to review and revise their curricula, extend more efforts in developing skills relative to the programs offered. There is also a need to improve formation programs for graduates to highly develop the necessary values consistent to the graduate attributes dreamed by the University.

It is therefore recommended that curricula be revisited and improved to meet the necessary skills and competencies expected of their graduates. Mechanisms be also in place to improve formation program of the school. Regular feedbacking by the graduates should be sought by the CEA department to be used as basis for continued improvement of instruction to be able to address the industrial needs.

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Design and Development of College of Computer Studies - OpenLab Monitoring System Using Biometric Device

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Abstract

Technology has been part of the day-to-day operations of the College of Computer Studies, La Salle University Ozamiz City. One of the laboratories of the College is called OpenLab. The Open Laboratory (OpenLab) caters all students of BSCS and BSIT Programs. It is a venue for students to make use of the college technological resources during their free time to solve and answer machine problems and do internet researches for their professional courses. Frequency of the utilization of the laboratory needs to be kept tracked and security measures in the use of the resources needs to be tightened because students' electronic data and information need to be secured. With this, the researchers aimed to design and develop a CCS OpenLab Monitoring System through the use of descriptive survey method and interview. After following the SDLC processes using prototyping, the researchers found out that the system can keep track the frequency of students' utilization of the laboratory; keep track the borrowing and returning of resources/equipment; provide a login time for users and generate the list of frequent users; and the system produces reports that can be used for the college management functions. Therefore, the new system designed and developed has been fully functional. With its user friendliness and system integrity, the monitoring especially the tracking of users login/logout as well as the borrowing and returning of books and browsing transactions of students will be made easy to be checked and will also be accessible anytime.

1. Introduction

Technology has been part of the day-to-day operations of the College of Computer Studies, La Salle University Ozamiz City. It is used to enhance students' learning; support the transmission of knowledge to students; and support the college management and organizational functions.

Security on the other hand has been a problem in implementing technology initiatives especially when dealing with multiple users. It has been a common issue that needs to be addressed and to be taken into considerations in making a good and quality service among stakeholders.

The OpenLab of the College of Computer Studies caters to all students of BSCS and BSIT Programs. It is a venue for students to make use of the college technological resources during their free time to solve and answer machine problems and do internet researches for their professional courses. Frequency of the utilization of the laboratory needs to be keep tracked and security measures in the use of the resources needs to be tightened because students' electronic data and information needs to be secured. Furthermore, having a good security would promote a good tracing mechanism in case some irregularities happen, thereby helps the investigation progress.

In order to have a more secured technology, a biometric security system that uses human fingerprints becomes one of the options in solving issues and concerns governing the use of technology resources. Each human fingerprint has a unique identifier to be used to identify individuals and verify their identity.

Review of Related Literature

Biometric Recognition or biometrics is a method of identification that offers several benefits over traditional methods like using ID, PIN codes and passwords. It is because, the person to be identified is required to be physically present at the point-of-identification and the identification based on biometric techniques do not need to remember passwords or PIN codes. (biometrics.cse. msu.edu)

Moreover, biometric data do not change over the span of life. It is a physical characteristic of an individual that stay constant and that is difficult to replicate or change on purpose. (www.technovelgy. com)

Fingerprint recognition is a convenient biometric technology that provides accurate information with cheaper investments. Biometrics is a system for measuring identical biological traits for identification; it includes utilization of time clocks, to track and to report employees' authentication that increase security, and the enhancement of access with the convenience of hand readers or finger prints. ID badges or time cards has been eliminated thus, "buddy punching" of time cards or stakeholders clocking each other in is no longer required. (www.wordsources.info)

It is on this light that the researchers come to design and develop a monitoring system that uses fingerprint authentication to help the College of Computer Studies OpenLab in implementing a system that would monitor frequency of students' utilization of the laboratory and its resources for security purposes.

Statement of Objectives

The study specifically seeks to design and develop a CCS OpenLab Monitoring System that can specifically;

1. Keep track the frequency of students utilization of the laboratory;
2. Keep track the borrowing and returning of resources/equipment;
3. Provide a login time for users and generate the list of frequent users; and
4.Produce reports that can be used of the college for its management function.

Conceptual Framework

Figure1. Conceptual Framework

Figure 1 depicts the conceptual framework of the study. The CCS students need to register their fingerprints together with their personal information as basis for the registration and authentication process. The fingerprint scanner accepts the finger print and stores it to designated database. Once successfully done and every time the student makes use of any of the technological resources available in the Open Lab the student should login. All information will be automatically stored. At any time, reports can be generated containing information which can be used for management preparations and enhancements.

Scope and Limitations

The study focuses on designing, developing and implementing a CCS OpenLab Monitoring System Using Biometric Device. It includes generating essential reports pertaining to security and monitoring the utilization of the facility available for students. Other specifications not mentioned are not part of the research.

Significance of the Study

College of Computer Studies. The study will help manage and monitor the use of technological resources available in the CCS Open Lab. It could also be a basis if the OpenLab services should be continued or not.

CCS Students. The study could be a basis for their special projects and a pattern to be used for other projects that will use biometric features and processes.

CCS OpenLab Technician and Assistants. The study is beneficial to them, for they can maximize their time in attaining their main job descriptions. Tallying records and frequent monitoring of students in and out will be done by the students themselves through the system. Thus, the said entities can now work efficiently with their jobs.

Future Researchers. Biometrics has been widely used. The study could give them an overview and a basis for developing other uses of biometrics. The result of this research can be an avenue for a birth of a new research.

2. Method

The research study will take place in La Salle University – Ozamiz City, College of Computer Studies (CCS). CCS is located at the second floor of St. La Salle Bldg left wing. It offers two programs namely; Bachelor of Science in Computer Science and Bachelor of Science in Information Technology. To cater to the needs of the students studying in the program, an OpenLab service is provided. It is dedicated for CCS students to give an avenue to explore and get to know more their chosen course, most especially in doing their special projects, machine problems and research works. The CCS students pay for an OpenLab fee that will be used to pay for the electric bill and maintenance of the facility.

Room LS211 is named OpenLab. It has a total of thirty computers and electronic books were placed on it. Other technological resources like scanner, pen tablets, speakers, headsets, etc. where also available for borrowing or ready for used in the specific lab.

The respondents of the study are the CCS Laboratory technician, Computer Laboratory Student Assistants and the sample size of 230 CCS Students. The sample size is derived using the Sloven's Formula: $n = N/(1+Ne2)$ where n is the sample size, N is the population size and e=0.05 is the margin of error.

To gather relevant and significant data for the study, the researchers will make use of descriptive survey method. The researchers will do a personal interview to the OpenLab technicians and assistant that will make use of the project (see Appendix A for the Interview Guide Questions). Other than that, a check list will also be used to get the features needed in the design and development of the

study (see Appendix B for the Check list). The result of the check list will be tallied and interpreted and considered.

After all data and information have been gathered and interpreted, the processes of System Development Life Cycle and Prototyping approach are taken into consideration before the final implementation of the study.
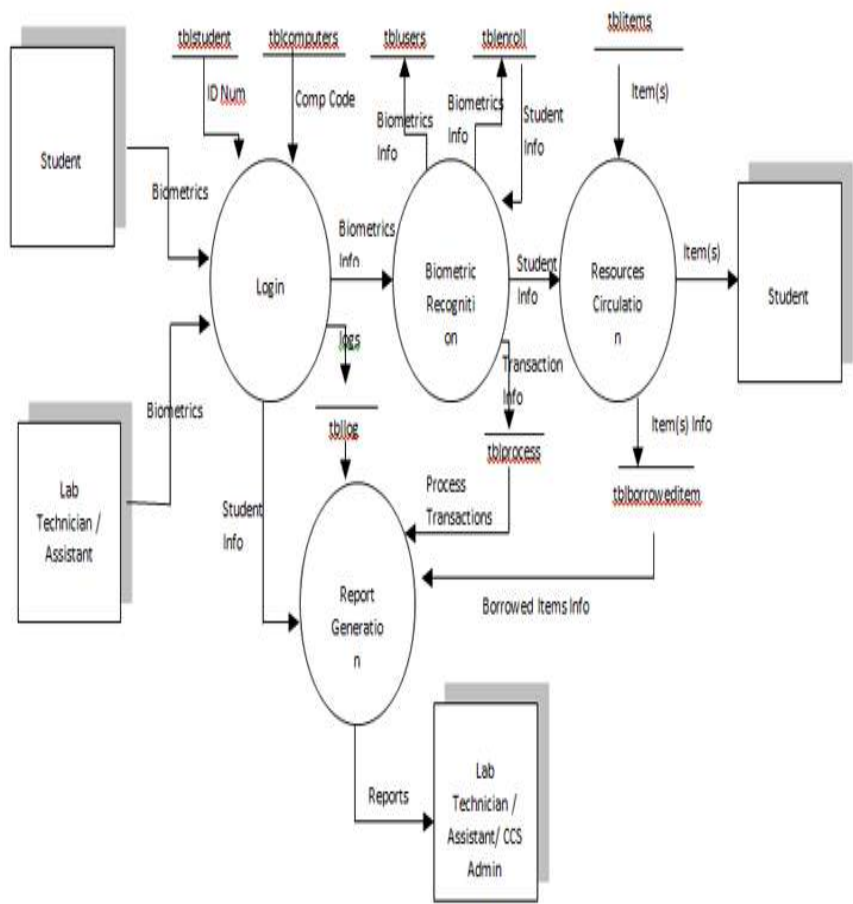
Architectural Design

Figure 2. Architectural Design

Database Design

Table 1 — tblcomputers

fidcompid	varchar	10 PK
fidcompname	varchar	20
fidip	varchar	20
fidflag	varchar	1

Table 2 — tblenroll

fidid	varchar	10
fidtemplate	blob	

Table 3 — tbllog

fidlogid	varchar	20 PK
fidcompid	varchar	10
fdinistime	datetime	
fdendtime	datetime	
fidlogout	varchar	1
fdstudid	varchar	10
fdreason	varchar	200

Table 4 — tblopenedprocess

fidlogid	varchar	20
fidpid	varchar	100
fidprocins	varchar	30
fidprocesstitle	varchar	100

Table 5 — tblstudent

fidid	varchar	10 PK
fidlastname	varchar	200
fidcourseid	varchar	10
fidlogged	varchar	1

Table 6 — tblitems

fiditemid	varchar	10 PK
fiditemname	varchar	100
fidborrowed	varchar	1

Table 7 — fidborroweditem

fidbid	varchar	20 PK
fiditemid	varchar	10
fidid	varchar	10
fidborrowed	datetime	
fiduserid	varchar	10
fidreturned	datetime	

Table 8 — tblusers

fiduserid	varchar	10 PK
fidname	varchar	150
fidpassword	varchar	100

Heirarchical Input Process Output

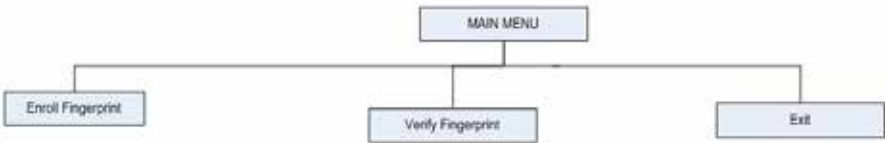**Figure 3. Hierarchical Input-Process-Output (HIPO) for the Administrator**

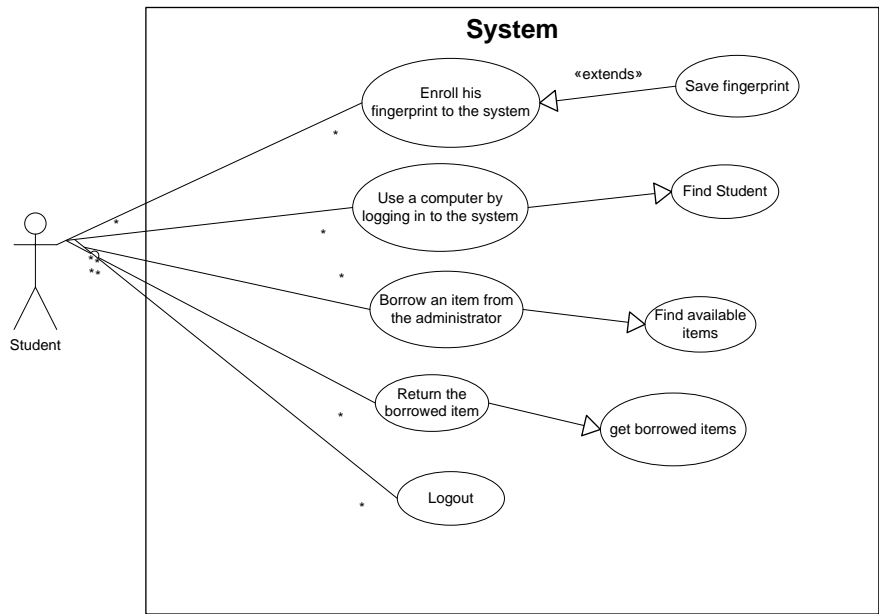**Figure 4. Hierarchical Input-Process-Output (HIPO) for Biometrics Module**
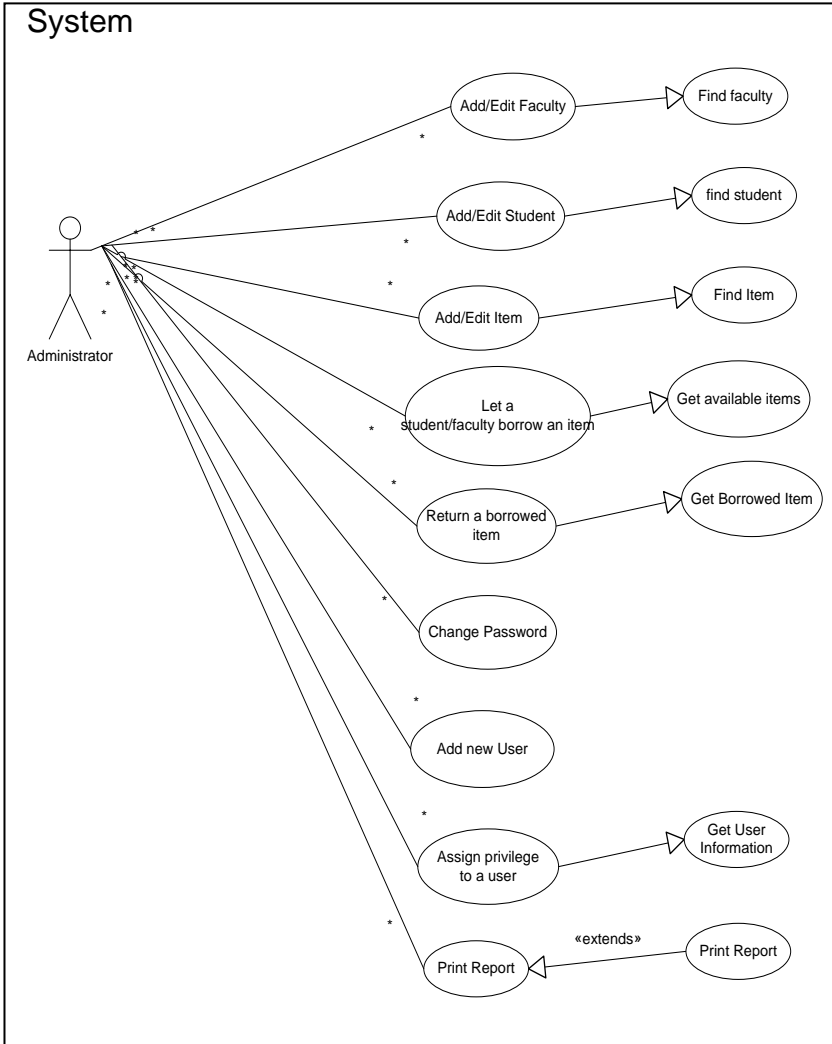
Use Case

Figure 5. Use Case - Student

Figure 6. Use Case - Admin

Activity Diagram
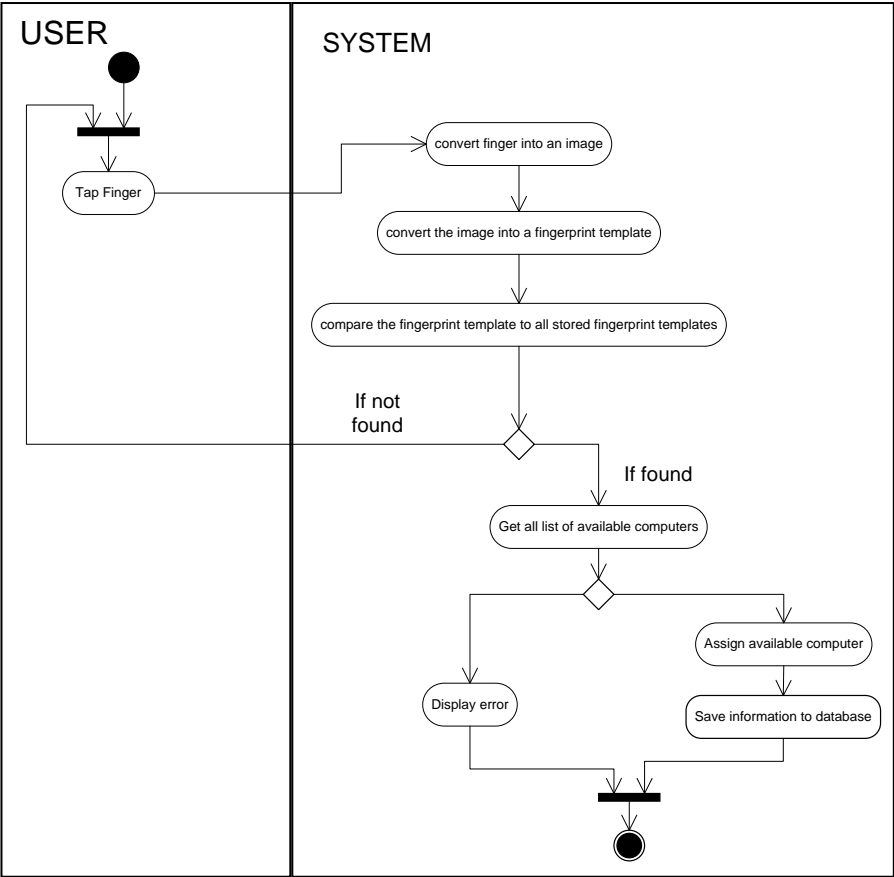
Use Computer

Figure 7. Activity Diagram – Use Computer
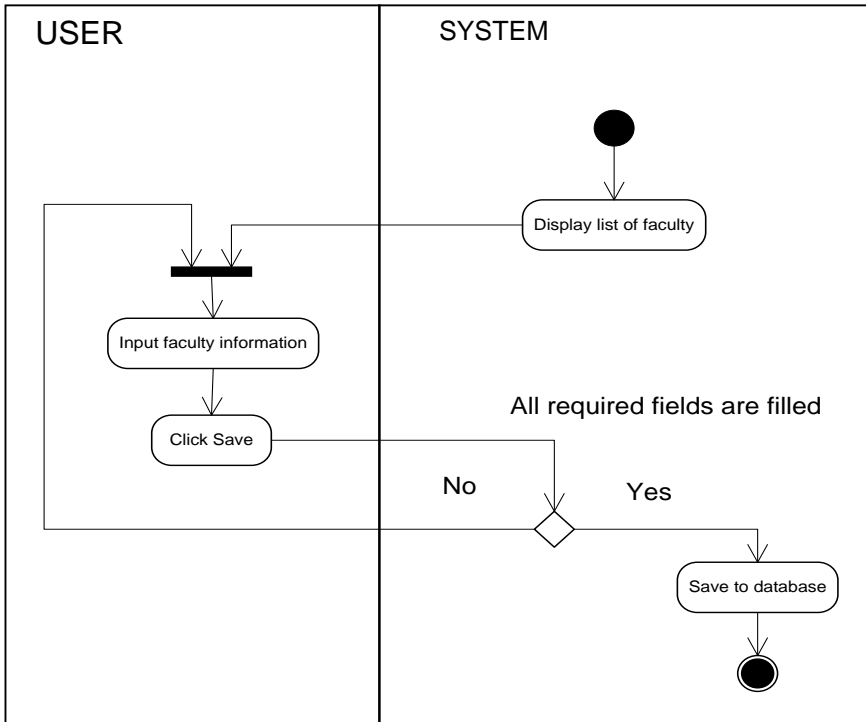
Add Student

Figure 8. Activity Diagram – Add Faculty
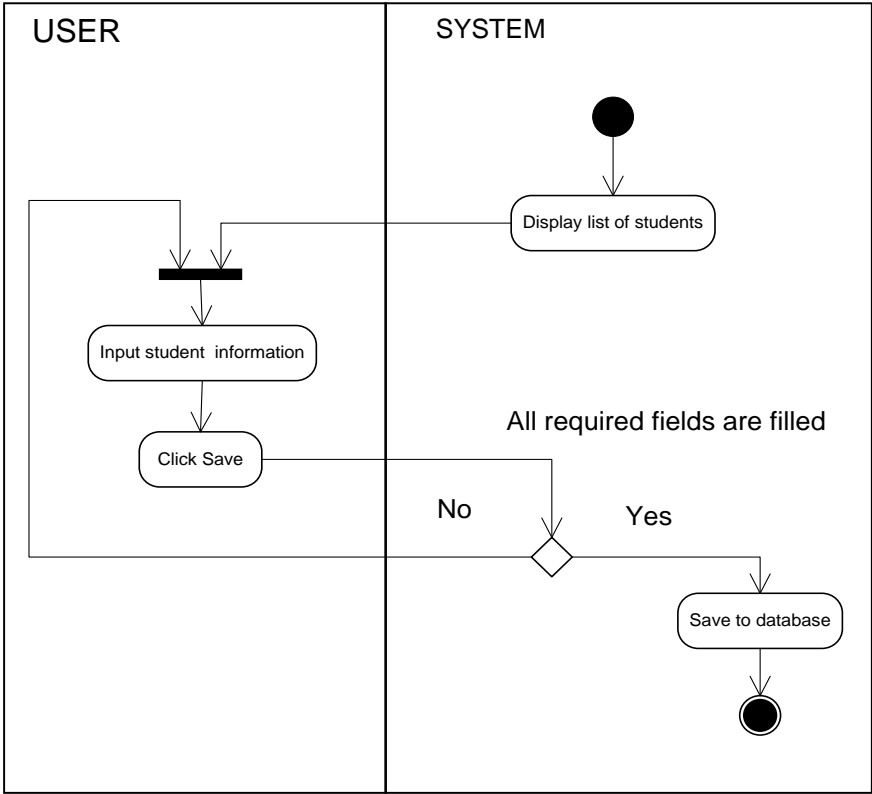
Add Student

Figure 9. Activity Diagram – Add Student
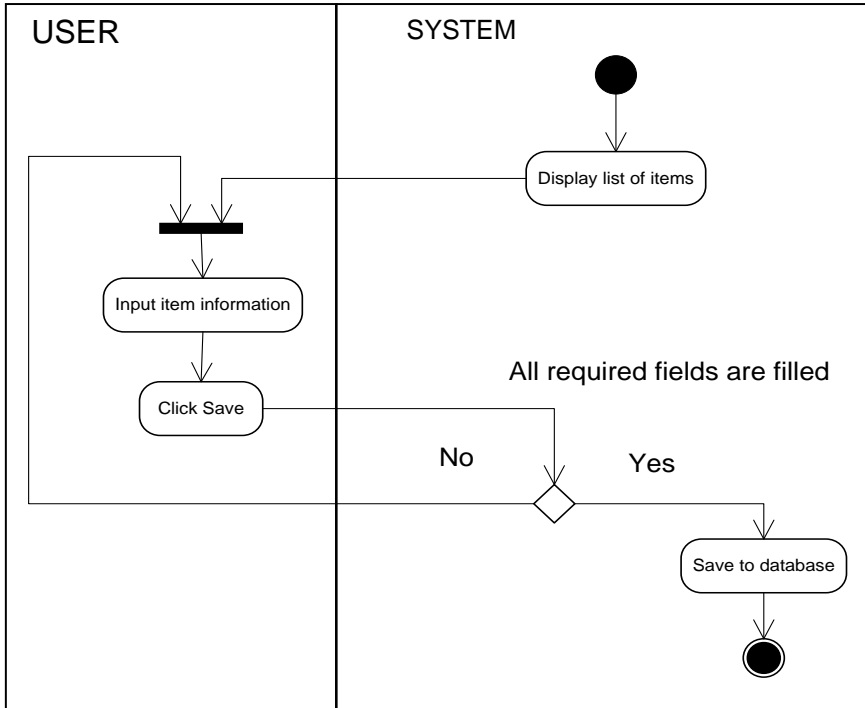
Add Item

Figure 10. Activity Diagram – Add Item
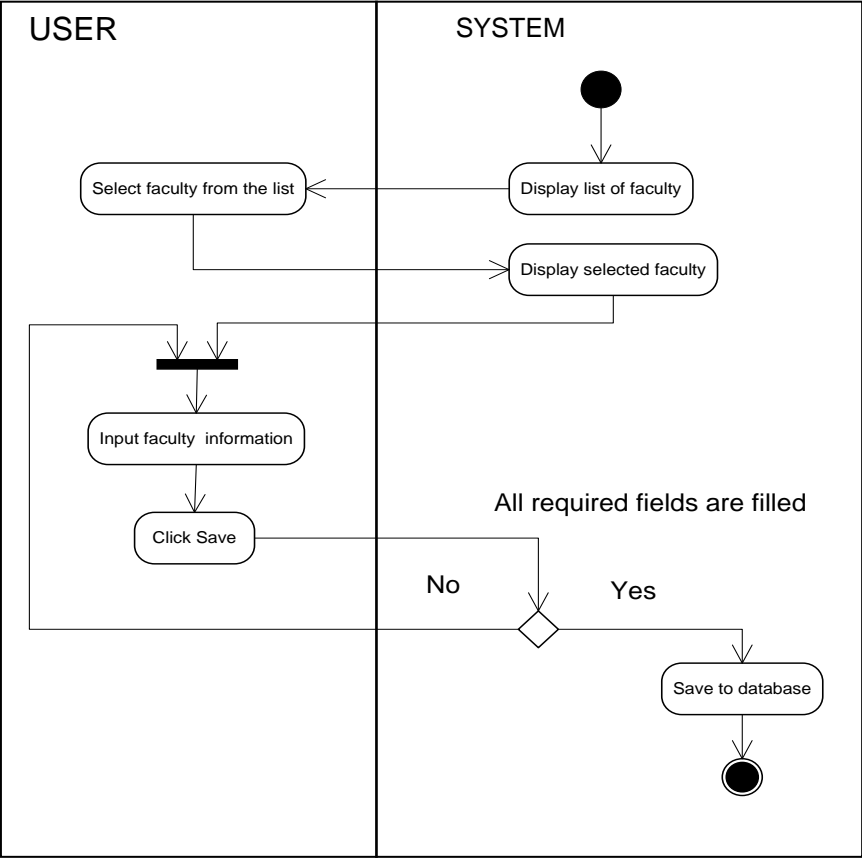
Edit Faculty

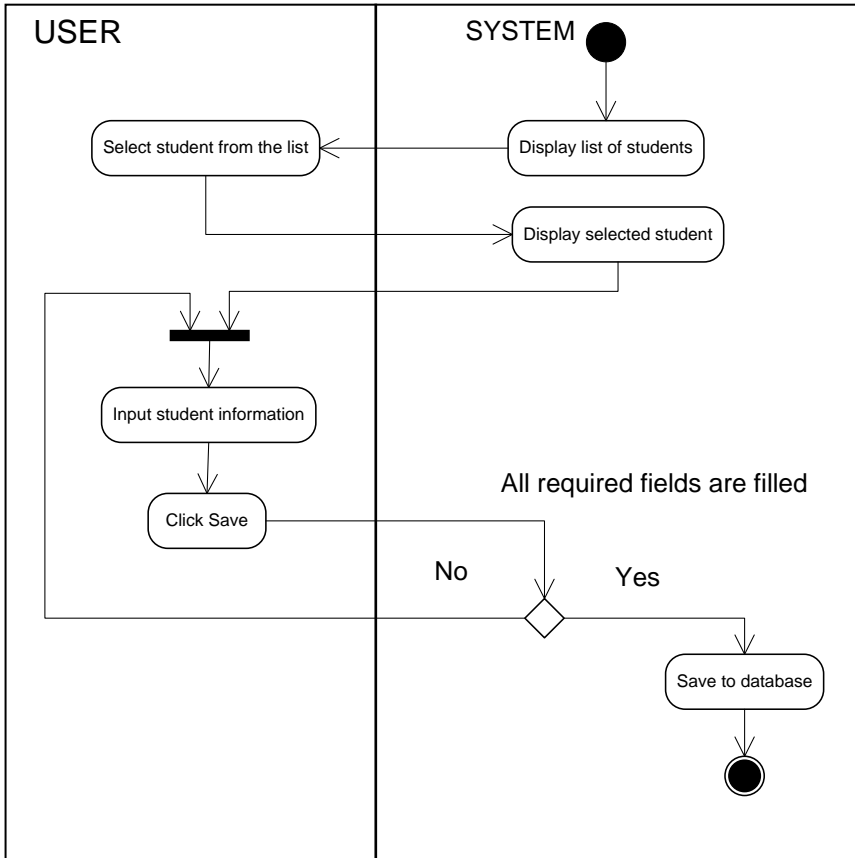**Figure 11. Activity Diagram – Edit Faculty**

Edit Student

Figure 12. Activity Diagram – Edit Student
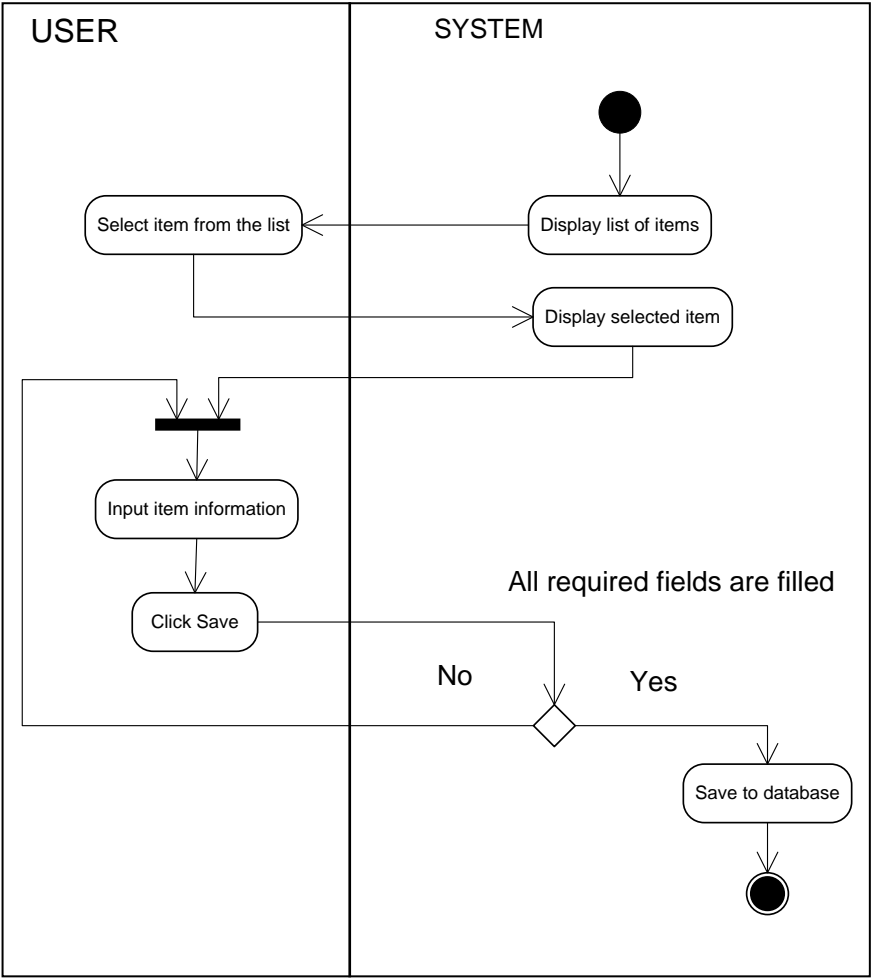
Edit Item

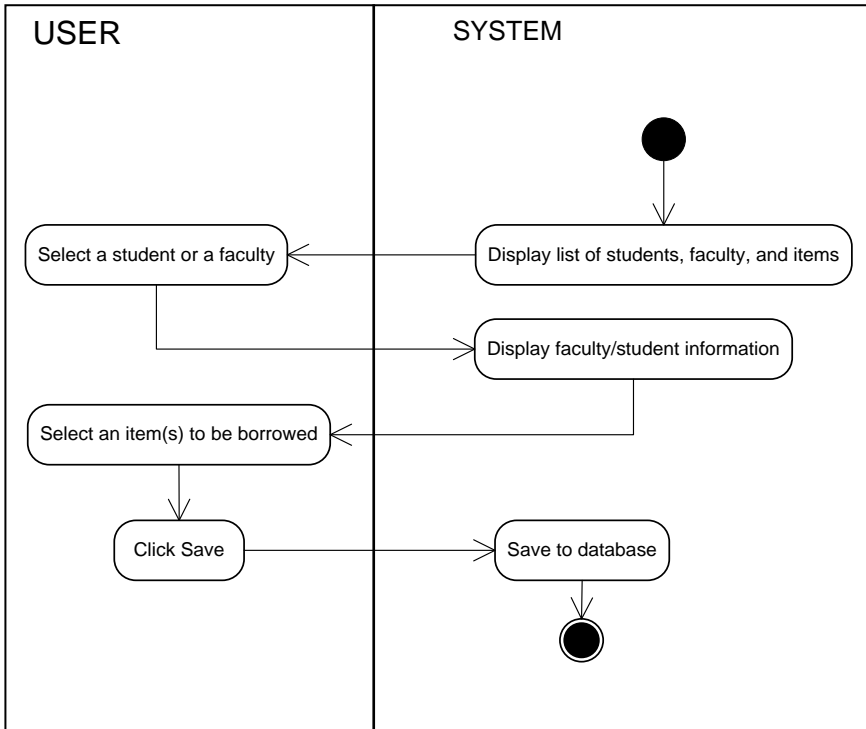**Figure 13. Activity Diagram - Edit Item**

Borrow an Item

Figure 14. Activity - Borrow an Item

Return an Item
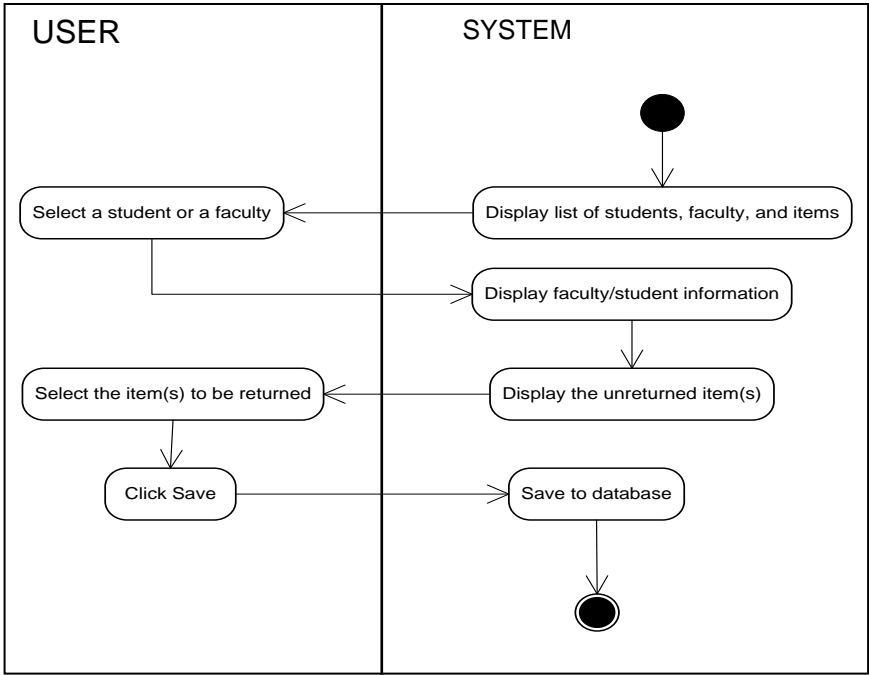
Figure 15. Activity Diagram - Return an Item

Change Password
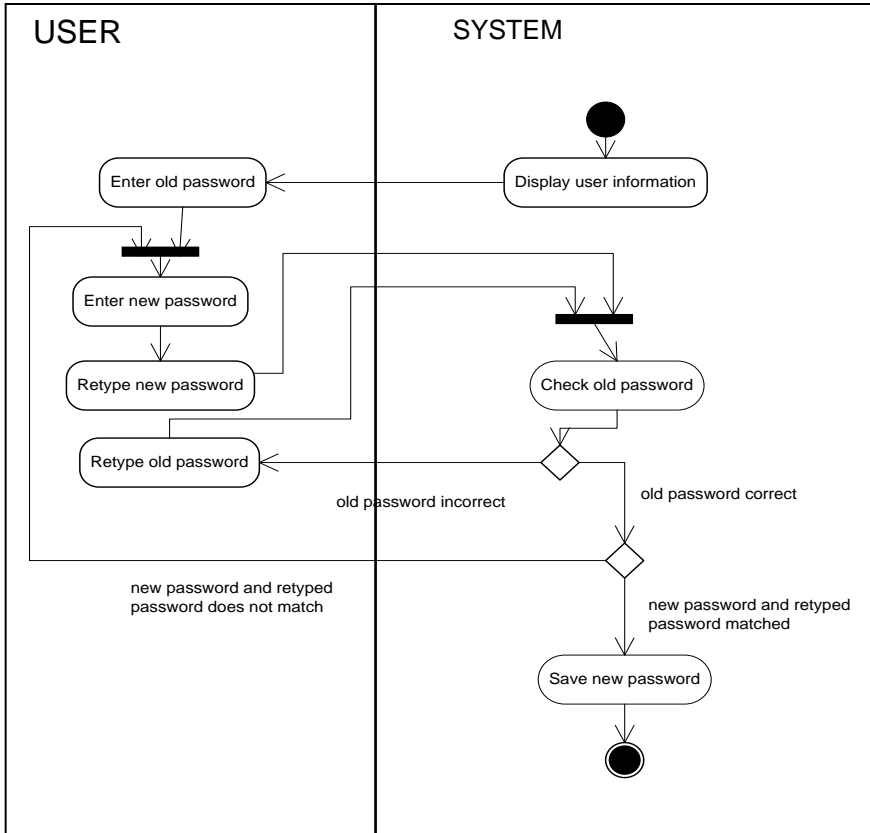
Figure 16. Activity Diagram - Change password

Sequence Diagram

FrmBG

Description

FrmBG is the background form used in the client. This form does the following functions:

1. Prevent the user from using the computer without the necessary privileges;
2. Kill all unnecessary processes;
3. Ensure that the user is a CCS student;
4. Notify the server that the computer is ready to be used; and
5. Check if there is a currently logged in student
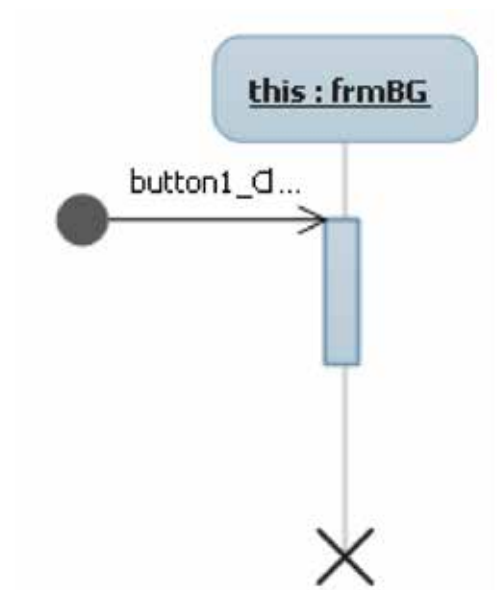
Figure 17. Button1_Click

This will enable the administrator to use the computer for administrative purposes. As an added security measure, a password needs to be provided to check whether or not the client is an administrator.
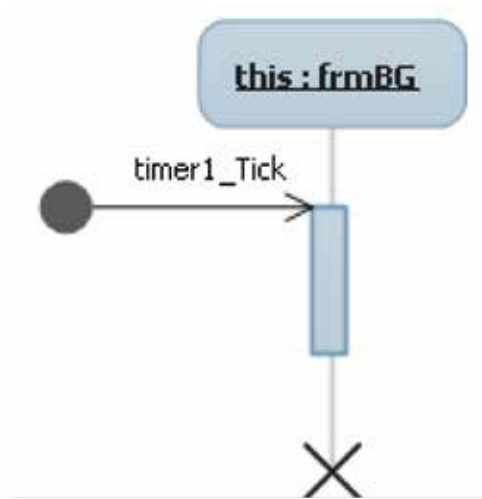
Figure 18. Timer1_Tick

Timer1 is used to always show the form on top of the desktop. This will also ensure that the form will not be stopped forcefully. It will kill processes like TaskManager, MSConfig, Regedit, etc. This will ensure that the program will run automatically during start-up.
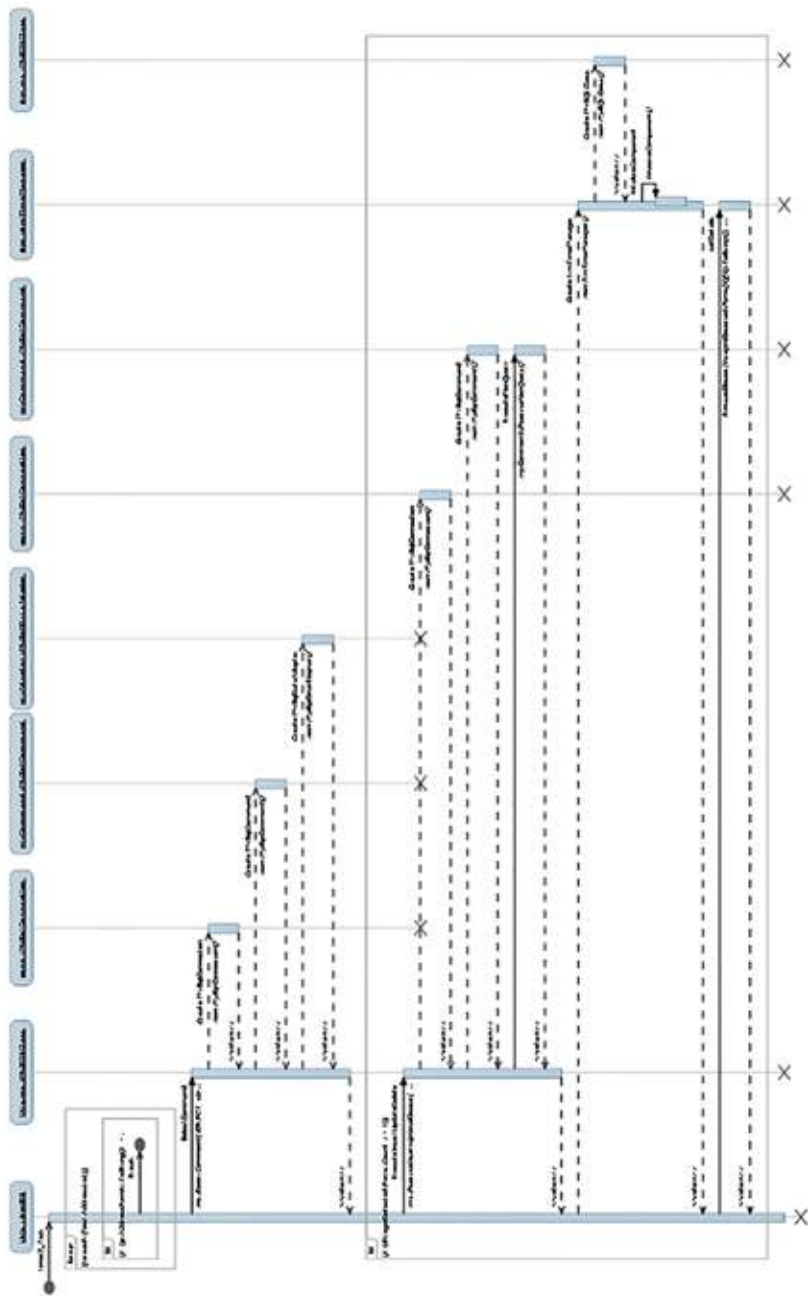
Figure 19. Timer2_Tick

Timer2 ticks every 5 seconds. The role of Timer2 is to notify the server if the computer is available for use. In addition, it will also check if there are any unused time for a certain user.

Figure 20. Form_ Load

Form load will initialize all the needed data needed to run the system correctly. Its main role is to get the current IP address of the computer and save it on the database; get all the running process of the computer and save ir on the server; and start all threads and timers.

Form load will initialize all the needed data to run the system correctly. Its main role is to get the current IP address of the computer and save it on the database; get all the running process of the computer and save ir on the server; and start all threads and timers.

frmTime Manager

Description

This is the other form used by the client. This form does the following functions:

1. Manages the time spent;
2. Saves all opened processes to the server;
3. Monitors unnecessary processes (e.g. TaskManager, MSConfig, Regedit, etc); and
4. Notifies the server when the computer is ready to be used by another client;
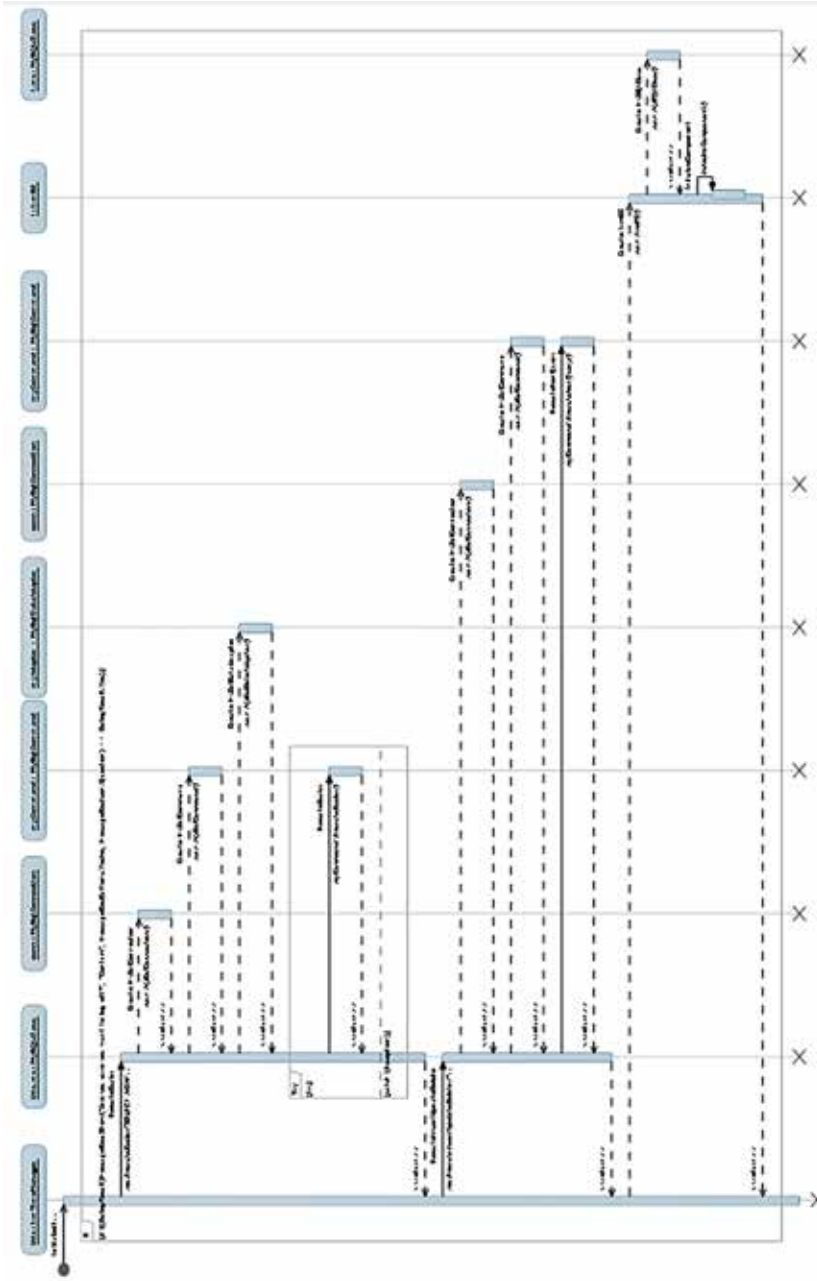
Figure 21. LinkLabel_clicked

This will let the user log off his/her workstation. The program will then notify the server that the student has logged-out and that the PC is now ready to accept new user

Figure 22. Timer1_Tick
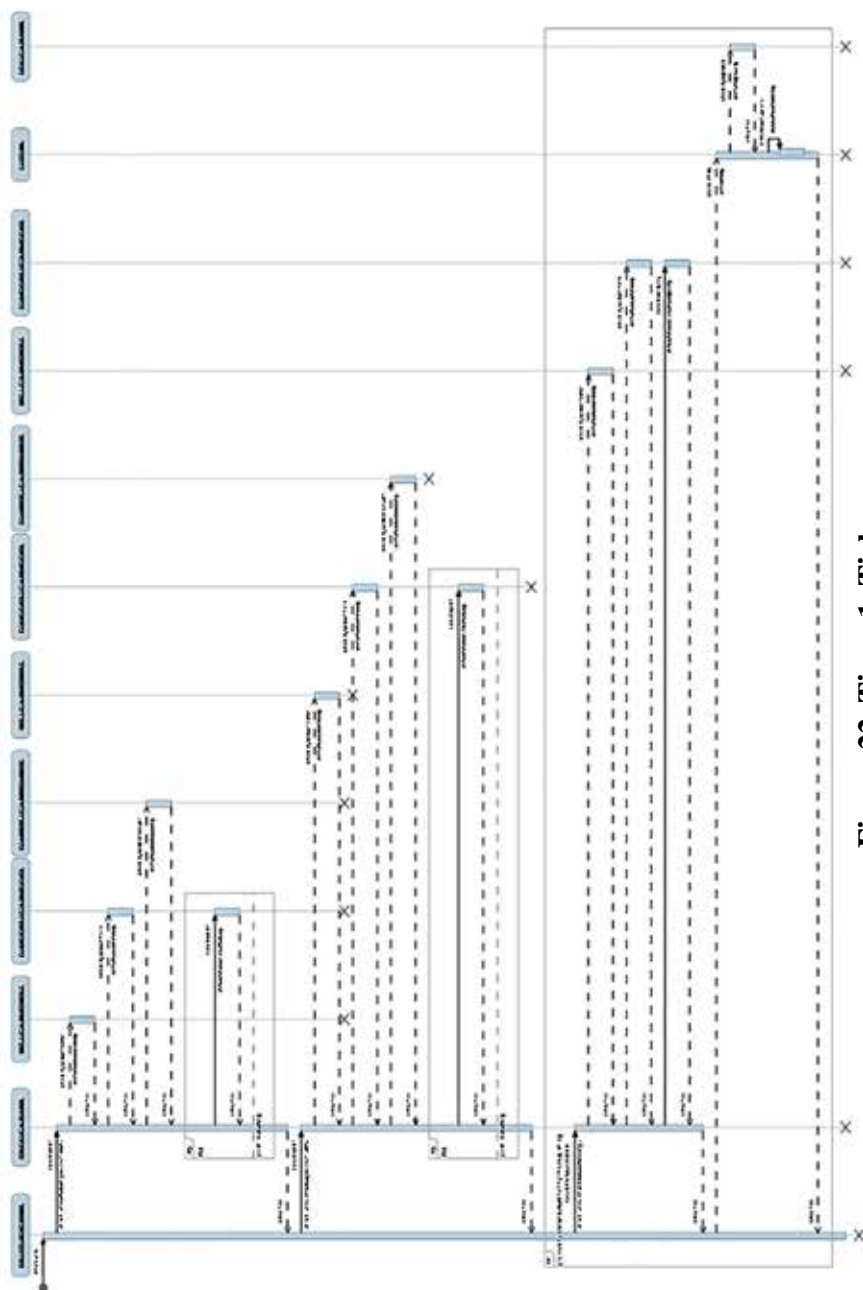
Timer 1 will update the remaining time of the client. This will be done per minute. The time will then be saved in the database as a precaution during power interruption
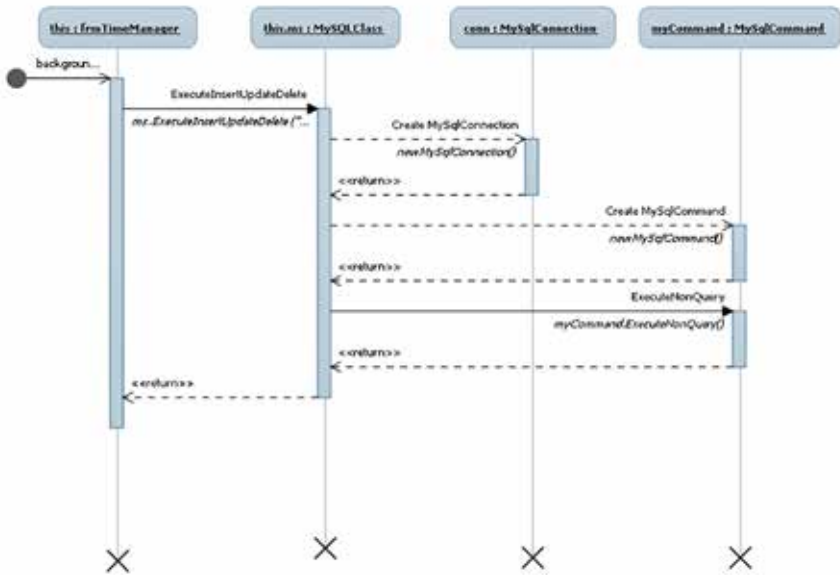
Figure 23. BackgroundWorker_RunWorkerAsync()

The function of the BackgroundWorker1 is to save the details of the time on the database.
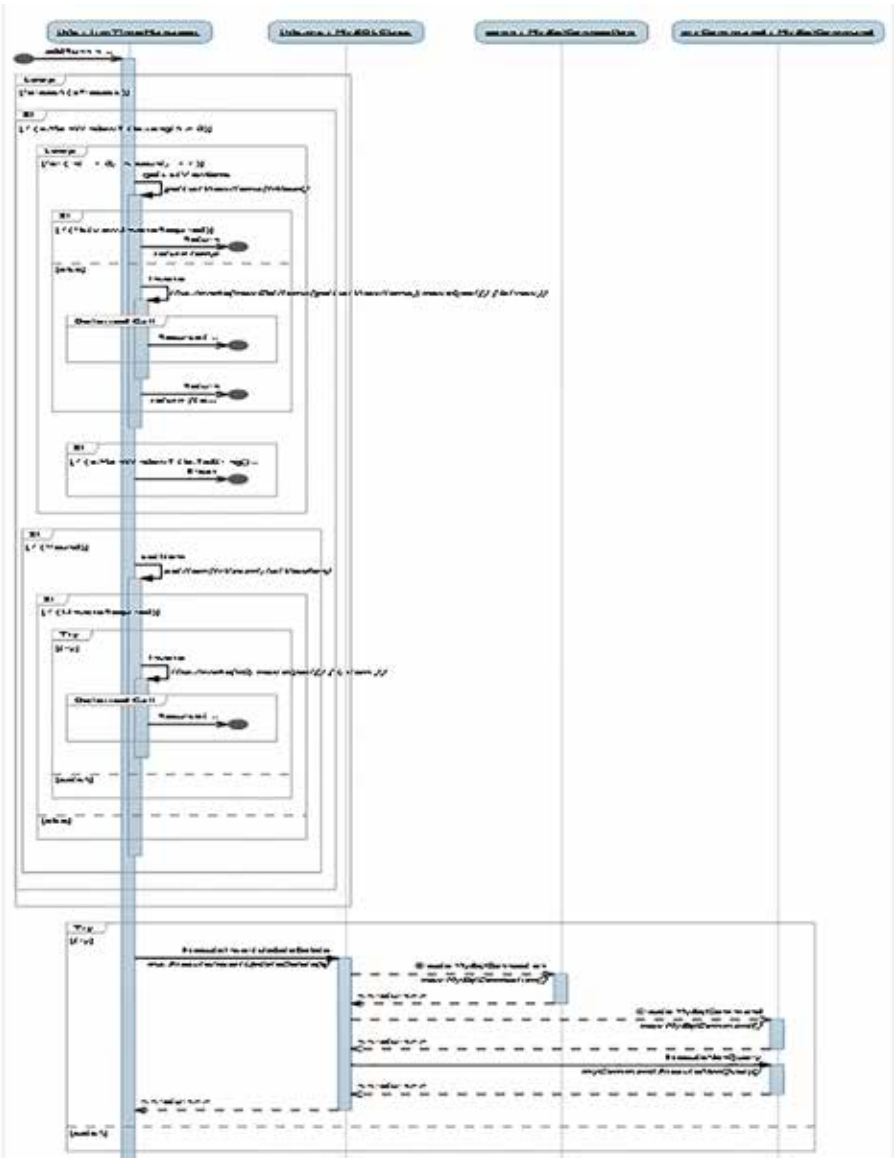
Figure 24. AddRunningProcess()

This will get all the opened programs that the user opened. This will then be added to the list, and saved at the database.
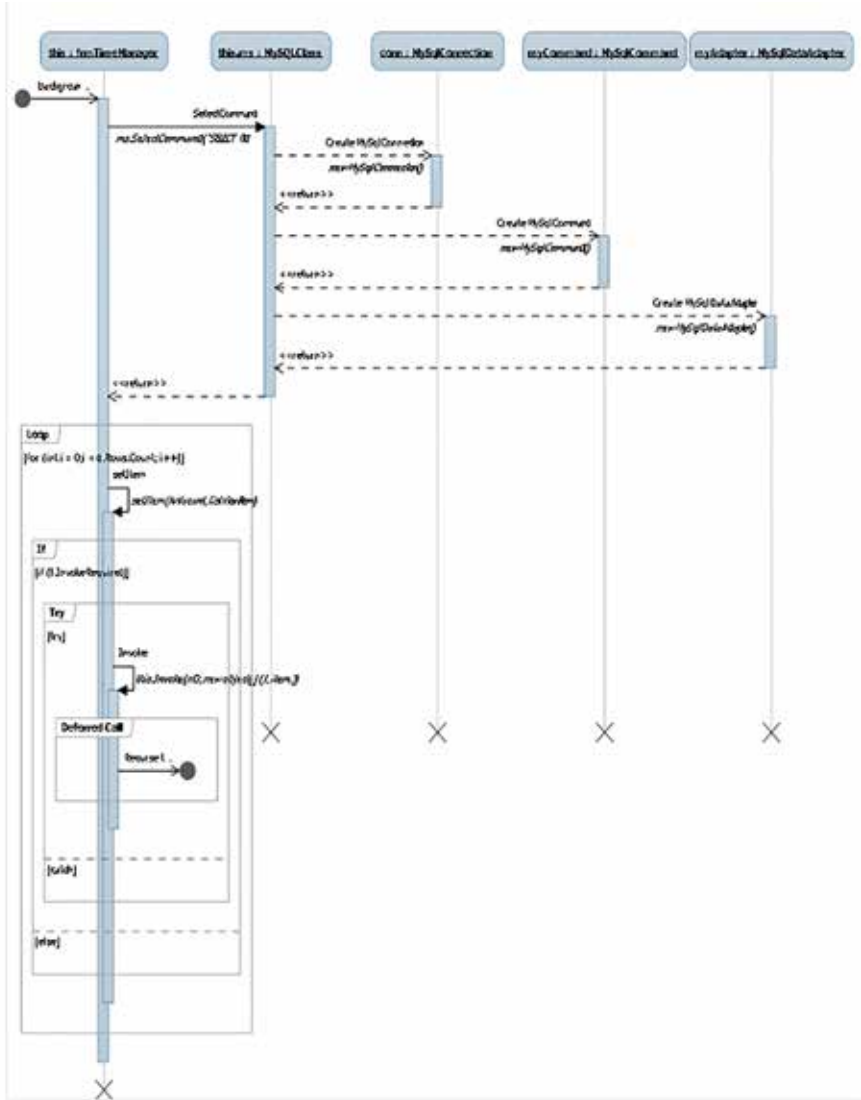
Figure 25. BackgroundWorker3_RunworkerAsync()

This BackgroundWorker will save all the opened process to the database.

frmLogin

Description

This form is a separate form used by the client. This form does the following functions:

1. Lists all available computers ready for use;
2. Detect fingerprint tapped by the user;
3. Display the user information; and
4. Monitor the currently used computer;
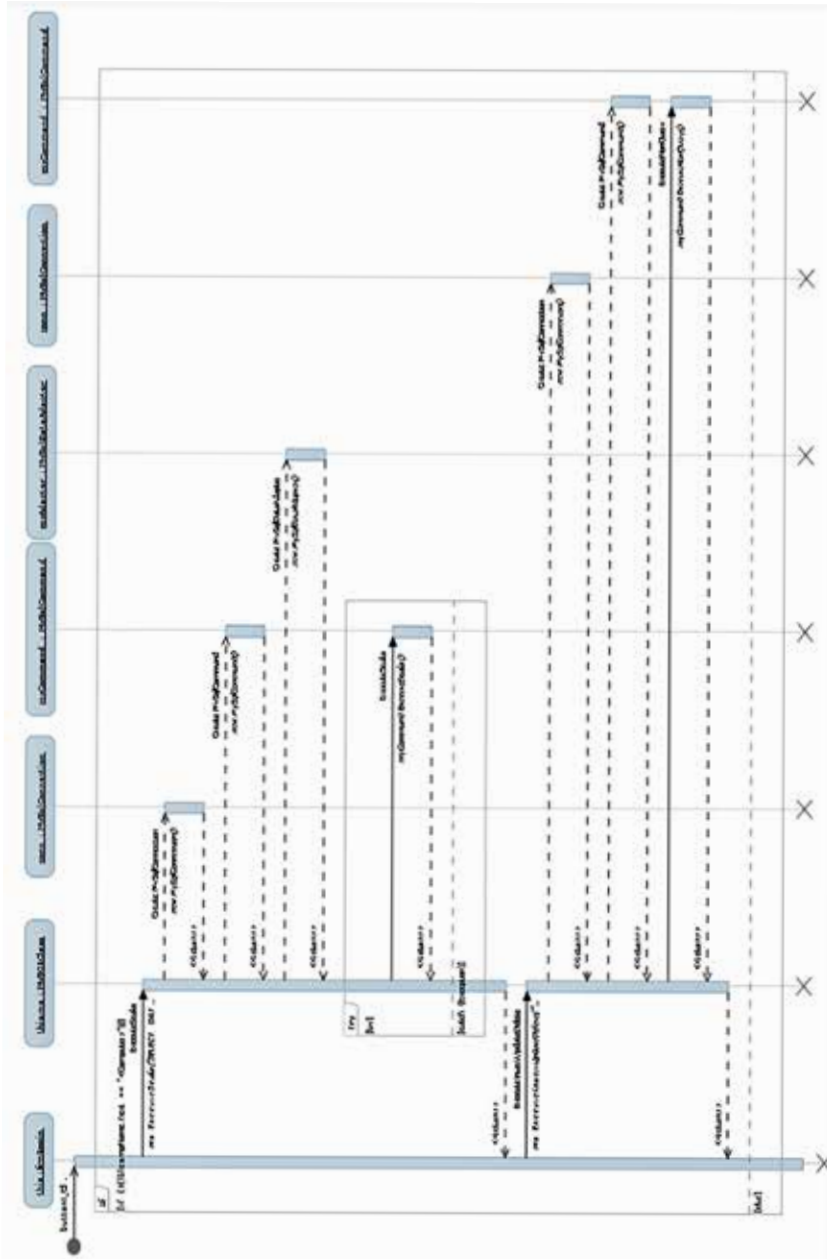
Figure 26. Button1_click

This function will enable the user to login, to the system after all the certain requirements were met (i.e. student should be a CCS Student; there is an available computer for the student to use).
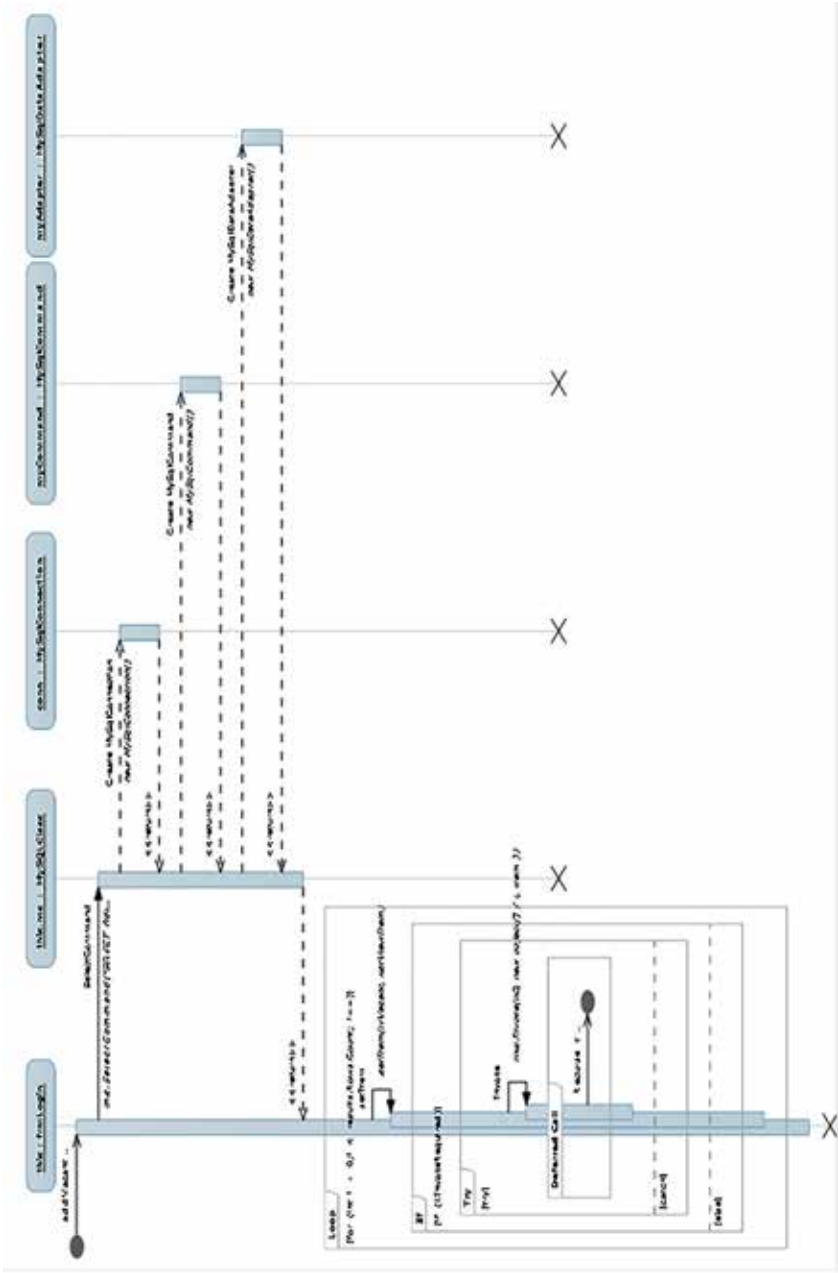
Figure 27. AddVacantComputers

This function will add all the available computers on the list.
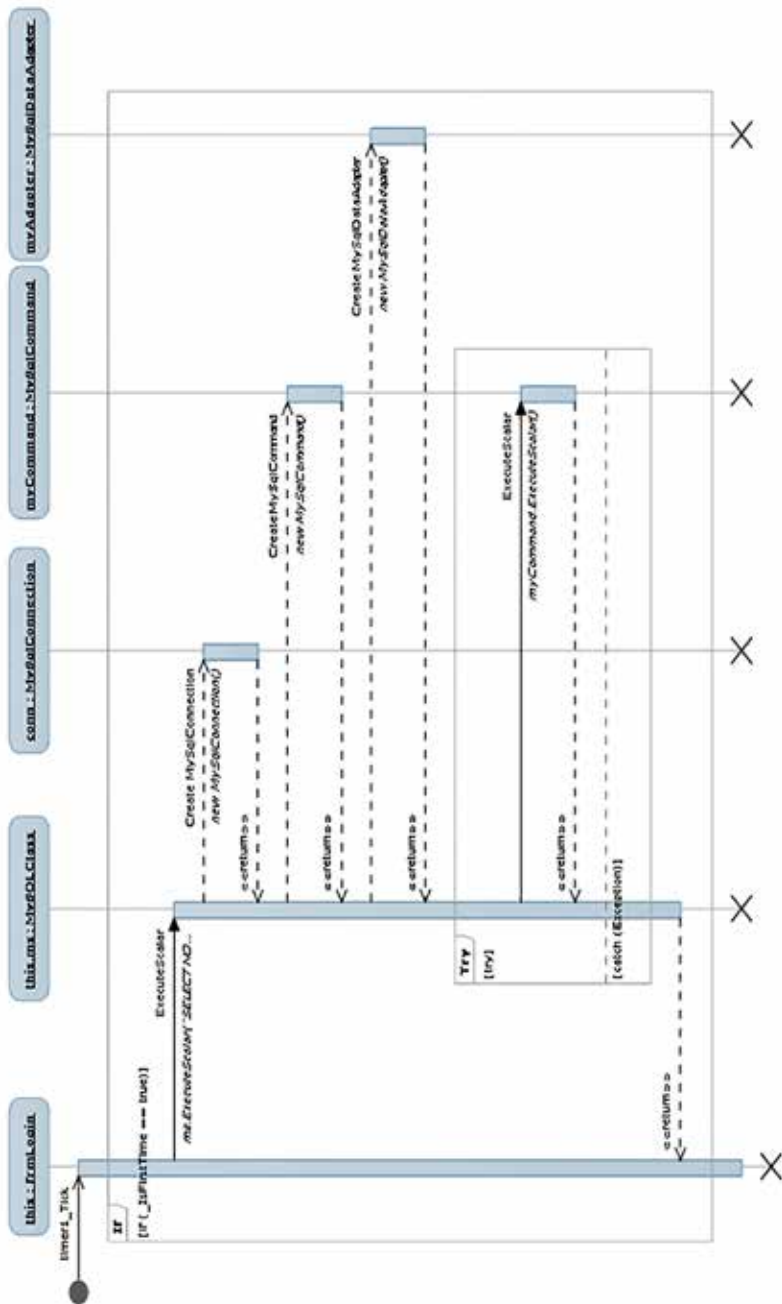
Figure 28. Timer1_Tick()

This will get the Server time and set it on the local time. This will also ensure that the time from the server and the client are uniform.
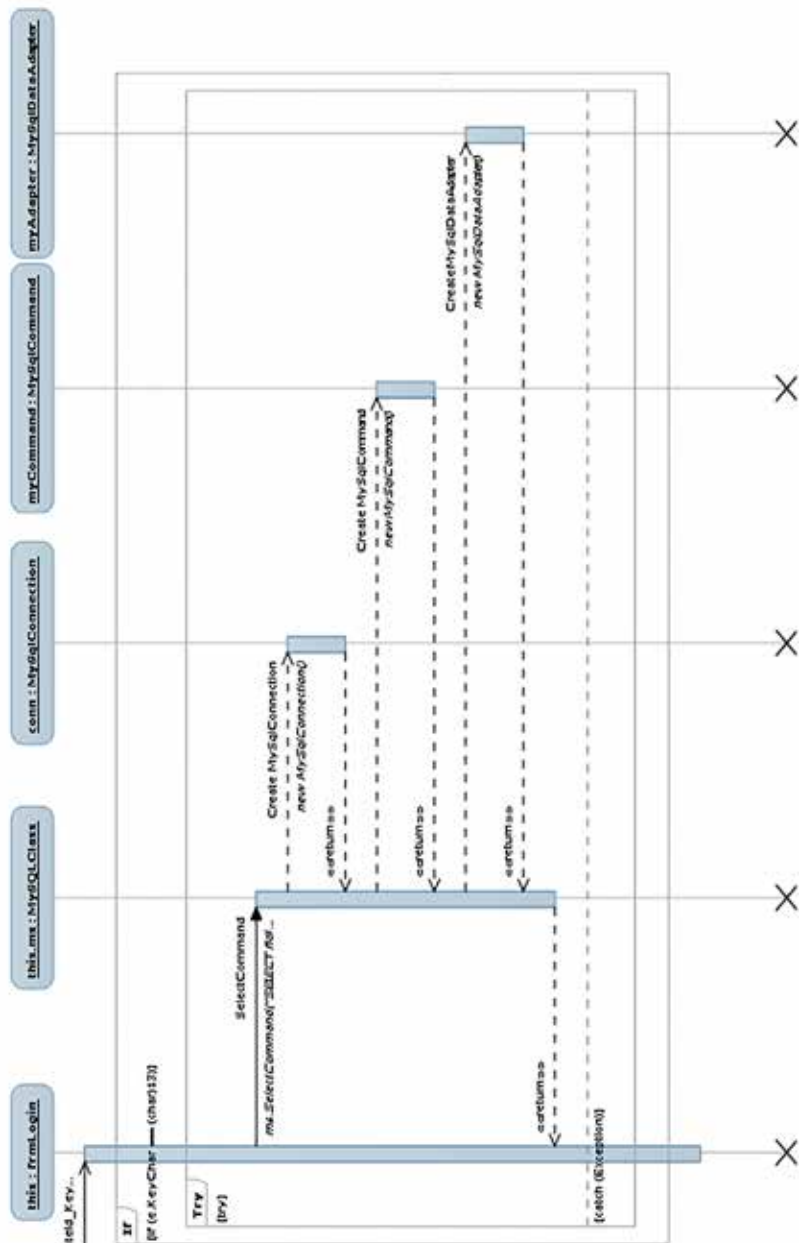
Figure 29. txtID_Keypress()

This event will display the information of the student in the form. This will ensure that the student is a currently-enrolled CCS Student.
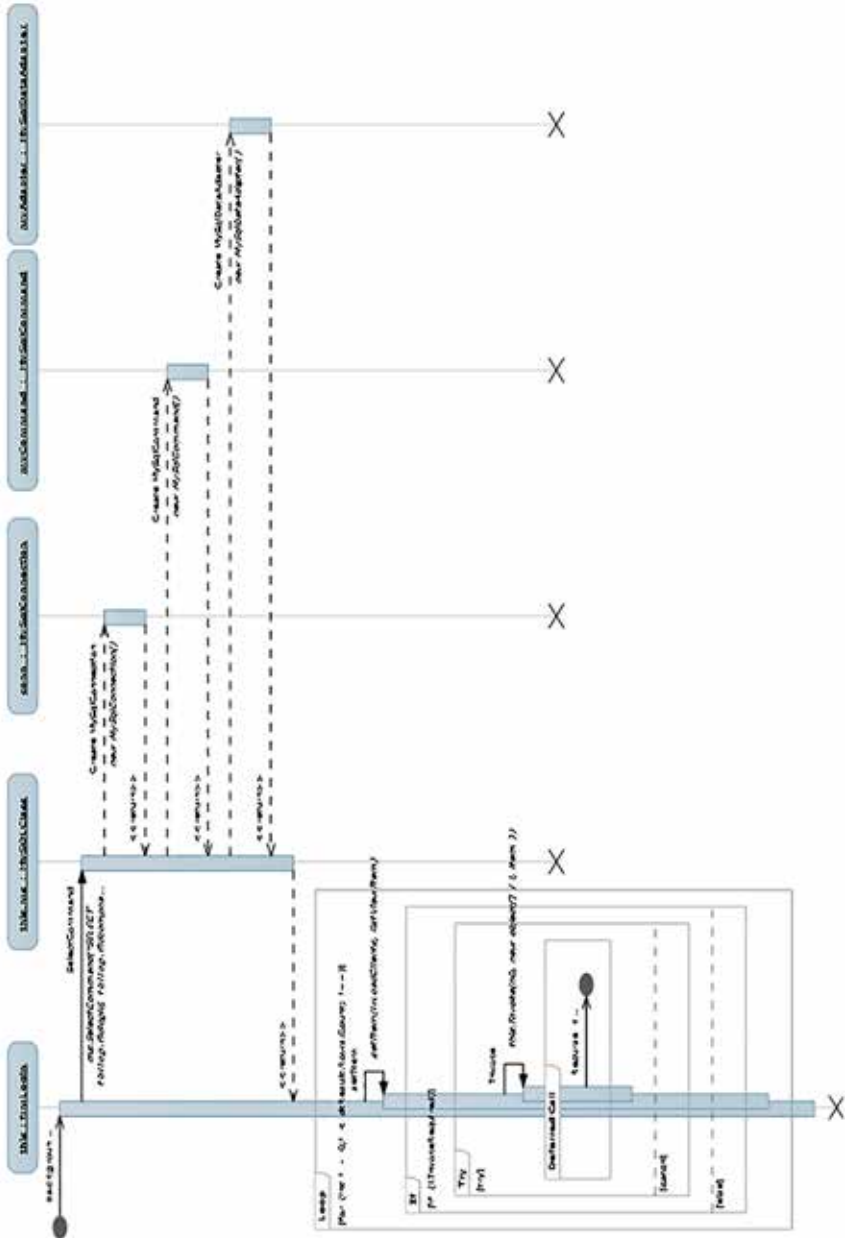
Figure 30.backgroundWorker2_DoWork()

This will get all the currently not-available PCs. This list will be displayed on the screen together with the user details and the remaining time.

MySQLDatabase

Description

This class contains database information like username, database password, and database name. This will be used to open the server database. Methods are provided so users can actually manipulate data in the database.
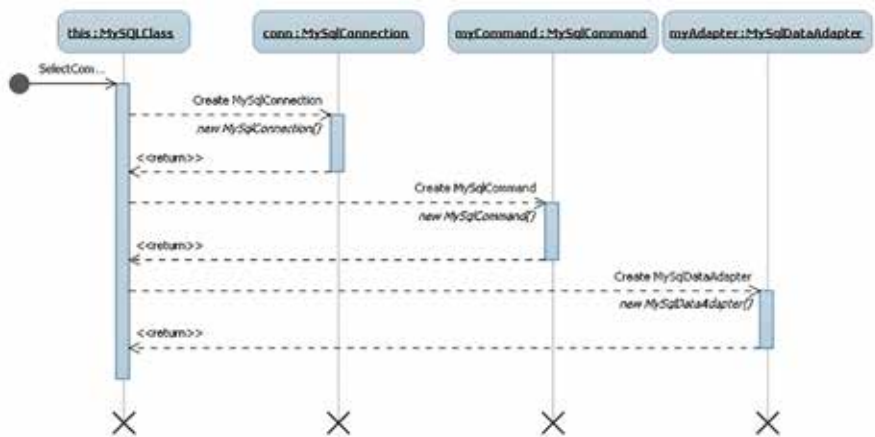
Figure 31. SelectCommand()

The Select Command will return a DataTable containing the data from the executed SQL Query.
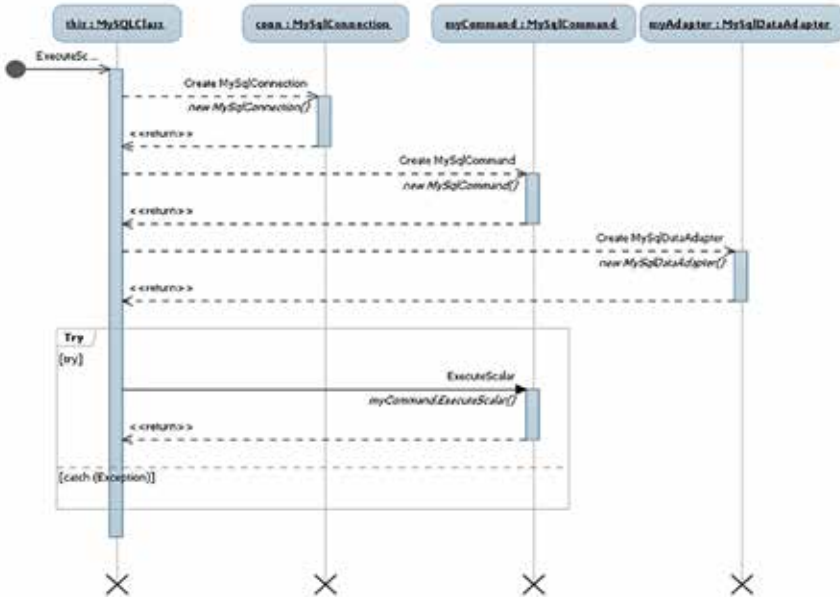
Figure32. ExecuteScalar()

This method will return a String value as a result of an SQL query.
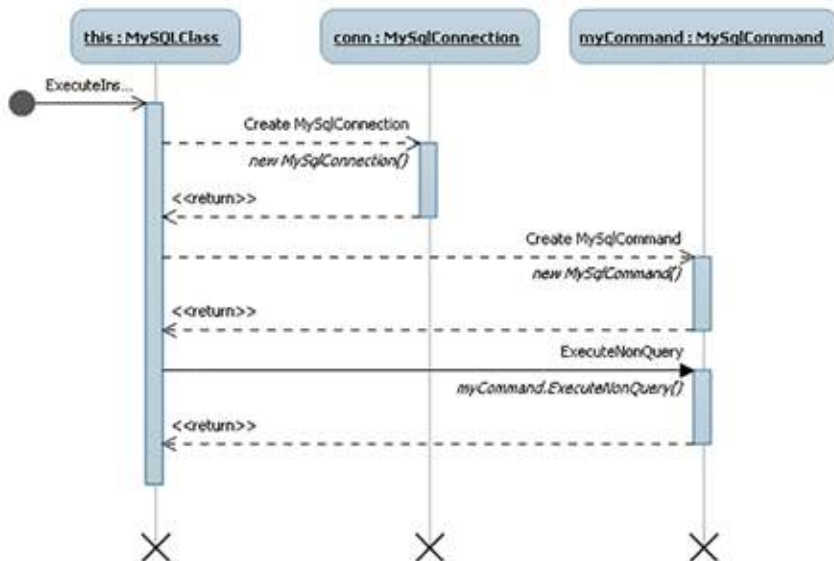
Figure 33. ExecuteInsertUpdateDelete()

This method is used in Inserting, Updating, and Deleting an item(s) into the database.

User Interfaces

Figure 34. Biometric Logs

Figure 35. CLIENT

Figure 36. Time Manager

wala

Figure 37. Server Main Menu

Figure 38. View Details

Figure 39. Monitor Computers

Figure 40. Log off Computer

Figure 41. Extend Time

Class Diagrams

frmTimeManager
Class
→ Form

☐ Fields
- backgroundWo...
- backgroundWo...
- backgroundWo...
- columnHeader5
- columnHeader7
- components
- label1
- label2
- label3
- label4
- label5
- label6
- lblLogID
- lblName
- lblRemainingTi...
- lblstartTime
- linkLabel1
- logid
- lvVacant
- ms
- notifyIcon1
- panel1
- Saved
- timer1
- timer2
- timer3
- timer4

⊞ Methods
⊞ Nested Types

frmTimeManager
Class
→ Form

⊞ Fields

☐ Methods
- addRunningPro...
- backgroundWo...
- backgroundWo...
- backgroundWo...
- backgroundWo...
- Dispose
- frmTimeManager
- frmTimeManag...
- frmTimeManag...
- getListViewItems
- InitializeCompo...
- linkLabel1_Link...
- notifyIcon1_Mo...
- setDetails
- setItem
- timer1_Tick
- timer2_Tick
- timer3_Tick
- timer4_Tick

⊞ Nested Types

frmTimeManager
Class
→ Form

⊞ Fields
⊞ Methods
☐ Nested Types

GetItems ☒
Delegate

setItemDel... ☒
Delegate

Figure 42. frmTimeManager Class Diagram

frmLogin
Class
→ Form

Fields
- _IsFirstTime
- backgroundWo...
- backgroundWo...
- btnLogin
- ColumnHeader1
- ColumnHeader2
- ColumnHeader3
- ColumnHeader4
- columnHeader5
- ColumnHeader6
- columnHeader7
- components
- dtServerDateTi...
- e1
- label1
- label10
- label11
- label12
- label13
- label14
- label2
- label3
- label6
- label7
- label8
- label9
- lblcompName
- lblDate
- lblquality
- lblTime
- lvLoadClients
- lvVacant
- ms
- panel1
- pctFinger
- tabControl1
- tabControl2
- tabControl3
- tabPage1
- tabPage2
- tabPage3
- timer1
- timer2
- timer3
- txtefirst
- txteid
- txtelast
- txtemi

Methods
Nested Types

---

frmLogin
Class
→ Form

Fields

Methods
- addVacantCom...
- backgroundWo...
- backgroundWo...
- button1_Click
- Dispose
- Form1_Load
- frmLogin
- InitializeCompo...
- lvLoadClients_S...
- lvVacant_Mous...
- lvVacant_Select...
- setItem
- timer1_Tick
- timer2_Tick
- timer3_Tick
- txteid_KeyPress
- txteid_TextCha...

Nested Types

---

frmLogin
Class
→ Form

Fields

Methods

Nested Types

setItemDel...
Delegate

Figure 43. frmLogin Class Diagram

MySQLClass
Class

Fields
- databaseName
- databasePassw...
- databaseServer
- databaseUsern...

Methods
- ExecuteInsertU...
- ExecuteScalar
- MySQLClass
- SelectCommand

frmMain
Class
→ Form

Fields
- components
- toolStrip1
- toolStripButton1
- toolStripButton2
- toolStripButton3
- toolStripButton4
- toolStripButton5

Methods
- Dispose
- frmMain
- InitializeCompo...
- toolStripButton...
- toolStripButton...
- toolStripButton...

frmBG
Class
→ Form

Fields
- button1
- components
- groupBox1
- label1
- ms
- panel1
- timer1
- timer2
- txtadminpass

Methods
- button1_Click
- Dispose
- frmBG
- frmBG_Load
- InitializeCompo...
- panel1_Paint
- timer1_Tick
- timer2_Tick

Figure 44. MySQLClass, frmMain, frmBG Class Diagrams

frmMonitor
Class
→ Form

⊞ Fields

⊟ Methods

- backgroundWo...
- backgroundWo...
- Dispose
- frmMonitor
- frmMonitor_Load
- InitializeCompo...
- lvLoadClients_...
- lvLoadClients_S...
- menuItem1_Click
- menuItem2_Click
- menuItem3_Click
- menuItem4_Click
- setItem
- timer1_Tick
- timer2_Tick
- timer3_Tick

⊞ Nested Types

---

frmMonitor
Class
→ Form

⊟ Fields

- _IsFirstTime
- backgroundWo...
- backgroundWo...
- ColumnHeader1
- ColumnHeader2
- ColumnHeader3
- ColumnHeader4
- ColumnHeader6
- components
- computer
- dtServerDateTi...
- label1
- label2
- label3
- lblDate
- lblTime
- logid
- lvLoadClients
- ms
- name
- panel1
- remTime
- tabControl1
- tabControl2
- tabPage1
- tabPage3
- timer1
- timer2
- timer3

⊞ Methods

⊞ Nested Types

---

frmMonitor
Class
→ Form

⊟ Fields

- _IsFirstTime
- backgroundWo...
- backgroundWo...
- ColumnHeader1
- ColumnHeader2
- ColumnHeader3
- ColumnHeader4
- ColumnHeader6
- components
- computer
- dtServerDateTi...
- label1
- label2
- label3
- lblDate
- lblTime
- logid
- lvLoadClients
- ms
- name
- panel1
- remTime
- tabControl1
- tabControl2
- tabPage1
- tabPage3
- timer1
- timer2
- timer3

⊞ Methods

⊞ Nested Types

---

frmMonitor
Class
→ Form

⊞ Fields

⊟ Methods

- backgroundWo...
- backgroundWo...
- Dispose
- frmMonitor
- frmMonitor_Load
- InitializeCompo...
- lvLoadClients_...
- lvLoadClients_S...
- menuItem1_Click
- menuItem2_Click
- menuItem3_Click
- menuItem4_Click
- setItem
- timer1_Tick
- timer2_Tick
- timer3_Tick

⊞ Nested Types

---

frmMonitor
Class
→ Form

⊞ Fields

⊞ Methods

⊟ Nested Types

setItemDel...
Delegate

Figure 45. frmMonitor Class Diagram

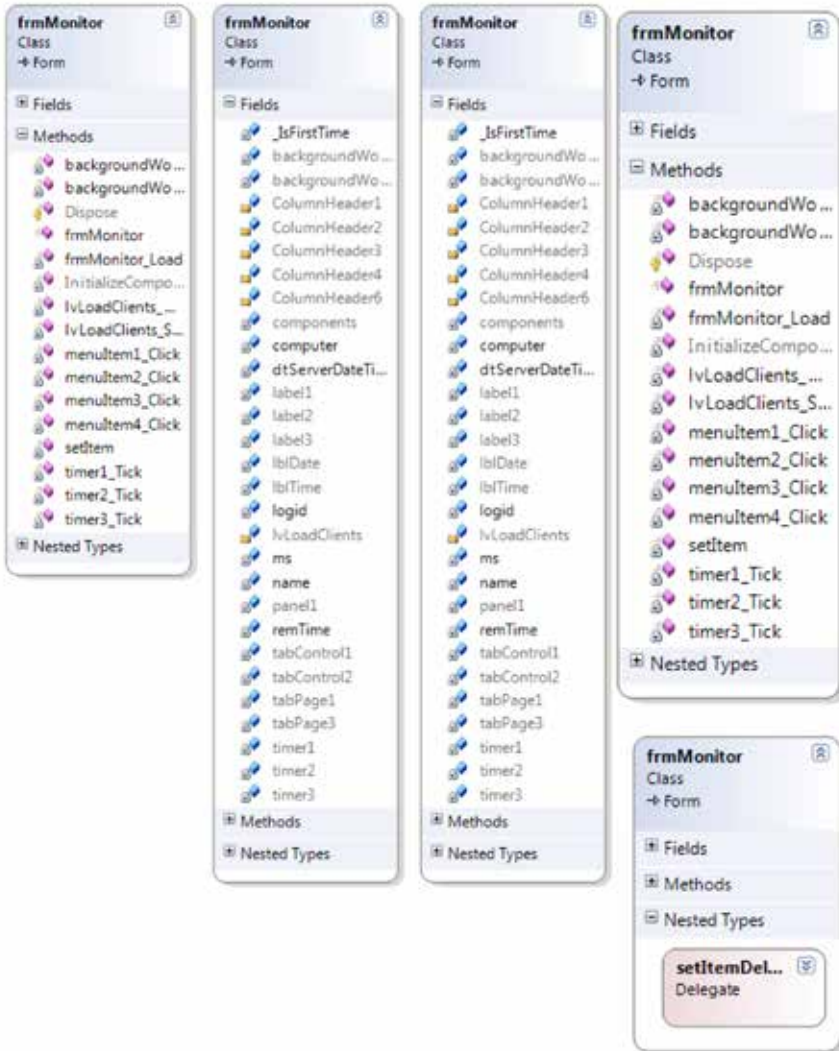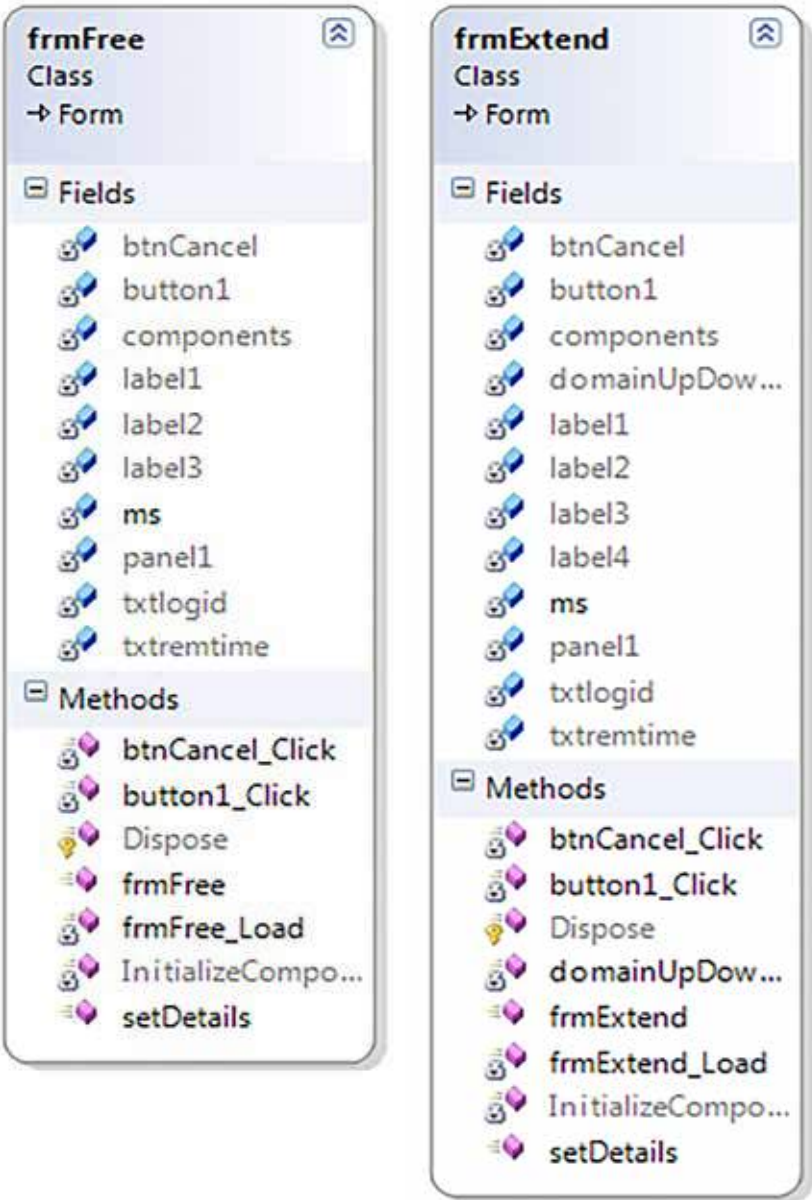**Figure 46. frmFree and frmExtend Class Diagrams**

System Requirements

Hardware
        Input device: Biometric Scanner: Digital persona Uareu
4500

        System:
                Processor   :   at least Pentium 4
                HD   :   at least 10G
                RAM   :   2MB

        Output Device: Any printer

Software
        Development   :   .Net Framework version 4
        Operating System   :   Windows XP service Pack 3

Run Time Testing, Findings and Results

        Monitoring is very essential to keep track the performance
capability, capacity and management of an important utilization
of resources. The following are the findings and results obtained
during the testing and implementation of the system.

        In its implementation semester, test results shows that
the system could meet the increasing needs of the monitoring
transactions of the OpenLab and to further enhance its integrity and
user friendliness.

Findings

        Keep track the frequency of students utilization of the
laboratory. The project shows that it provides tracking of the students
frequency in the utilization of the laboratory. The tracking mechanism
is done using student biometrics and will be automatically stored to
the database including their login and logout time. All logs that has

been stored in the database can be access at anytime for printing and a consideration for management or administration basis in the future.

Keep track the borrowing and returning of resources/ equipments. Every student once they will borrow or return any resources/equipment will be log into the system. The logs include what kind of resource(s) and or equipment is borrowed or returned, its time and date, the borrower and any remarks will be included. This logs will be stored to tbllogs database for future queries and retrieval of information.

Provide a login time for users and generate the list of frequent users. The automated process of tracking of student's login/ logout as well as the borrowing and returning transactions enable administrators to generated relevant queries from the data inputs. List of frequent users can be easily generated in a given period of running either daily, weekly, monthly or even in a specified dates.

The system produces reports that can be used for the college management functions. Such reports include list of students who used the openlab per day, list of frequently borrowed items, and inventory reports which can be used and a basis for future inventories, purchases and analysis to enhance the College of Computer Studies Services and the like. Furthermore, students browsing and searching transactions can also be log and be monitored using the system. All transactions of the used concerning browsing will be will be keep track and stored the information to the respective databases.

3. Results and Discussion

Keeping track of student frequency in utilization of the OpenLab is one of the utmost verifying procedures that the CCS OpenLab should have. Students who will use and avail the services in relation to their academics like answering machine problems, online researching and multimedia designing will be monitored

by their frequency of availment and the kind of work done in the OpenLab. Tracking of the OpenLab services helps students to perform their assignments and academic related jobs on time and aids the CCS administrators to monitor the kind of assignments and other academic quests that the CCS faculty gives to their students.

At present, the CCS Openlab uses manual way of tracking the IN and OUT of students. A record book is use to logs but it was not done systematically. The technician relies on trust that students will really keep their logs legibly and done it well in accordance to the policy. As a result, it was not properly monitored. As the researchers observed, there are a lot of students coming in an out in the OpenLab but there was no evidence of it. As to the record, only few sign for their logs. The frequency between actual utilization and what can be seen in the record did not coincide, thus reliability is a hidden question to ask to verify the actual utilization frequency and availment of the OpenLab services.

Monitoring of the borrowing and returning of resources/ equipment needs to be supervised. OpenLab resources/equipment inventory should be checked to identify and determine which will be replaced or what to be added which corresponds to the needs of the students like the software to be installed and tools to be bought. Thus, computerization of such transactions is very much needed. On the administration's side, the inventory of facilities and equipment will be monitored. The inventory of the resources/equipment during borrowing and returning will be tracked and easy to trace back in case there are faults or damages.

Furthermore, employing a Biometric Monitoring System will be more credible and reliable according to the OpenLab Technician. It is more workable because all logs will be monitored and students utilization will be identify. With the help of the software that is to be designed and developed, it is more likely to generate reports on time and query student's type of utilization for a certain period of type which could help faculty to monitor and assess their students in giving the right assignments and machine problems.

Reports are the evidences of all transactions done. To help the technician and CCS administrators monitored wisely and in their decision making, the following are the reports to be generated: 1) Login and Log out of students in the Open Lab including what course they will work for, 2) Software used, and 3) Inventory of the resources/equipments showing the status borrowed, returned or have remarks. To encourage students in using the OpenLab Services Top Users for the week or Month will also be generated.

For the CCS administrators the following are the needed reports to be generated to be used in the future: 1) Reports showing remarks/comments to the equipment / materials borrowed, 2) Reports to view dates of visits (daily, weekly, monthly, semester) of students, 3) Reports that show the total average student's utilization of the laboratory in a day or week and 4) print the reports as to the list of students who were not able to visit the laboratory in a day, week, month or semester.

With the tedious work of the technician, designing, developing and implementing a CCS OpenLab Monitoring System is a need. The system will really help both technician and CCS administrators doing their management functions and helping them to make good decisions in the future.

Conclusion

The new system designed, developed and implemented has been fully functional. With its user friendliness and system integrity, the monitoring especially the tracking of users login/logout as well as the borrowing and returning of items will be made easy to be checked and will also be accessible anytime.

Furthermore, the OpenLab technician work would be more productive as he can attend more to repairs and maintenance other than monitoring. Reports can be easily generated providing CCS administrators to manage and monitor the OpenLab resources wisely and could be a basis for updates, reinstallation, reproduction or even

a basis for recording transactions that enhance students availment of resources and services.

The new system that was developed is truly beneficial for the College of Computer Studies Open Lab in La Salle University. It helps the college to keep track with the technological advancements procedures and processes, thereby providing a more efficient services and more efficient output of monitoring the resources.

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Fish, Meat And Vegetable Vendors' Plastic Bag Usage

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Abstract

This study assessed the extent of plastic bag utilization of eighty (80) Public Mall fish, meat and vegetable vendors of Ozamiz City. Data were gathered through the use of questionnaire and interview. Frequency and percentage distribution were used to present the daily consumption of plastic bags of the Public Mall fish, meat and vegetable vendors. It was found that the vendors indeed have an overconsumption of plastic bags. Regulations of the use of plastic bags are highly recommended but most importantly enforcement is critical.

1. Introduction

Society has evolved throughout the years; from the quaint towns and villages to the highly urbanized civilization of today. Urbanization has brought about many advances as the modern age took over. The population has risen and innovations sprang out from all sorts of industries as the result of industrialization, one of these wonders was the plastic bags. Made for comfort and convenience nowadays it is hard that plastic bags cannot be found in households, local stores, markets, malls and the likes; they seem to be everywhere. It is one of the most widely used items; if you go into any average kitchen there you will find plastic bags taken from various grocery stores.

As urbanization continues to expand together with the rapid growth of population, there has been a direct increase of waste generation and variety of waste composition (Thanh, 2010). Plastic being one of the major contributors of solid waste has become a serious problem. An estimated number of 500 billion to 1 trillion plastic bags are consumed worldwide each year according to Okrand (2008). Okrand added that recent studies have shown that there's more plastic than plankton in some of the remote part of our

oceans, there are increasing report of the risk on human health due to chemicals used in the production of plastics and not to mention that plastics are made from petroleum which is a non-renewable resource and a major contributor to global warming. Plastic bags or constantly called as single use bags have posed a huge threat to the environment.

According to Tooney (2013) plastic bags represent a conundrum; they create a significant problem for the environment yet they still offer a clean and convenient remedy for collecting and disposing of food scraps and materials. Casanova (2012) pointed that plastic bags designed to satisfy a need, is a multi-use product and can do many things than paper; plastic bags are widely used and appreciated for wrapping food for example. Nowadays it is very hard for consumers to do away with the use of plastic bags during their daily purchase of goods especially on highly perishable and easily contaminated items like fish, meat and vegetables for example. These bags provide convenience and secure transport of the product from the supermarket to the individual households eliminating the risk of exposure to contaminants from the purchasing stage event until storage. Being a multi-use product, plastic bags has earned its place in society and is even named by Guinness World Records as "the most ubiquitous consumer item in the world," making it a leading source of pollution worldwide (Doucette 2011). Doucette (2011) added that plastic has very attractive qualities; it is lightweight, versatile & flexible, moisture resistant, strong and relatively inexpensive that it leads consumers and retailers around the world to over consume plastic goods.

According to Artajo (2007), Ozamiz City is an emerging commercial center in Mindanao and based in the study of National Statistics Office (2013), has an annual population growth rate of 1.55 percent for the last ten years (2000-2010) (as cited in Matunog and Awa, 2013, p. 75). The city is composed of 51 barangays of which only 23 (urban coastal/lowland/business and residential barangays) availed of the city waste collection services. Results of the said study reveled that from each of the sampled sources,

biodegradable and residual waste components constituted the great bulk of the waste. The public market produced the highest amount of biodegradable wastes, their residual waste coming on second with 0% recyclable waste. Residual Waste refers to the waste that cannot be or is not separated for recycling or composting. It is all the stuff that currently, we cannot collect for recycling which includes plastic bags, in the place public mall vendors, used to wrap their goods sold to consumers and package small sachet or tetra packs of other goods which are no longer recyclable by their them. The Public Mall is the main good providers for the city of Ozamiz, a wide variety of fish, meat and vegetable concessionaires are situated there it being the city's public market. Retailers have favored plastic bags for their easy-to-use, convenient and economical quality as pointed by Ketcham (2013). The Public Mall's fish, meat and vegetable market are the largest occupants garnering most of its vendors. Thus, this study plays close attention to the extent of plastic bag usages of Ozamiz City Public Mall Fish, Meat and Vegetable Vendors determining their plastic bag utilization whether or not it is properly exploited or over consumed.

The plastic bags have become a "pervasive symbol of convenience and consumerism" worldwide over the past three decades (Warner, 2010). According to Warner (2010) the plastic polymer was created in the 1930's and first appeared in the form of a grocery bag, not too soon after, in 1977 major supermarkets regularly used mass-produced plastic bags. Similarly, Serisier (2011) pointed that in 1966 the plastic bag went big in public when it was introduced to grocery stores, in 1973 plastic bags in all shapes and sizes were industrialized. Mass production at a very low price allowed the plastic bag to penetrate almost every retail chain on the planet. By 1990 the domination of plastic bags, although triumphant for product design utility, has lead to an increasing environmental concern by its sheer volume. Moreover, an estimate of one trillion plastic bags are used every year worldwide ration to about one million plastic bags per minute are used, it takes up to a thousand years to degrade a single plastic bag while only one in 200 plastic bags in the UK alone are recycled resulting to 46, 000 pieces of

plastic floating in every square mile of ocean ("Facts about the Plastic Bag Pandemeic," 2013).

Recognized worldwide as the most ever-present item in the world with its multi-use characteristic the plastic bag is everywhere. According to Doucette (2011) plastic bags are made from high-density polyethylene - a byproduct of oil and natural gas. It is literally found everywhere on the planet, from the bottom of the ocean to the peak of the Mount Everest, the bags are durable, waterproof, cheaper to produce than paper bags and able to carry 1,000 times their own weight. Plastic bags are very much appreciated for their easy-to-use quality in wrapping food, holding water and other wet goods (Casanova, 2012). In addition, they are quicker to open and pack not to mention plastic bags are available in bulk purchases costing way cheaper than paper bags and the proposed alternative reusable cloth bags (Ketcham, 2013). Furthermore, Jimenez (2012) stated that plastic bags out do alternative packaging with its many advantages such as inexpensiveness, protection of goods from dirt and rain, hygienic, reusable and recyclable and uses less energy to make. On the most unfortunate circumstances when indiscriminately disposed plastic bags have become the leading source of many environmental problems like pollution, flood and plastic intoxication of marine animals.

The many functions of the plastic bag made it a versatile practical invention of the 20th century (Casanova, 2012). Ketcham (2013) made clear that retailers have favored plastic shopping bags for their convenience. Conveniently consumers have found plastic bags to be a better option as well. Doucette (2011) supported as according to her American shoppers alone used about 102 billion plastic shopping bags each year; that is more than 500 per consumer. As our ever changing world continues its progress towards innovation this modernized society where everything is "instant, quick, fast and convenient" the continuous use of plastic bags have become inevitable.

Warner (2010) said that "plastic shopping bags are harmful in the environment in several ways from the point of creation to eventual disposal". Based on the research conducted by Claire Le Guern Lytle (2009), 80 percent of the world's pollution problem is covered by marine pollution. It is unquestionable that marine pollution is one of the world's most all-encompassing pollution problems that have affected major coastal areas, beaches, oceans, seafloors, inland waterways and land areas. Coastal littering discharged from inland urban areas have influenced the types and amount of debris that are found in the open ocean or collected along the coasts be it above and below the water's edge.

Consequently the work of Doucette, Kitt (2011) states that a decade ago in Bangladesh, a storm happened and there is a clogged of plastic bags which caused to massive floods. In the same reports as well it happened in China that there is a white pollution due to openly selling of street vendors that create a tremendous impact due to massive use of plastic bags. Jimenez (2012) and Warner (2010) supported as they similarly say that plastic bags are not biodegradable and are perceived to be the cause of flooding as they clog drainage and waterways when no proper waste management is applied.

This study is anchored on the idea held in the Environmental Act of Northern Territory Environment Protection Authority which establish the framework for the assessment of potential or anticipated environmental impacts of development. The act is to ensure to the greatest extent practicable, that each matter affecting the environment be fully examined (Northern Territory Environment Protection Authority). It is important to know and discover whether the use of plastic bags in Ozamiz by the fish, meat and vegetable vendors in the public mall pose a threat to the environment. Thus, this research is conducted. Specifically, this paper aimed to find out the volume of purchase of plastic bags of the vendors in Ozamiz City.

The study determines the extent of plastic bag usages of Ozamiz City Public Mall Fish, Meat and Vegetable Vendors. The

respondents of the study are the bonafide Ozamiz City Public Mall fish, meat and vegetable vendors, concessionaires and retailers.

With the completion of the study, the City Local Government Unit will be given research-based information as basis for the improvement of the City's waste management program as well as use the information to create waste consumption awareness among citizens of Ozamiz from consumers to entrepreneurs who are plastic bags users. The result of the study benefit not only the fish, meat and vegetable vendors but other retailers who are currently using plastic bags in a way that they will be aware of their current consumption whether or not they are or close to the point of over consumption and utilization of plastic bags. The findings may serve as their their guide for the drafting or improvement of their own waste consumption management that will regulate their use of the ever present item.As the concessionaires may conveniently benefit from this study, so are the general consumers having to consume plastic bags as well, the same awareness will be provided by the study and will serve as basis for them to apply waste management, minimal plastic utilization and practice recycling in their respective households. Lastly, to future researchers, this study may be a source of information for thier research endeavors. The outcome of the data analysis will be useful for further research and confirmation of details.

2. Method

This study used descriptive research design as it aims only to determine the extent of plastic bag usages in Ozamiz City Public Mall Fish, Meat and Vegetable vendors. The respondents include 80 vendors specifically 30 fish vendors, 20 meat and 30 vegetables vendors. The study is conducted in the city's public mall that accommodated 955 stalls and 14 spaces for rent, rooms for offices, food chains, bakeries, banks and commercial stores. The researcher administered the questionnaires to the vendors and asked them to answer the survey honestly and sincerely. Data was interpreted and treated using frequency distribution and percentages.

3. Results and Discussion

This segment presents, analyzes and interprets the data gathered on the extent of plastic bag usage of Ozamiz City Public Mall Fish, Meat and Vegetable Vendors based on their purchase be it daily, weekly or occasional, daily consumption amidst their purchase patterns and according to size of the plastic bag used by the vendors.

Table 1 presents the usage of plastic bag at different time intervals.

As reflected in table 1 statistics show that the majority of the vendors opt to purchase plastic bags daily garnering 74% or 59 out of the total 80, followed by 15 others (19%) with a weekly routine and a few as 6 gathering only 7% chose to purchase plastic bags occasionally or specifically every other day without considering which type of vendor they are – fish, meat or vegetable vendor. Vendors felt the need to purchase only the amount of plastic bags they need for the days' use resulting to the much preferred daily purchase, a common respond as the vendors were interviewed.

Table 1
Respondents' usage of of Plastic Bag at different time intervals

Usage	Number	Percentage
Daily	59	74%
Weekly	15	19%
Occasionally (every other day)	6	7%
TOTAL	80	100%

Table 2 shows the fish vendors' plastic bag usage by sizes on a daily basis.

Table 2
Fish Vendors' Plastic Bag Usage by Sizes on a Daily Basis

Number of Fish vendors that purchase plastic bags daily: 24				
Sizes	**Daily Purchase**		**Daily Consumption**	
	Pack/s	Piece/s	Pack/s	Piece/s
4x8 inches (100 pcs/pack)	N/A	N/A	N/A	N/A
5x10 inches (100 pcs/pack)	N/A	N/A	N/A	N/A
8x14 inches (50 pcs/pack)	N/A	N/A	N/A	N/A
Tiny (50 pcs/pack)	55	2 750	55	2 750
Medium (100 pcs/pack)	16	1 600	16	1 600
Large (100 pcs/pack)	0	0	0	0
TOTAL	71	4 350	71	4 350

As shown, fish vendors only make use of the plastic bags with handles. It is revealed that the majority prefer to purchase daily tiny sizes of plastic bags daily. The fish vendors did not purchase the large ones and universally believed and agreed that the size Tiny is the plastic bag that is used for fish as they describe it in their own words "*supot para sa isda"*.

Table 3 shows fish vendors' usage of plastic bag on a weekly basis.

Table 3
Quantity of Fish Vendors Plastic Bag Uses on a Weekly Basis

Number of Fish vendors that purchase plastic bags weekly: 6				
Sizes	**Weekly Purchase**		**Daily Consumption**	
	Pack/s	Piece/s	Pack/s	Piece/s
4x8 inches (100 pcs/pack)	N/A	N/A	N/A	N/A
5x10 inches (100 pcs/pack)	N/A	N/A	N/A	N/A
8x14 inches (50 pcs/pack)	N/A	N/A	N/A	N/A
Tiny (50 pcs/pack)	60	3 000	19	950
Medium (100 pcs/pack)	20	2 000	4	400
Large (100 pcs/pack)	0	0	0	0
TOTAL	80	5 000	23	1, 350

As shown, 6 of 30 fish vendors bought tiny plastic bags on a weekly basis, the sizes Tiny with a daily consumption of 19 packs and Medium with a daily consumption of 4 packs are usually bought and consumed.

Table 4 presents the meat vendors' plastic bag usage by sizes on a daily basis.

Table 4
Meat Vendors' Plastic Bag Usage by Sizes on a Daily Basis

Number of Meat vendors that purchase plastic bags daily: 14				
Sizes	Daily Purchase		Daily Consumption	
	Pack/s	Piece/s	Pack/s	Piece/s
4x8 inches (100 pcs/pack)	N/A	N/A	N/A	N/A
5x10 inches (100 pcs/pack)	N/A	N/A	N/A	N/A
8x14 inches (50 pcs/pack)	14	700	14	700
Tiny (50 pcs/pack)	31	1 550	31	1 550
Medium (100 pcs/pack)	6	600	6	600
Large (100 pcs/pack)	5	500	5	500
TOTAL	56	3 350	56	3 350

As reflected in Table 4, 14 meat vendors purchase plastic bags daily with a corresponding daily consumption of the sizes Tiny (31 packs), 8x14 inches (14 packs), Medium (6 packs) and Large (5 packs) having Tiny as the most used and Large as the least.

Table 5 depicts meat vendors' usage of plastic bag on a weekly basis.

Table 5
Quantity of Meat Vendors Plastic Bag Usage on a Weekly Basis

Number of Meat vendors that purchase plastic bags weekly: 4				
Sizes	Weekly Purchase		Daily Consumption	
	Pack/s	Piece/s	Pack/s	Piece/s
4x8 inches (100 pcs/pack)	N/A	N/A	N/A	N/A
5x10 inches (100 pcs/pack)	N/A	N/A	N/A	N/A

8x14 inches (50 pcs/pack)	32	1 600	7	350
Tiny (50 pcs/pack)	42	2 100	15	750
Medium (100 pcs/pack)	8	800	2	200
Large (100 pcs/pack)	6	600	2	200
TOTAL	88	5 100	26	1 500

As shown in Table 5, 4 meat vendors purchase plastic bags with a weekly routine. The Tiny is commonly consumed with 15 packs daily, subsequently size 8x14 inches with 7 a daily consumption of 7 packs and sizes Medium and Large tied with at least 2 packs of daily consumption.

Table 6 presents the meat vendors' plastic bag usage by sizes on every- other-day basis.

Table 6

Meat Vendors Plastic Bag Usage by Sizes on Every-Other-Day Basis

Number of Meat vendors that purchase plastic bags occasionally: 2				
Sizes	Daily Purchase		Daily Consumption	
	Pack/s	Piece/s	Pack/s	Piece/s
4x8 inches (100 pcs/pack)	N/A	N/A	N/A	N/A
5x10 inches (100 pcs/pack)	N/A	N/A	N/A	N/A
8x14 inches (50 pcs/pack)	20	1 000	10	500
Tiny (50 pcs/pack)	30	1 500	15	750
Medium (100 pcs/pack)	2	200	2	200
Large (100 pcs/pack)	1	100		20
TOTAL	53	2 800	27	1 470

As manifested in Table 6, only 2 meat vendors choose the occasion to purchase every other day. Size Tiny, like the other vendors, is dominantly consumed with 15 packs used daily. Size 8x14 inches only fell short of 5 packs behind size Tiny while like other meat vendors who buy plastic bag weekly, only 2 packs of daily usage is practiced by meat vendors that buy plastic back occasionally. On the other hand daily consumption of size Large was only 20 pieces.

Table 7

Vegetable Vendors' Plastic Bag Usage by Sizes on a Daily Basis

Number of Vendors that purchase plastic bags daily: 21				
Sizes	Daily Purchase		Daily Consumption	
	Pack/s	Piece/s	Pack/s	Piece/s
4x8 inches (100 pcs/pack)	20	2 000	20	2 000
5x10 inches (100 pcs/pack)	6	600	6	600
8x14 inches (50 pcs/pack)	107	5 350	107	5 350
Tiny (50 pcs/pack)	183	9 150	183	9 150
Medium (100 pcs/pack)	16	1 600	16	1 600
Large (100 pcs/pack)	10	1 000	10	1 000
TOTAL	342	19 700	342	19 700

As reflected in Table 7, 21 vendors purchase plastic bags daily. The popularly consumed size among vegetable vendors is the Tiny or commonly known as the "T-bag" with a 183 packs purchased and used daily. Size 8x14inches came in second with 107 packs purchased and used daily followed by size 4x8 inches (20 packs) which the vendors assured was used for repacking purposes of vegetable goods in "menudo"; a vernacular term familiar to Ozamiz City Public Mall vegetable vendors. The same sentiment is applied to the use of size 5x10 inches which happens to be the least popularly consumed among the sizes with only 6 packs bought and consumed daily. Sizes Medium (16 packs) and Large (10 packs) faired in fourth and fifth respectively in popularity among vendors that purchase and consume plastic bags daily.

Table 8 presents vegetable vendors' plastic bag usage on a weekly basis.

Table 8

Vegetable Vendors' Plastic Bag Usage on a Weekly Basis

Number of Vegetable vendors that purchase plastic bags weekly: 5				
Sizes	Weekly Purchase		Daily Consumption	
	Pack/s	Piece/s	Pack/s	Piece/s

4x8 inches (100 pcs/pack)	22	2 200	7	700
5x10 inches (100 pcs/pack)	0	0	0	0
8x14 inches (50 pcs/pack)	49	2 450	14	700
Tiny (50 pcs/pack)	33	1 650	8	400
Medium (100 pcs/pack)	12	1 200	1	100
Large (100 pcs/pack)	22	2 200	1	100
TOTAL	133	9 700	31	2 000

About 5 out of the total number of vegetable vendors acquire plastic bags weekly with a daily consumption of 14 packs of size 8x14 inches, 8 packs of size Tiny, 7 packs of size 4x8 inches and at least a pack on both Medium and Large.

Table 9 shows the vegetable vendors' usage of plastic bags on

Table 9

Vegetable Vendors' Plastic Bag Usage by Sizes on Every-Other-Day Basis

Number of Vegetable vendors that purchase plastic bags occasionally: 4				
Sizes	Occasional (every other day) Purchase		Daily Consumption	
	Pack/s	Piece/s	Pack/s	Piece/s
4x8 inches (100 pcs/pack)	5	500	3	300
5x10 inches (100 pcs/pack)	0	0	0	0
8x14 inches (50 pcs/pack)	38	1 900	14	700
Tiny (50 pcs/pack)	26	1 300	8	400
Medium (100 pcs/pack)	4	400	1	100
Large (100 pcs/pack)	3	300	1	100
TOTAL	76	4 400	27	1 600

As revealed in Table 9, of the total 30 vegetable vendors, 4 chose to buy plastic bags every other day. Sizes 8x14 inches and Tiny is the most used size with a daily consumption of 14 and 8 packs correspondingly. 3 packs of size 4x8 inches and tantamount to

the vendors that opt to buy plastic bags weekly, 1 pack each of sizes Medium and Large are consumed daily.

Table 10 depicts the summary of the respondents' plastic bag usage regardless of sizes.

Table 10
Summary of Vendors' Plastic Bag Weekly Usage Regardless of Sizes

Vendors(80)	TOTAL USAGE
Vegetable (30)	23 300
Fish (30)	5 700
Meat (20)	6 320
TOTAL	**35, 320**

As revealed, a total of 35, 320 pieces of plastic bags are used by the vendors as they sell their commodities weekly. This means that there will be 141, 280 pieces of plastic bags in the city accumulated from buying fish, meat and vegetables within a month. One can imagine that if explored, usage of plastic bags in the whole city of Ozamiz can be 100 if not 1000 times more than what is presented in Table 10 weekly as almost all establishments in the city uses plastic bags to carry the purchased merchandises, plus majority of the goods are packed in plastic materials by the manufacturing companies. It is clear that over consumption of plastic bags may have been practiced by these vendors and is affirmed by the vendors themselves as they were interviewed stating that aside from their own consumption with the selling of their products some are wholesales of plastic bags as well, it is also common for consumers, according to the vendors, to ask for more than a piece of plastic bag to use with their purchase while others even buy the bigger sizes of plastic bags to use as a shopping bag to put all other goods together. These practices have gone to the extent of over consumption of plastic bags by retailers and well as consumers. This is alarming as thousands of plastic bags threatens the environment. Northern Territory Environment Protection Authority share impacts of plastic bag usage to environment. Plastics bring danger to animal life as it

mistakenly consider plastic as their food. Plastic bags that float in the water increase marine litter in the Pacific Ocean together with other wastes like plastic bottles. Further, it also increase the litter problem and a source of loss of resources resulting to greenhouse gases.

3. Findings, Conclusion and Recommendation

The present study found that vegetable vendors are the ones that consume plastic bags more than the other two with a total of 551 packs purchased and an extent of 23 300 pieces of plastic bags used daily, meat vendors came in second with a total purchased of 197 packs with the consumption of 6 320 pieces and fish vendors ended in third having 151 packs of bought plastic bags and a consumption of 5 700 pieces. A rundown of 899 packs of plastic regardless of size and frequency of purchase were bought and a summation of 35 320 pieces of plastic bags are utilized daily by the Ozamiz City Public Mall fish, meat and vegetable vendors alone. It is noticeable that the size Tiny and 8x14 inches are popularly used among the vendors, 334 and 166 packs respectively are consumed daily; when combined hogs over 25 000 pieces out of the total number that are utilized daily, it is eminent that sizes 4x8 inches and 5x10 inches are only used by vegetable vendors again for repacking purposes, size medium is also satisfactorily used by fish vendors while large plastic bags however is fairly used by all three vendors.

Vegetable vendors consume more plastic bag due to their repacking of vegetable good practices. The most popularly used size of plastic by both vegetable and meat vendors are Tiny and 8x14 inches while fish vendors opt to use size Tiny and Medium. An alarming consumption of plastic bags is clearly evident, thus regulating the use of plastic bags is necessary and its enforcement is vital.

Based from the context of the finds and conclusion of the study, it is recommended that retailers and consumers should be

aware of the extent of their consumption of plastic bags to defer over consumption and waste generation. It is strongly recommended that there should be information dissemination on the advantages and disadvantages of the use of plastic bags. This can be reflected during Environmental Awareness Month Celebration or any other related activities like the annual Earth day and the likes. Citizens of Ozamiz City must discontinue practicing wrong behaviors, it is highly recommended for everyone to be knowledgeable and care where, when and how to dispose of the product. Good environmental management is the key. The Ozamiz City Local Government may impose and strengthen the city's solid waste management (SWM) in terms of plastic bag utilization, management and regulation. Managing plastic bags means knowing how to use, store properly for reuse purposes and knowing how to recycle them when their life of usefulness has come to an end. It is extremely recommended that guidelines on how to use, reuse, maintain, recover and recycle plastic bags be available to the public, for them to understand and take into heart these guidelines. Further, the LGU pass strictly implement current regulations on the use of plastic bags and revisit the city's established environmental management policy . Future researchers may study other users' extent in their plastic bag usage to give a wholistic picture of the city's usage of the material.

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