

Incremental Model, advantages, examples, Case study

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There are many software process models that can be implemented by software engineers. Some famous process models are the [waterfall model](#), [spiral model](#), [iterative model](#), and [agile model](#), etc. In other tutorials, we will also learn about these topics. Here our main focus is to discuss the incremental model. So, let's start our discussion about the incremental model.

According to the incremental model, the software is divided into separate modules(components)and each of these modules has a separate set of waterfall activities including requirements gathering and analysis, design, implementation, deployment, and maintenance.

When any component is ready, then the component is delivered to the customer and when remaining components become ready than delivered to the customer one by one by integrating new components with old once.

Example of the incremental model (Just for understanding)



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Increment 1

Increment 2

Increment 3

Increment 4

In this daily life example, we want to draw a picture, first, we draw the first part of the picture as shown in increment 1, Similarly after completing the first part of the picture we have to add one another part of the picture labeled as increment 2 in the above picture. Similarly, we complete this picture in four increments.

A case study of incremental model

Suppose we want to develop a web-based [social network](#) with the following functionalities;

The user should [signup](#) for the system.

The user should log into the system and can send or accept the friend request.

How we can use the incremental model in this scenario;

Solution:

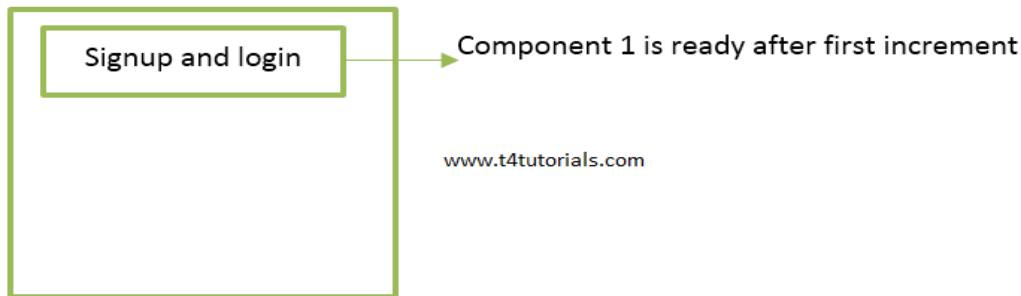
We need to convert this system into separate components;

Component 1: Sign up and log in

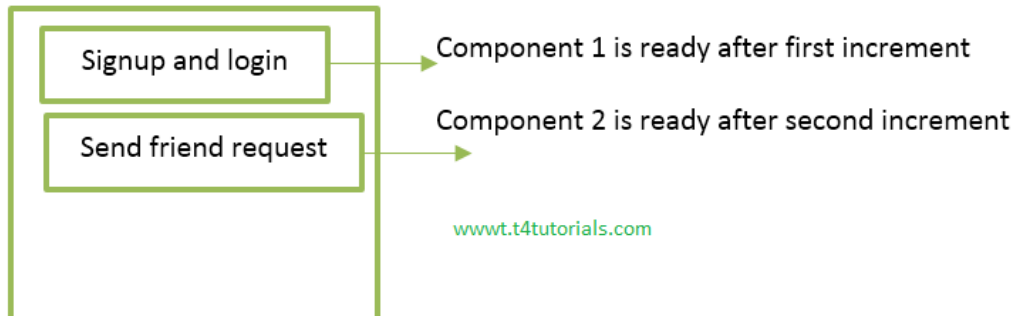
Component 2: Send Friend request

Component 3: Accept friend request

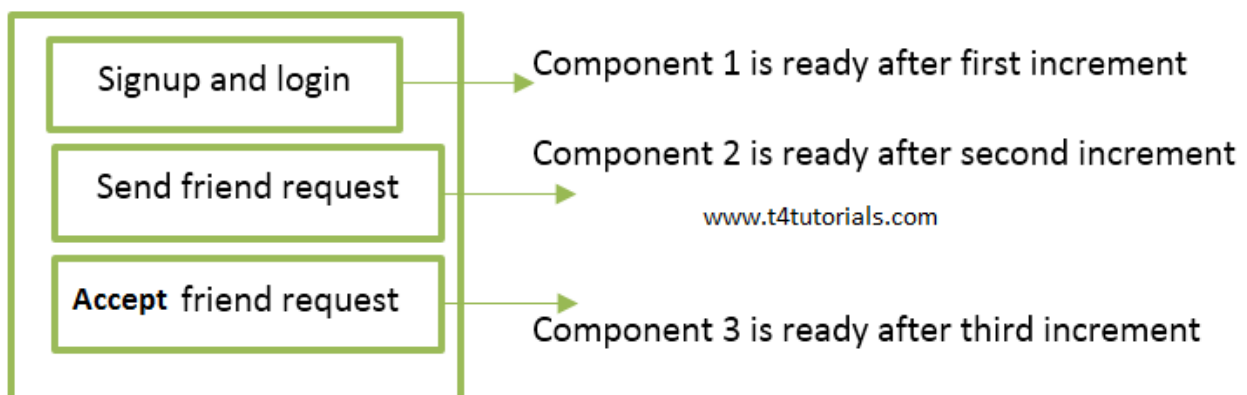
≡ Now, when we start our activities, then we can start with component 1(signup and login). This component undergoes the phases of requirements gathering and analysis, design, implementation, deployment, and maintenance. When this component is ready, we deliver this one component to the customer.



≡ After that, we add or increment another component 2 that sends the friend request. This component undergoes the phases of requirements gathering and analysis, design, implementation, deployment, and maintenance. When this component is ready, we deliver this one component to the customer.



≡ After that, we add or increment another component 3 that accepts a friend request. This component undergoes the phases of requirements gathering and analysis, design, implementation, deployment, and maintenance. When this component is ready, we deliver this one component to the customer.



Result: In this case study we observe that one system is produced and delivered to the customer in increments.

What are the advantages of an incremental model?

1. Customer feedback is received after the delivery of each component.
2. Risk of requirement changes is reduced
3. More flexible
4. Easy to [test](#) and debug
5. Give quick results

What are the disadvantages of an incremental model?

1. Needs a proper plan to integrate the components
2. Needs a proper design to integrate the components
3. More expansive as compared to the waterfall model.

When to use the incremental model?

1. When major requirements are understood but some requirements can evolve within the passage of time.
2. When product launch in the market is getting late.
3. When a customer has no problem with the budget but he demands more and more [quality in software](#).

Difference between incremental model and Iterative Model

Let's see the Difference between the [Iterative](#) and incremental models with a diagram.