Travelr

Developer Guide

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Acknowledgements

- This project is based on the AddressBook-Level3 project created by the SE-EDU initiative.
- Implementation of the help command is inspired by Rachel Angelyn Gunawan, a developer of PleaseHireUs. Check out their project here

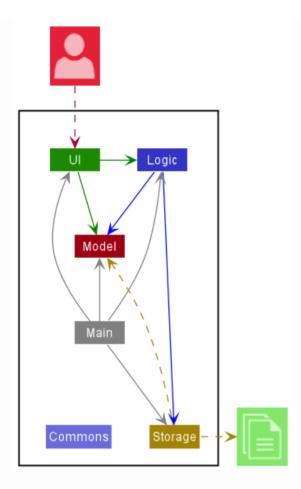
Setting Up and Getting Started

Refer to the guide Setting up and getting started.

Design

Tip: The puml files used to create diagrams in this document can be found in the diagrams folder. Refer to the *PlantUML Tutorial* at se-edu/guides to learn how to create and edit diagrams.

Architecture



The *Architecture Diagram* given above explains the high-level design of the App.

Given below is a quick overview of main components and how they interact with each other.

Main components of the architecture

Main has two classes called Main and MainApp. It is responsible for,

- At app launch: Initializes the components in the correct sequence, and connects them up with each other.
- At shut down: Shuts down the components and invokes cleanup methods where necessary.

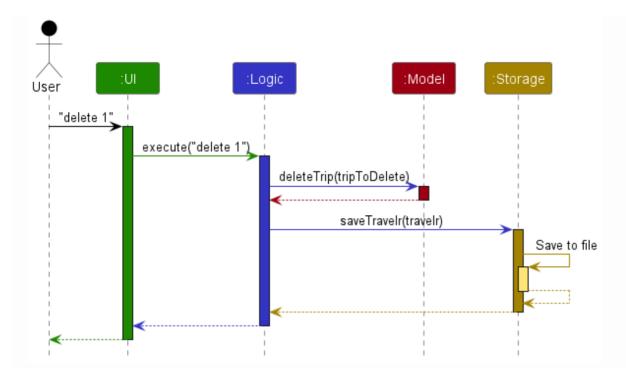
Commons represents a collection of classes used by multiple other components.

The rest of the App consists of four components.

- **UI** : The UI of the App.
- Logic : The command executor.
- Model : Holds the data of the App in memory.
- **Storage** : Reads data from, and writes data to, the hard disk.

How the architecture components interact with each other

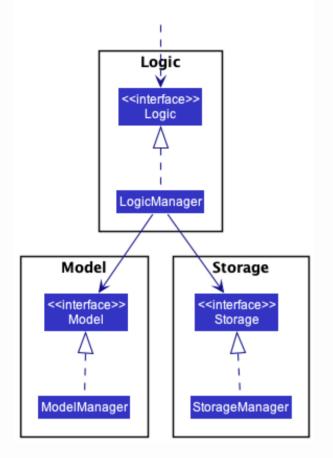
The Sequence Diagram below shows how the components interact with each other for the scenario where the user issues the command delete 1, which is used to delete a trip at the specified index.



Each of the four main components (also shown in the diagram above),

- defines its API in an interface with the same title as the Component.
- implements its functionality using a concrete {Component Name}Manager class (which follows the corresponding API interface mentioned in the previous point.

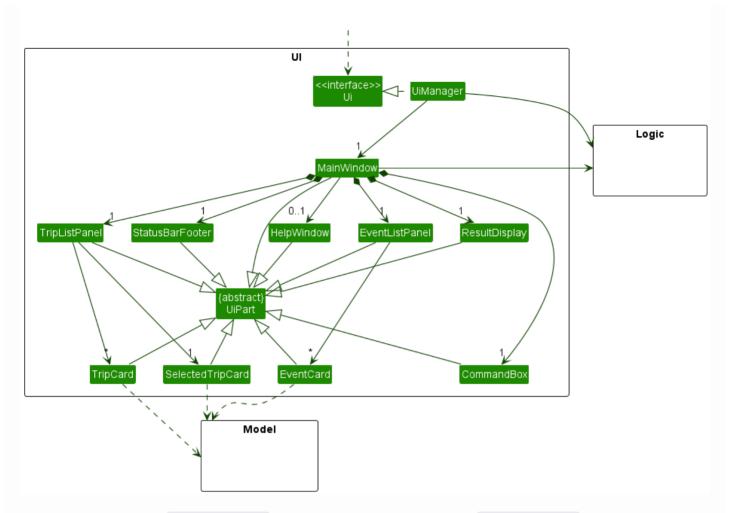
For example, the Logic component defines its API in the Logic.java interface and implements its functionality using the LogicManager.java class which follows the Logic interface. Other components interact with a given component through its interface rather than the concrete class (reason: to prevent outside component's being coupled to the implementation of a component), as illustrated in the (partial) class diagram below.



The sections below give more details of each component.

UI component

The API of this component is specified in Ui.java



The UI consists of a MainWindow that is made up of parts e.g. CommandBox ,

ResultDisplay, TripListPanel, EventListPanel, StatusBarFooter etc. All these, including the MainWindow, inherit from the abstract UiPart class which captures the commonalities between classes that represent parts of the visible GUI.

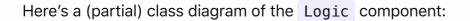
The UI component uses the JavaFx UI framework. The layout of these UI parts are defined in matching .fxml files that are in the src/main/resources/view folder. For example, the layout of the MainWindow is specified in MainWindow.fxml

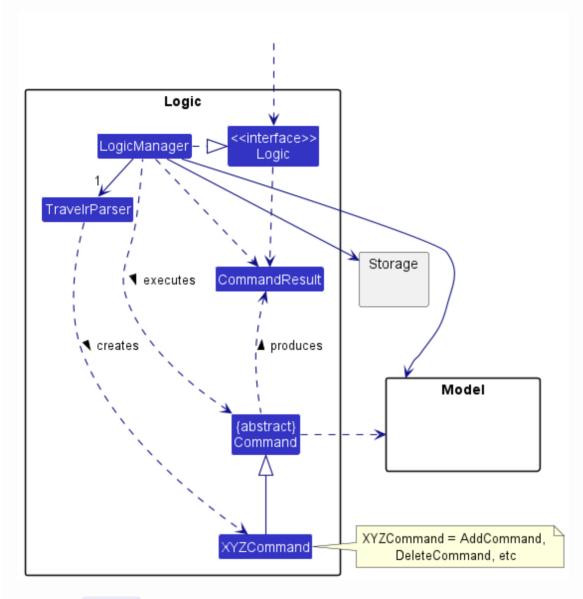
The UI component,

- executes user commands using the Logic component.
- listens for changes to Model data so that the UI can be updated with the modified data.
- keeps a reference to the Logic component, because the UI relies on the Logic to execute commands.
- depends on some classes in the Model component, as it displays Trip and Event objects residing in the Model.

Logic component

API: Logic.java

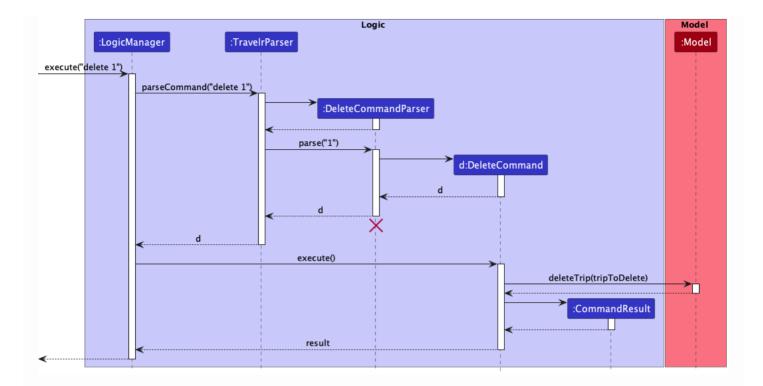




How the Logic component works:

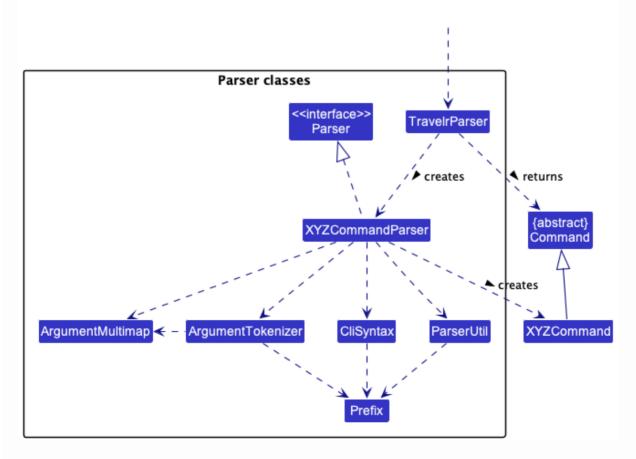
- 1. When Logic is called upon to execute a command, it uses the TravelrParser class to parse the user command.
- This results in a Command object (more precisely, an object of one of its subclasses e.g.,
 AddCommand) which is executed by the LogicManager.
- 3. The command can communicate with the Model when it is executed (e.g. to add a trip).
- 4. The result of the command execution is encapsulated as a **CommandResult** object which is returned back from **Logic**.

The Sequence Diagram below illustrates the interactions within the Logic component for the execute("delete 1") API call.



Note: The lifeline for DeleteCommandParser should end at the destroy marker (X) but due to a limitation of PlantUML, the lifeline reaches the end of diagram.

Here are the other classes in Logic (omitted from the class diagram above) that are used for parsing a user command:

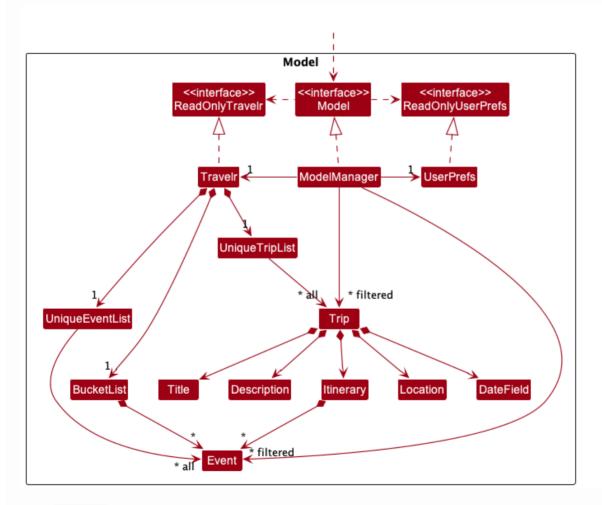


How the parsing works:

- When called upon to parse a user command, the TravelrParser class creates an XYZCommandParser (XYZ is a placeholder for the specific command title e.g., AddCommandParser) which uses the other classes shown above to parse the user command and create a XYZCommand object (e.g., AddCommand) which the TravelrParser returns back as a Command object.
- All XYZCommandParser classes (e.g., AddCommandParser, DeleteCommandParser, ...) inherit from the Parser interface so that they can be treated similarly where possible e.g, during testing.

Model component

API: Model.java



The Model component,

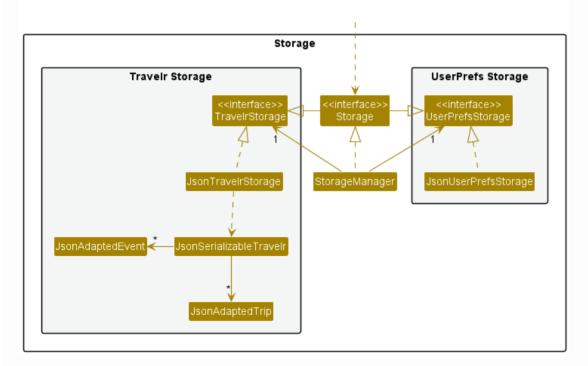
- stores the Travelr data i.e.,
 - all Trip objects (which are contained in a UniqueTripList object)
 - all Event objects (which are contained in a UniqueEventList object)
- stores the currently 'selected' Trip objects (e.g., results of a search query) as a separate filtered list which is exposed to outsiders as an unmodifiable ObservableList<Trip>

that can be 'observed' e.g. the UI can be bound to this list so that the UI automatically updates when the data in the list change.

- stores the currently 'selected' Event objects (e.g., results of a search query) as a separate *filtered* list which is exposed to outsiders as an unmodifiable
 ObservableList<Event> that can be 'observed' e.g. the UI can be bound to this list so that the UI automatically updates when the data in the list change.
- stores a UserPref object that represents the user's preferences. This is exposed to the outside as a ReadOnlyUserPref objects.
- does not depend on any of the other three components (as the Model represents data entities of the domain, they should make sense on their own without depending on other components)

Storage component

API: Storage.java



The Storage component,

- can save both Travelr data and user preference data in json format, and read them back into corresponding objects.
- inherits from both TravelrStorage and UserPrefsStorage, which means it can be treated as either one (if only the functionality of only one is needed).
- depends on some classes in the Model component (because the Storage component's job is to save/retrieve objects that belong to the Model)

Common classes

Classes used by multiple components are in the seedu.travelr.commons package.

Implementation

This section describes some noteworthy details on how certain features are implemented.

[Implemented] Display trip's events

Implementation

The proposed display trip's events mechanism is facilitated by the SelectCommand through the use of an EventInItineraryPredicate. It extends Predicate with a test that checks if an event is part of the given Itinerary, which is stored internally as an Itinerary. This predicate is then set as the predicate of the filteredEventList, which contains all events added to Travelr.

Given below is an example usage scenario of how the display trip's events mechanism behaves at each step.

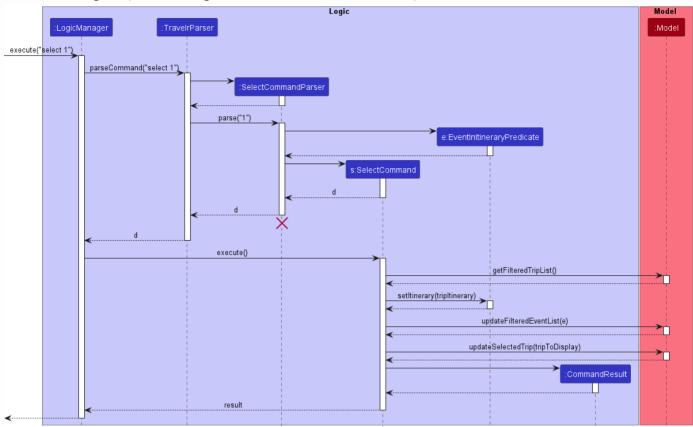
Step 1. The user launches the application for the first time. The **Travelr** will be initialised with the initial Travelr state.

Step 2. The user executes add n/Trip to Japan ... to add a new trip, and also executes add-e n/Try Takoyakis ... to add a new event to Travelr.

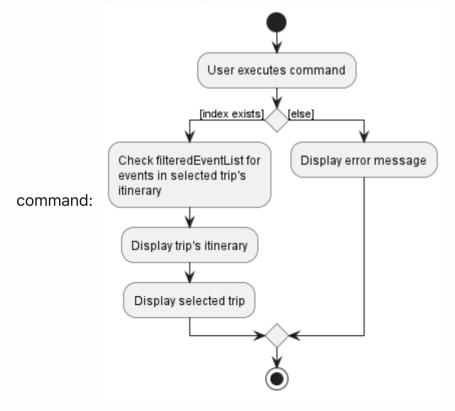
Step 3. The user adds the **Event** 'Try Takoyakis' to the **Trip** titled 'Trip to Japan', which results in 'Try Takoyakis' being in its **Itinerary**.

Step 4. The user executes the select 1 command to display the 1st trip's events. A new **EventInItineraryPredicate** will be created, with an internal **Itinerary** pointer that points to the **Itinerary** of the selected **Trip**. Model#updateFileredEvents will then be called with the predicate supplied as an argument, which will update the list of displayed events to be those that are part of the selected trip's itinerary.

The following sequence diagram shows how the select operation works:



The following activity diagram summarizes what happens when a user executes a new



Design considerations:

Aspect: Format of display trip's events command:

• Alternative 1 (current choice): Use index as arguments

- Pros: Will be easier for the user to look at/remember the index and use the command.
- Cons: Comparatively more error prone.
- Alternative 2: Use trip title as arguments.
 - Pros: Given the previous code structure, easy and fast to implement. Less error prone in term of user mistakes.
 - Cons: Creates many dummy Objects. In entering the command, using the exact trip's titles' name can be harder and time-consuming for the user.

[Implemented] Add event to trip

Implementation

The proposed add event to trip mechanism is facilitated by the use of AddEventToTripCommand. It extends Command with some tests that checks the event and trip.

Given below is an example usage scenario of how the add event to trip's mechanism behaves at each step.

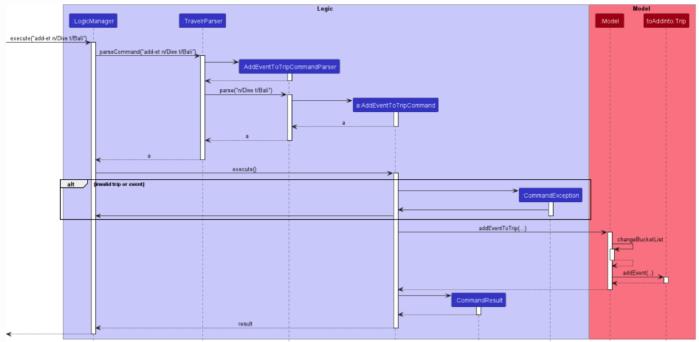
Step 1. The user launches the application for the first time. The **Travelr** will be initialised with the initial Travelr state.

Step 2. The user executes add n/Trip to Japan ... to add a new trip, and also executes add-e n/Try Takoyakis ... to add a new event to Travelr.

Step 3. The user executes add-et n/Try Takoyakis t/Trip to Japan, which adds the Event 'Try Takoyakis' to the Trip titled 'Trip to Japan', which results in 'Try Takoyakis' being in its Itinerary.

i Note: For the command to work normally, the specified Event need to be in the bucket list and the Trip should exist in the trip list

The following sequence diagram shows how the Add Event To Trip command works:



Design considerations:

Aspect: Format of add event to trip command:

- Alternative 1 (current choice): Uses event and trip title as arguments
 - Pros: Given the previous code structure, easy and fast to implement. Less error prone in term of user mistakes.
 - Cons: Creates many dummy Objects. In entering the command, using the exact titles' name can be harder and time-consuming for the user.
- Alternative 2: Uses event and trip index as shown in the GUI. itself.
 - Pros: Will be easier for the user to look at/remember the index and use the command.
 - Cons: Comparatively more error prone regarding the argument provided compared to the previous alternative.

[Implemented] Display completed trips and events

Implementation

The display completed trips and events mechanism is facilitated by the use of EventCompletedPredicate and TripCompletedPredicate. TripCompletedPredicate and EventCompletedPredicate extends Predicate with a test that checks if an event is part of a list of itineraries belonging to completed trips.

These predicates are then set as the predicate of the filteredTripList and filteredEventList respectively, which will result in the display of completed trips and

events.

Given below is an example usage scenario of how the display trip's events mechanism behaves at each step.

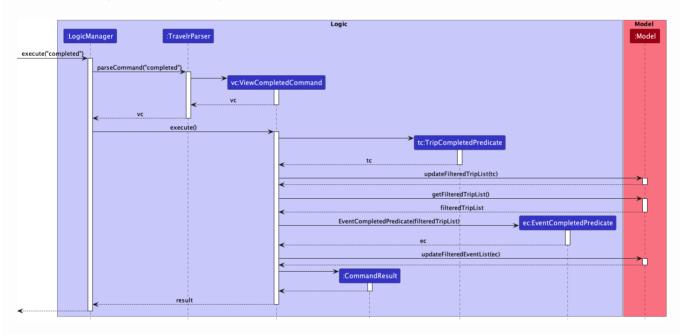
Step 1. The user launches the application for the first time. **Travelr** will be initialised with the initial Travelr state.

Step 2. The user executes add n/Trip to Japan ... to add a new trip, and also executes add-e n/Try Takoyakis ... to add a new event to Travelr.

Step 3. The user adds the **Event** 'Try Takoyakis' to the **Trip** titled 'Trip to Japan', which results in 'Try Takoyakis' being in its **Itinerary**.

Step 4. The user executes mark 1, which marks the first trip as well as the events in its itinerary as completed.

Step 5. The user executes **completed**, which displays all completed trips and events, which includes both 'Trip to Japan' and 'Try Takoyakis'.



The following sequence diagram shows how the completed command works:

[Implemented] Display Travelr Summary Window

Implementation

The summary command is facilitated by SummaryVariables. It contains several fields which are the property representing statistics of the Travelr app that will displayed to the user in the Summary Window.

Here are some key properties

- tripsProgress A SimpleStringProperty which has a String value representing the percentage of trips completed.
- eventsProgress A SimpleStringProperty which has a String value representing the percentage of trips completed.
- totalUniqueLocations A SimpleIntegerProperty which has an Integer value representing the total unique locations a User visited.

These methods added to the ModelManager helps to manage the SummaryVariables.

- ModelManager#getSummaryVariables() Returns the SummaryVariables stored in the ModelManager.
- ModelManager#refreshSummaryVariables() Refreshes the SummaryVariables.

Given below is an example usage scenario and how the summary mechanism behaves at each step.

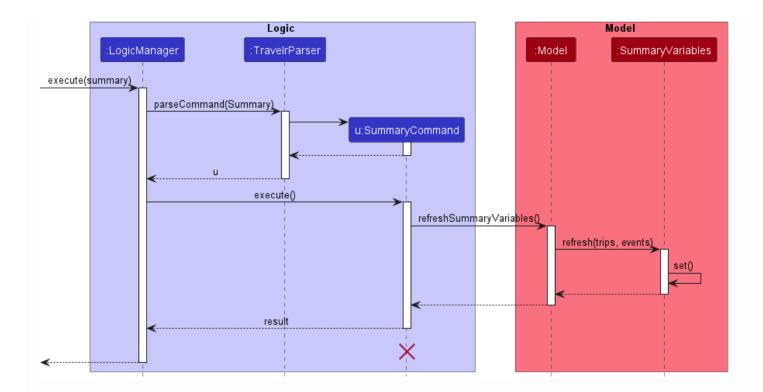
Step 1. The user launches the application for the first time. The **Travelr** will be initialized with the initial Travelr state.

Step 2. The user executes add n/Trip Name ... to add a new trip, and add-e n/Event Name ... to add a new event. Throughout the usage of the app, the user adds multiple trips and events to Travelr, and also uses add-et n/Event Name t/Trip Name ... to add events to trips.

Step 3. The user now completes a Trip and marks it as completed using the mark command. Throughout the usage of the app, the user mark multiple trips as he carries out his trips.

Step 4. The user now decides that he wants to see a summary of his travels, and he does so using the summary command. The summary command will call Model#refreshSummaryVariables(), which calls SummaryVariables#refresh() to get new updates for the summary variables and the list of completed trips.

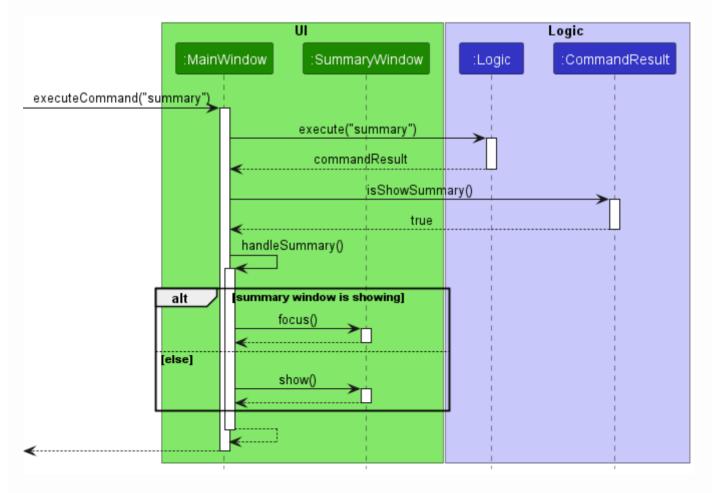
The following sequence diagram shows how the summary command works:



Note: The lifeline for SummaryCommand should end at the destroy marker (X) but due to a limitation of PlantUML, the lifeline reaches the end of diagram.

Step 5. Now that the SummaryVariables are refreshed, the GUI will display a new window through MainWindow#handleSummary.

The following sequence diagram shows how the GUI displays the Summary Window:



Design considerations:

Aspect: How summary executes:

- Alternative 1 (current choice): Show new window.
 - Pros: Easy to implement.
 - Cons: Poorer user experience from having to change windows.
- Alternative 2: Overlay the summary panel over the trips and events panel in the main window.
 - Pros: Easier for users to see the summary information from one window.
 - Cons: We must ensure that the implementation of each individual command are correct.

[Implemented] Sorting trips mechanism

Implementation

The proposed sorting mechanism is facilitated by TripComparators. It contains a few Comparator<Trip> used to sort the trips by various factors. This mechanism is used in SortTripsCommand, AddCommand, MarkTripDoneCommand and UnmarkDoneTripCommand.

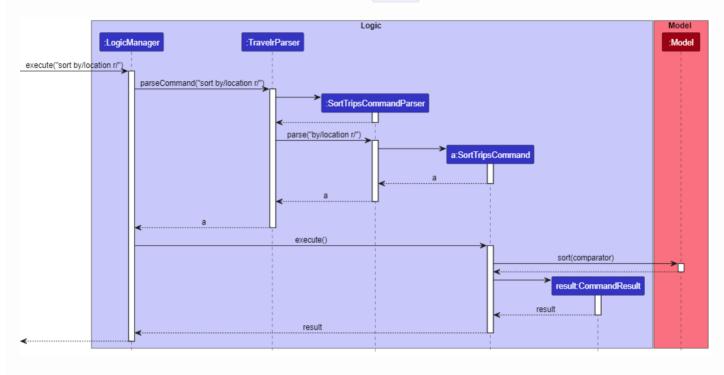
Given below is an example usage scenario and how the sorting mechanism behaves at each step.

Step 1. The user launches the application. The **Travelr** will be initialized with the past app data.

Step 2. The user executes add n/Trip Name ... to add a new trip. Throughout the usage of the app, the user adds multiple trips to Travelr. Each time the add command is called, the trips are sorted by completion and the uncompleted new trips are ordered before the completed trips.

Step 3. The user now completes a Trip and marks it as completed using the mark command. Throughout the usage of the app, the user mark multiple trips as he carries out his trips. Each time the mark command is called, the trips are sorted by completion and the completed trips are ordered after the uncompleted trips.

Step 4. The user now un-mark a Trip and make it incomplete using the unmark command. Through the usage of the app, the user unmark multiple trips as he cancels some of his trips. Each time the unmark command is called, the trips are sorted by completion and the uncompleted trips are ordered before the completed trips. Step 5. The user now decides that he wants to sort his list of trips, and he does so using the sort command. The SortTripsCommandParser firstly parses the command for optional parameters, which may contain the factor to sort by and whether to sort in reverse order. Subsequently, the trips are sorted based on the parameters the user supplied while keeping uncompleted trips ordered before completed trips.



The following sequence diagram shows how the **sort** command works:

Documentation, Logging, Testing, Configuration, and DevOps

- Documentation guide
- Testing guide
- Logging guide
- Configuration guide
- DevOps guide

Appendix: Requirements

Product scope

Target user profile:

- has a need to keep track of their bucket lists
- wants to manage travel itineraries, bookings, and costs efficiently
- prefer desktop apps over other types
- can type fast
- prefers typing to mouse interactions
- is reasonably comfortable using CLI apps

Value proposition: manage trips itineraries, bookings, and costs faster than a typical mouse/GUI driven app.

User stories

Priorities: High (must have) - * * , Medium (nice to have) - * * , Low (unlikely to have) - *

Priority	As a	I want to	So that I can
* * *	user	add events and trips	keep track of what I want to do
* * *	user	delete events and trips	remove the unwanted event and trips
* * *	user	add an event to a trip	assign event to trip
* * *	user	delete an event from trip	unassign an event from trip
* * *	user	view all the events in the list	refer to it whenever I want
* * *	user	save events into local storage	access the data whenever I want
* * *	user	display events in a trip	keep track of what events I assigned to a trip

Priority	As a	I want to	So that I can
* * *	user	mark a trip as done	remind myself that I have completed a trip
* * *	user	mark a trip as not done	tell myself I have not completed a trip
* * *	user	view all trips I have completed	see what trips and events I have completed
* *	user who often change his/her mind	update the details	easily change things
* *	user	categorize my events	keep track of each category
*	user	reuse past itineraries	use it when I want to
*	user	view the total budget needed	keep track of the budget

Use Cases

Software System: Travelr

Use case: UC01 Delete a Trip

Actor: User

MSS :

- 1. User request the list of trips
- 2. Travelr lists the trips.
- 3. User requests to delete a certain trip.
- 4. Travelr deletes the specified trip.

Use case ends

Extensions:

• 2a. The list is empty.

Use case ends.

- 3a. The requested trip doesn't exist
 - 3a1. Travelr shows an error message.

Use case ends

- 3b. Invalid input
 - 3b1. Travelr shows an error message.

Use Case Ends

Use case: UC02 Select a Trip

Actor: User

MSS :

- 1. User request the list of trips
- 2. Travelr lists the trips.
- 3. User requests to select a certain trip.
- 4. Travelr selects the specified trip.
- 5. Travelr lists the events contained in the trip.

Use case ends

Extensions:

• 2a. The list is empty.

Use case ends.

- 3a. The requested trip doesn't exist
 - 3a1. Travelr shows an error message.

Use case ends

- 3b. Invalid input
 - 3b1. Travelr shows an error message.

Use Case Ends

Use case: UC03 Assign an Event to a Trip

Actor: User

MSS :

- 1. User request the list of trips and bucketList events
- 2. Travelr lists the trips and events.
- 3. User requests to move the specified event to the specified trip.
- 4. Travelr move the specified event to the trip.

Use case ends

Extensions:

• 2a. The list or bucketList is empty.

Use case ends.

- 3a. The requested trip doesn't exist
 - 3a1. Travelr shows an error message.

Use case ends

- 3b. Invalid input
 - 3b1. Travelr shows an error message.

Use Case Ends

- 3c. The requested event doesn't exist
 - 3c1. Travelr shows an error message.

Use Case Ends

Use case: UC04 Remove an Event from a Trip

Actor: User

MSS :

- 1. User request the list of events in a trip.
- 2. Travelr lists the events in the trip.
- 3. User requests to move the specified event from the specified trip.
- 4. Travelr move the specified event from the trip to the bucketList.

Use case ends

Extensions:

• 2a. There is no events in the trip.

Use case ends.

- 3a. The requested trip doesn't exist
 - 3a1. Travelr shows an error message.

Use case ends

- 3b. Invalid input
 - 3b1. Travelr shows an error message.

Use Case Ends

- 3c. The requested event doesn't exist
 - 3c1. Travelr shows an error message.

Use Case Ends

Use case: UC05 Mark a trip as done

Actor: User

MSS :

- 1. User request the list of trips.
- 2. Travelr lists trips.
- 3. User requests mark a trip as done.
- 4. Travelr marks the trip as done.

Use case ends

Extensions:

• 2a. There is trip list is empty.

Use case ends.

- 3a. The requested trip doesn't exist
 - 3a1. Travelr shows an error message.

Use case ends

- 3b. Invalid input
 - 3b1. Travelr shows an error message.

Use Case Ends

• 4a. The trip is already marked as done.

Use case ends.

Use case: UC06 Mark a trip as not done

Actor: User

MSS :

- 1. User request the list of trips.
- 2. Travelr lists trips.
- 3. User requests to mark a trip as not done.
- 4. Travelr marks the trip as not done.

Use case ends

Extensions:

- 2a. The trip list is empty. Use case ends.
- 3a. The requested trip doesn't exist
 - 3a1. Travelr shows an error message.

Use case ends

- 3b. Invalid input
 - 3b1. Travelr shows an error message.

Use Case Ends

• 4a. The trip is already marked as not done.

Use case ends.

Use case: UC07 Delete event

Actor: User

MSS :

- 1. User request the list of events in bucket list.
- 2. Travelr lists events in bucket list.
- 3. User request to delete an event from the bucket list.
- 4. Travelr deletes the event.

Use case ends

Extensions:

- 2a. Bucket list is empty. Use case ends.
- 3a. The requested event doesn't exist
 - 3a1. Travelr shows an error message.
 Use case ends
- 3b. Invalid input
 - 3b1. Travelr shows an error message.
 Use Case Ends

Use case: UC08 Sort trips

Actor: User

MSS :

- 1. User request the list of trips.
- 2. Travelr lists trips in UniqueTripList.
- 3. User request to sort the list of trips.
- 4. Travelr sorts the trips according to the user's request.

Use case ends

Extensions:

- 2a. UniqueTripList is empty. Use case ends.
- 3a. The requested sorting factor does not exist
 - 3a1. Travelr shows an error message.
 Use case ends
- 3b. Invalid input
 - 3b1. Travelr shows an error message.
 Use Case Ends

Use case: UC09 Show completed trips and events

Actor: User

MSS :

- 1. User requests to see the trips they have completed as well as the events in these completed trips.
- 2. Travelr lists trips user has completed as well as the events in these trips.

Use case ends

Use case: UC10 Show summary

Actor: User

MSS :

- 1. User requests to see a summary of all their trips and events in Travelr.
- 2. Travelr displays a summary of the user's trips and events.

Use case ends

Non-Functional Requirements

1. Should work on any *mainstream OS* as long as it has Java **11** or above installed.

- 2. Should be able to hold up to 2000 events without a noticeable sluggishness in performance for typical usage.
- 3. A user with above average typing speed for regular English text (i.e. not code, not system admin commands) should be able to accomplish most of the tasks faster using commands than using the mouse.
- 4. The UI should be resizable as users will likely be referencing other tabs while using this product.
- 5. Should respond immediately to user input, as user will likely be using multiple commands.
- 6. Should be usable by novice travelers that have never planned a trip.
- 7. Should be able to work offline

Glossary

- Mainstream OS: Windows, Linux, Unix, OS-X
- **UI**: The User Interface that users will see when they use the product.

Appendix: Instructions for Manual Testing

Given below are instructions to test the app manually.

Note: These instructions only provide a starting point for testers to work on; testers are expected to do more *exploratory* testing.

Launch and shutdown

- 1. Initial launch
 - a. Download the jar file and copy into an empty folder
 - b. Double-click the jar file Expected: Shows the GUI with a set of sample trips and events. The window size may not be optimum.
- 2. Saving window preferences

a. Resize the window to an optimum size. Move the window to a different location. Close the window.

b. Re-launch the app by double-clicking the jar file. Expected: The most recent window size and location is retained.

Deleting a trip

1. Deleting a trip while all trips are being shown

a. Prerequisites: List all trips using the list command. Multiple trips in the list.

b. Test case: delete 1 Expected: First trip is deleted from the list. Details of the deleted trip is shown in the status message. Events in the deleted trip are returned to the bucket list.

c. Test case: delete 0 Expected: No trip is deleted. Error details shown in the status message.

d. Other incorrect delete commands to try: delete , delete x , ... (where x is larger than the list size) Expected: Similar to previous.

Saving data

Travelr data are saved locally automatically after any command.

1. Test case: Data folder is missing

a. On app launch, if no data folder is detected, a new Travelr instance with sample data will be used.

- b. Run any command and a new data folder containing a travelr.json file will be generated.
- c. If you do not run any command and quit the app, no data folder or file will be generated.
- 2. Test case: travelr.json file is missing

a. On app launch, if there is a data folder but it is empty, a new Travelr instance with sample data will be used.

- b. Run any command and a new travelr.json file will be generated in the data folder.
- c. If you do not run any command and quit the app, no file will be generated.
- 3. Test case: Data file is corrupted i.e does not follow the correct format

a. On app launch, if travelr.json file is corrupted, a new Travelr instance with no data will be used.

b. Run any command and the contents of the travelr.json file will be overwritten to contain the new data, which is of a correct format.

c. If you do not run any command and quit the app, no changes will be made to the travelr.json file.