48024 Programming 2 Assignment 2

Topics:

OO design, GUIs, MVC, tables, lists

Learning Outcomes:

This assignment supports objectives 3 - 5

Due date:

30 October 2023 - 11:59PM (Monday Week 12)

Weight:

25%

Individual Work

All work is individual. You must write every line of code yourself except for code copied from study module sample code, lecture sample code, tutor demos or lab code.

In most cases, you may discuss ideas, approaches and problems. However, if an assignment task is labeled as "Advanced", you must not discuss ideas, approaches and problems. Advanced tasks are designed to test your ability to think on your own.

You **MUST NOT** let another student see your solution code, and you **MUST NOT** look at another student's solution code. Sharing your code on public forums such as the discussion board, or Internet forums such as stackoverflow.com is not permitted. More information about Academic Misconduct can be found at:

http://www.gsu.uts.edu.au/rules/student/section-16.html

Working Language

You can choose either Java or Python to complete assignment 2. The higher mark between your Java solution and Python solution will be counted into your final grade. However, you are only credited with one of your solutions, either Java or Python, not both of them or the mixture.

The specification is illustrated based on Java. You can simply translate the Java syntax to Python for your Python solution. Detailed explanations about Python criteria will be posted on the FAQ page.

Skeleton Code

As a starting point for this assignment, you must use the skeleton code provided in Assignment 2 Canvas page. **You are NOT allowed to modify the model, add or remove any of the starting classes or FXML files.**

Expected workload

The time to do the assignment to a credit level (i.e. a mark between 65% to 75%) has been estimated at 25 hours for a student of average ability who has completed all the tutorial and lab exercises.

Specification

The specification is presented in several parts. In this document is given a series of screen shots and textual descriptions for visual reference.

A demonstration video is also presented on Canvas. This demonstration video is considered part of the specification and contains important details about the dynamic function of the assignment.

Model Changes

Some alterations to the models for assignment 1 have been made. Besides the more apparent exclusions, such as menus and methods that require user input no longer being included; the major changes are as follows:

- The majority of getters now return ReadOnly Properties, rather than primitive types. These may or may not be required in your implementation.

- Collections now implement an Observable Array List rather than a Linked List.

- Destinations now provides a getFilteredDestinations method. Use this to return a list of Destinations, filtered by the country you pass through.

- Flights also provides a getFilteredFlights method.

- Destination and Flight now implement the wrapper interface Interface. This may or may not be necessary for your implementation – but it is important to recognise that they can both be represented by the same time.

- Trip now provides a getItinerary method. This will return the destinations and flights of the trip in the order expected when viewing the trip.

Preamble

The following layout requirements can be assumed for all windows:

- Icon and title match image exactly.

- Images should fit the size of the window whilst maintaining aspect ratio.

- Elements are centred.

- Buttons have no padding between each other or against the border of the window.
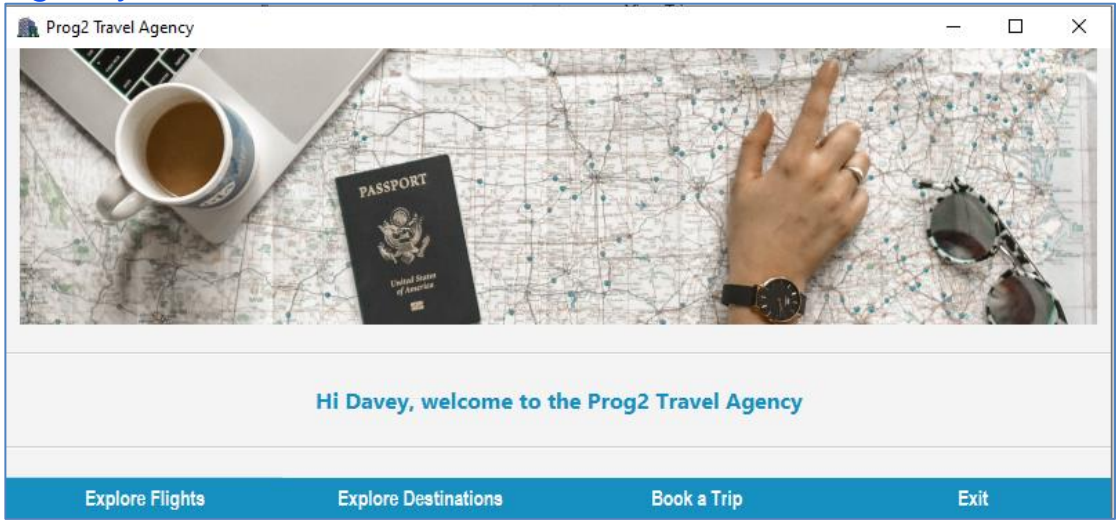
- Windows do not have to be resizable.

Login Menu
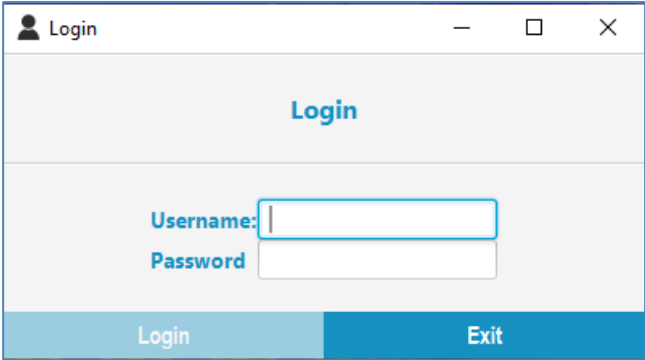
The login window includes a "👤" icon and the title is set as "Login". The following buttons redirect to the following windows:

| Button	Redirects To	Closes Current Window
Login	If successful -> Pop-up Agency Menu Window; if unsuccessful -> Pop-up Error Window	When successful
Exit	Closes program	Yes

Agency Menu

The Agency Menu window includes an "agency_icon", an "agency" background picture and the title set as "Prog2 Travel Agency". The administrator's account name is displayed with the welcome message on the menu window. The Agency Menu has the following buttons that redirect to the following windows.

| Button	Redirects To	Closes Current Window
Explore Flights	Flights Menu	No
Explore Destinations	Destinations Menu	No
Book a Trip	Trip Menu	No
Exit	Closes program	Yes

Flights Menu
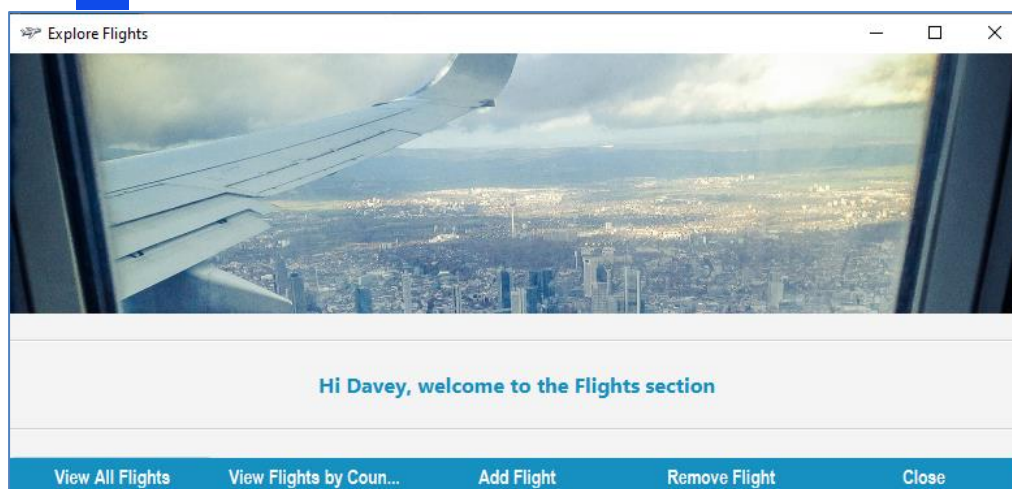
The Flight Menu window includes a "flights_icon", a "flight" background picture and the title set as "Explore Flights". The administrator's account name is displayed with the welcome message on the menu window. The Flights Menu has the following buttons that redirect to the following windows.

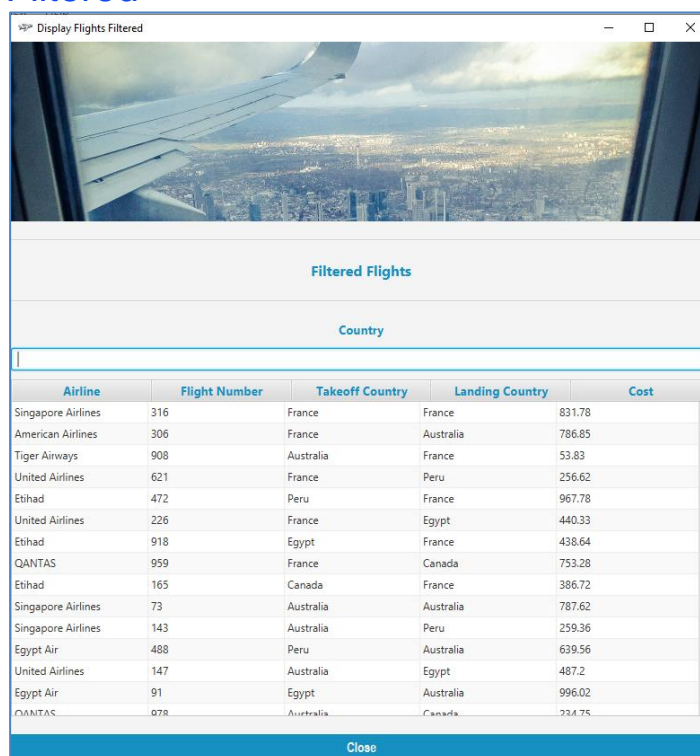| Button	Redirects To	Closes Current Window
View All Flights	View Flights	No
View Flights by Country	View Flights Filtered	No
Add Flight	Add Flight	No
Remove Flight	Remove Flight	No
Close	Agency Menu (already open)	Yes
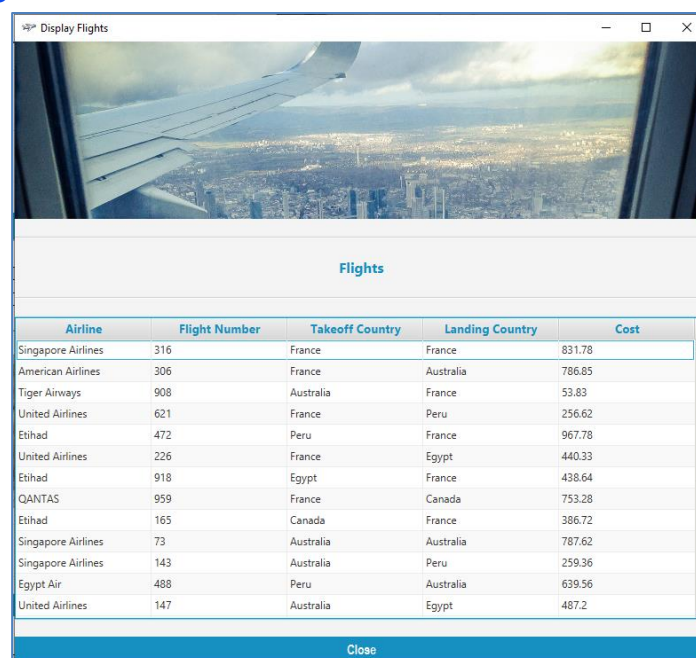
View Flights

The Flights View window includes a "flights_icon", a "flight" background picture and the title set as "Display Flights". The flight information is displayed in the Flights table with a scroller. The View Flights window has the following buttons that redirect to the following windows.

Button	Redirects To	Closes Current Window
Close	Flights Menu (already open)	Yes

View Flights Filtered

The Flights View Filter window includes a "flights_icon", a "flight" background picture and the title set as "Display Flights Filtered". Based on the flight information table, a country filter is added to filter the flights according to Takeoff Country and Landing Country. For instance, the flight table displays all the flights that either have "France" as the Takeoff country or Landing country when input "France". The View Flights Filter window has the following buttons that redirect to the following windows.

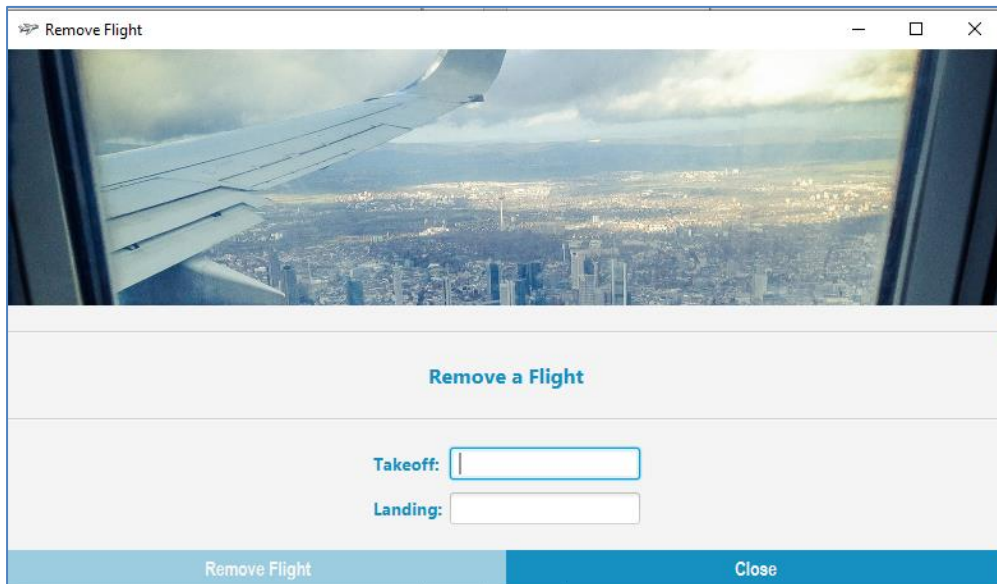| Button	Redirects To	Closes Current Window
Close	Flights Menu (already open)	Yes

Add Flight

The Add Flight window includes a "flights_icon", a "flight" background picture and the title set as "Add Flights". The information of Airline, Flight Number, Takeoff country, Landing country and Cost is required to add a flight.

The Add Flight button will be enabled when all the text fields are filled. The button opens the error window when the Flight Number and Cost are not numbers. The Add Flight button closes the window when the input is valid. Meanwhile, the Display Flights window immediately updates the Flight information.

The Add Flight window has the following buttons that redirect to the following windows.

| Button	Redirects To	Closes Current Window
Add Destination	If successful -> Flights Menu (already open); If unsuccessful -> Error Window	If successful
Close	Flights Menu (already open)	Yes

Remove Flight

The Remove Flight window includes a "flights_icon", a "flight" background picture and the title set as "Remove Flight". The information of Takeoff country and Landing country is required to remove a flight.

The Remove Flight button will be enabled when all the text fields are filled. The button opens the error window when the flights do not exist. The Remove Flight button closes the window when the flight line exists. Meanwhile, the Display Flights window immediately updates the Flight information.

The Remove Flight window has the following buttons that redirect to the following windows.

| Button	Redirects To	Closes Current Window
Remove Destination	If successful -> Flights Menu (already open); If unsuccessful -> Error Window	If successful
Close	Agency Menu (already open)	Yes

Destinations Menu
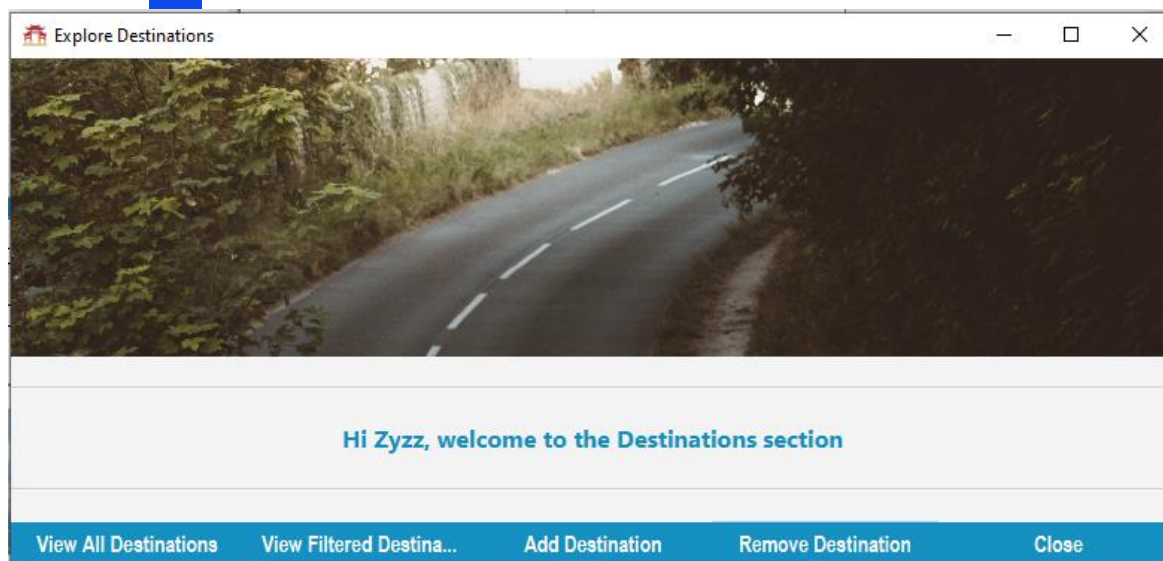
The Explore Destinations window includes a "destinations_icon", a "destination" background picture and the title set as "Explore Destinations". The information of the administrator's name is displayed with the welcome message on the window.

The Destinations Menu has the following buttons that redirect to the following windows.

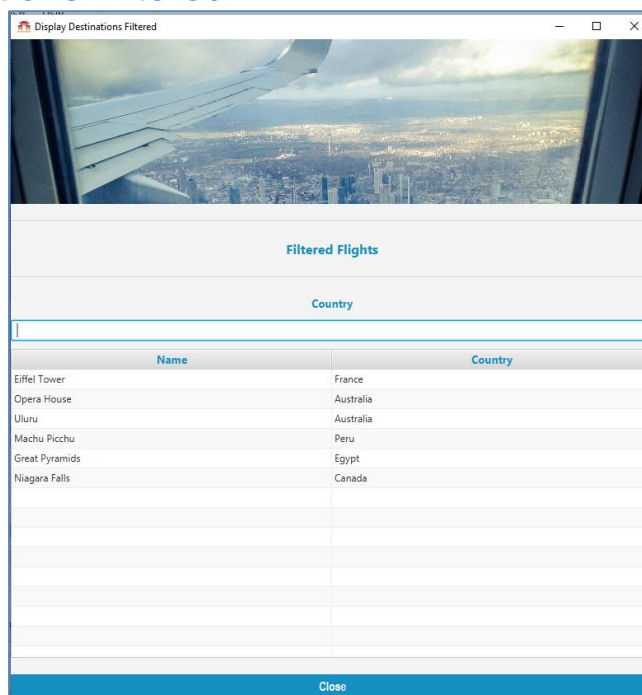| Button	Redirects To	Closes Current Window
View All Destinations	View Destinations	No
View Destinations by Country	View Destinations Filtered	No
Add Destination	Add Destination	No
Remove Destination	Remove Destination	No
Close	Agency Menu (already open)	Yes
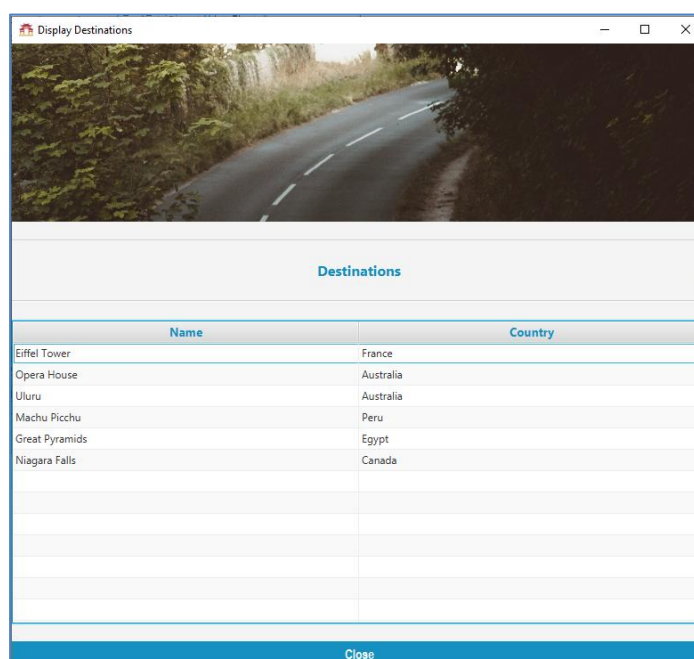
View Destinations

The Destinations View window includes a "destinations_icon", a "destination" background picture and the title set as "Display Destinations". The destinations information is displayed in the Destinations table. The View Destinations window has the following buttons that redirect to the following windows.

Button	Redirects To	Closes Current Window
Close	Destinations Menu (already open)	Yes

View Destinations Filtered

The Display Destinations Filtered window includes a "destinations_icon", a "destination" background picture and the title set as "Display Destinations Filtered". Based on the destinations table, a country filter is added to filter the destinations according to Country.

The Display Destinations Filtered window has the following buttons that redirect to the following windows.

Button	Redirects To	Closes Current Window
Close	Destinations Menu (already open)	Yes

Add Destination

The Add Destination window includes a "destinations_icon", a "destination" background picture and the title set as "Add Destination". The information of Name and Country is required to add a destination.

The Add Destination button will be enabled when all the text fields are filled. The Add Destination button closes the window when the destination is added. Meanwhile, the Display Destinations window immediately updates the Destination information. Note that Flights information won't be affected by destination change.

The Add Destination window has the following buttons that redirect to the following windows.

Button	Redirects To	Closes Current Window
Add Destination	If successful -> Destinations Menu (already open); If unsuccessful -> Error Window	If successful
Close	Destinations Menu (already open)	Yes

Remove Destination

The Remove Destination window includes a "destinations_icon", a "destination" background picture and the title set as "Remove Destination". The information of the name and country is required to remove a destination.

The Remove Destination button will be enabled when all the text fields are filled. The button opens the error window when the flights do not exist. The Remove Destination button closes the window when the destination exists. Meanwhile, the Display Destination window immediately updates the Destination information. Note that Flights information won't be affected by destination change.
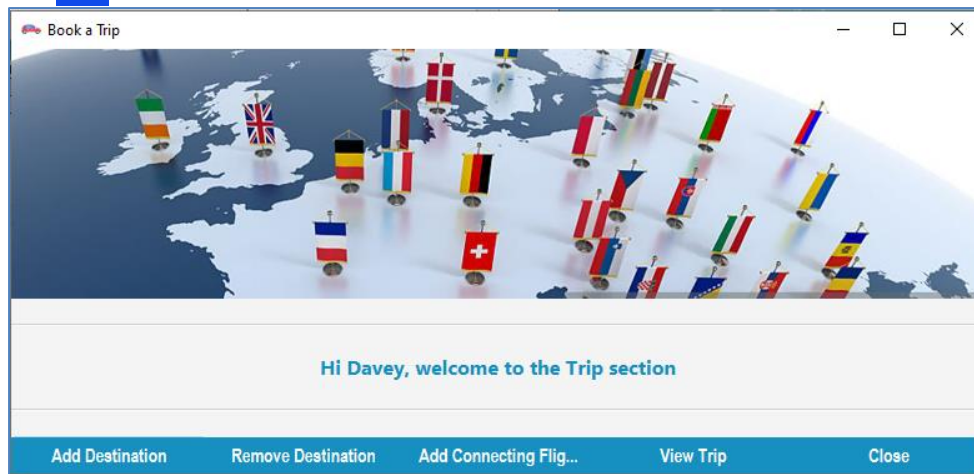
The Remove Destination window has the following buttons that redirect to the following windows.

Button	Redirects To	Closes Current Window
Remove Destination	If successful -> Destinations Menu (already open); If unsuccessful -> Error Window	If successful
Close	Destinations Menu (already open)	Yes

Trip Menu

The Trip menu includes a "trip_icon", a "trip" background picture and the title set as "Book a Trip". The information of the administrator's name is displayed with the welcome message on the window.
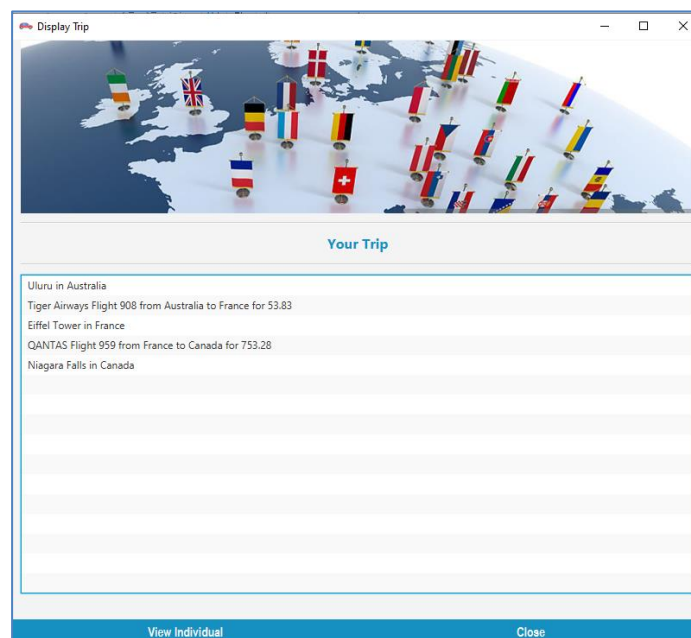
The trip is planned based on the destinations. The administrator can add or remove destinations for a trip, and press the "Add Connecting Flights" button to automatically generate the itinerary, which is displayed in the View Trip window.

The Trip Menu has the following buttons that redirect to the following windows.

Button	Redirects To	Closes Current Window
Add Destination	Add Destination	No
Remove Destination	Remove Destination	No
Add Connecting Flights	If successful -> No response window If unsuccessful -> Error Window	No
Close	Agency Menu (already open)	Yes

View Trip

The Trip View window includes a "trip_icon", a "trip" background picture and the title set as "Display Trip". The information of the destinations is displayed as a list under Your Trip. If there is no trip planned, "Nothing yet" is displayed in the centre of the list.

The Trip View window has the following buttons that redirect to the following windows.

Button	Redirects To	Closes Current Window

View Individual	If Flight object/s selected -> View Flights If Destination object/s selected -> View Destinations If Flight and Destinations selected -> Error Window	No
Close	Agency Menu (already open)	Yes

Error Window
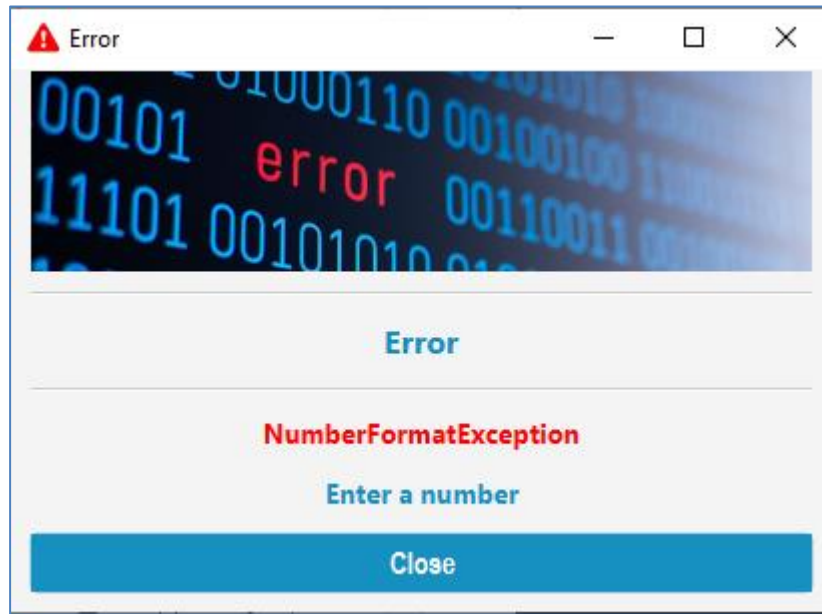
The Error View window includes an "error_icon", an "error" background picture and the title set as "Error". The information of the Error is displayed in red under Error followed by an operation hint. The error message and the hint message are subject to the operation in different scenarios. A detailed display explanation is provided in the demo video.

The Error window has the following buttons that redirect to the following windows.

Button	Redirects To	Closes Current Window
Close	Window that executed the Error Window	Yes

Requirements

Layout

To get full marks, you should layout your windows to look as close as possible to the screenshots. This means that you should try to duplicate the spacing between and around nodes that is shown in the screenshots, and the width and height of the nodes, and the alignment of the nodes.

Style

A CSS file is included in the skeleton code which provides all the styles used in the assignment. You don't need to modify the CSS file.

Code

For JavaFX, your solution must satisfy the following code requirements:

- Your solution must follow the MVC architecture and utilize multiple window displays.

- Your solution must keep the package structure and class names that were provided in the skeleton code.

- The models must notify the views of changes by correctly applying the JavaFX property patterns and observable lists. Model data that can change must be observable. Model data that never changes need not be observable.

- The views must be laid out in FXML.

Submission to ED

You will need to submit the source code to ED. The marker will check the source code to make sure all the requirements have been met. Missing the source code will result in 10 marks deduction of assignment 2.

Submission to Canvas

For JavaFX solution, your assignment should be submitted as a JAR file that includes:

- All FXML, CSS and image files required to run your assignment.
- The binary files(.class) of the runnable jar file.

You can check the JAR file on a lab PC to make sure it works. Kindly note that jdk1.8 is the baseline for the assignment. If your work is based on other jdk version, it's your own responsibility to generate a compatible jar that can run on jdk1.8.

For Tkinter solution, your assignment should be submitted as a zip file that includes all the source codes.

The due date won't be extended as assignment 2 requires a 3-minute demonstration in the last lab class. Submission extension before the last lab class will be granted automatically with a late penalty. An extension CANNOT be given after the due date. For any extension beyond the last lab class, you will need to submit a Special Consideration following the Special Consideration process for reasons including unexpected health, family, work problems, or other extenuating circumstances. You will be assigned an alternative assignment after 1st December to substitute assignment 2 for special consideration.

Marking

You will be marked by the Canvas submission for the features that can be demonstrated to work on a lab PC. Your tutor will ask questions based on your demonstration in the last lab class. Aside from marks for the functionality, the marker will also check your code to ensure that all code requirements have been met. Your final mark will be a combination of marks for functionality, marks for code (See Rubric Table on Canvas) and moderation marks for answering questions.

Marking the code and analysing spoofing, cheating and plagiarism is done in the two weeks following the due date. If you are suspected of Academic Misconduct, I will forward your case to the Misconduct Committee, and you will receive a "high similarity" note on ED submission. Your mark will be finalized within 2 weeks of the due date.

Online support

A FAQs (Frequently Asked Questions) page will be posted in the Assignment page on Canvas and ED. If you have a question, check the FAQ page first, it may already be answered there. You should read the FAQ at least once before you hand in your solution, but to be safe check it every couple of days. Anything posted on the FAQ is considered to be part of the assignment specification.

If anything about the specification is unclear or inconsistent, check the FAQ first, then contact the lecturer who will try to make it clearer by replying to you directly and posting the common questions and answers to the FAQ. This is similar to working on the job, where you ask your client if you are unsure what has to be done, but then you write all the code to do the task.

The preferred way to ask assignment related questions is to participate in the lectures, lab activities, UPASS, and consultation sessions. Students are expected to seek help through the following steps:

Step 1: Check the FAQ
Step 2: Ask peers or via the group discussion board
Step 3: Ask your tutor in the lab class
Step 4: Forward to the lecturer

The lecturer may be contacted by email if you have matters of a personal nature to discuss, e.g., illness, personal issues or other matters of importance. All emails sent to subject coordinators, tutors or lecturers must have a clear subject line that states the subject number followed by the subject of the email [e.g. Subject 48024, Appointment Request], and must be sent from your UTS email address.

Requests for appointments outside the given consultation hours may be arranged where circumstances require, and to do so please contact the teaching team by email.