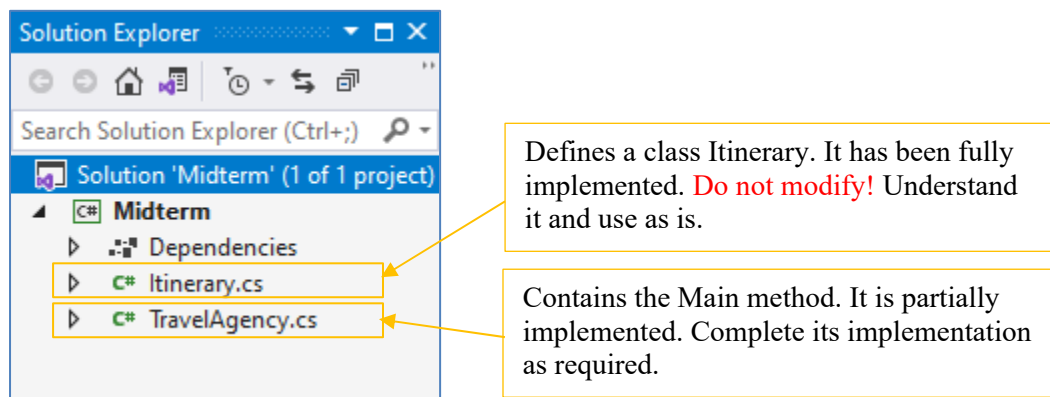


CST8253 Web Programming II

Midterm (30 points total)

Instructions

- Download **Midterm.zip** from Brightspace **Activities > Assignments > Midterm**.
- Unzip the file to get a folder **Midterm** which contains a partially implemented Visual Studio console application project **Midterm**.
- Open solution **Midterm.sln** with Visual Studio 2022. You can double click the **Midterm.sln** file.
- Review the partially implementation to familiar yourself with the existing code, especially the **Itinerary** class defined in **Itinerary.cs** file. The Visual Studio solution should look like:



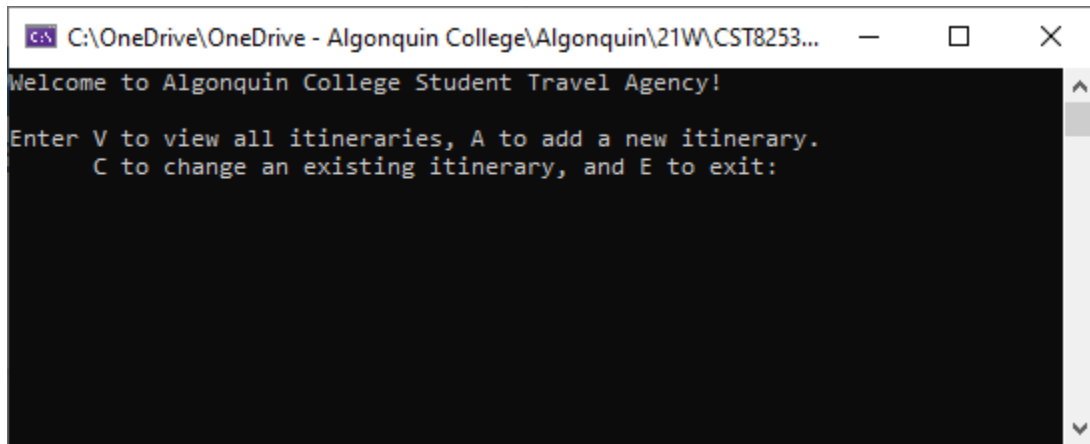
In case you are unable to open the solution properly, you can create a new Visual Studio project **Midterm**, delete the generated **Program.cs** file and copy **Itinerary.cs** and **TravelAgency** files into the project's folder.

- Complete the implementation of the application to satisfy the requirements listed in the Requirements Section below.
- Upon completion, zip the project folder **Midterm** (the folder containing all .cs files and other project files) and submit the zip file to the Brightspace.

Requirements

Note: No part of class **Itinerary** can be changed.

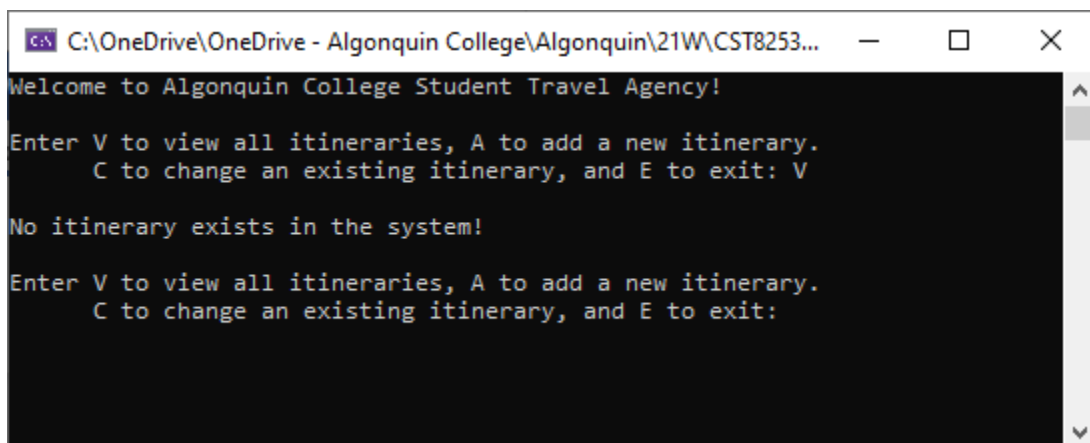
On start, the application displays the menu options for the user to enter:



```
C:\OneDrive\OneDrive - Algonquin College\Algonquin\21W\CST8253... Welcome to Algonquin College Student Travel Agency! Enter V to view all itineraries, A to add a new itinerary. C to change an existing itinerary, and E to exit:
```

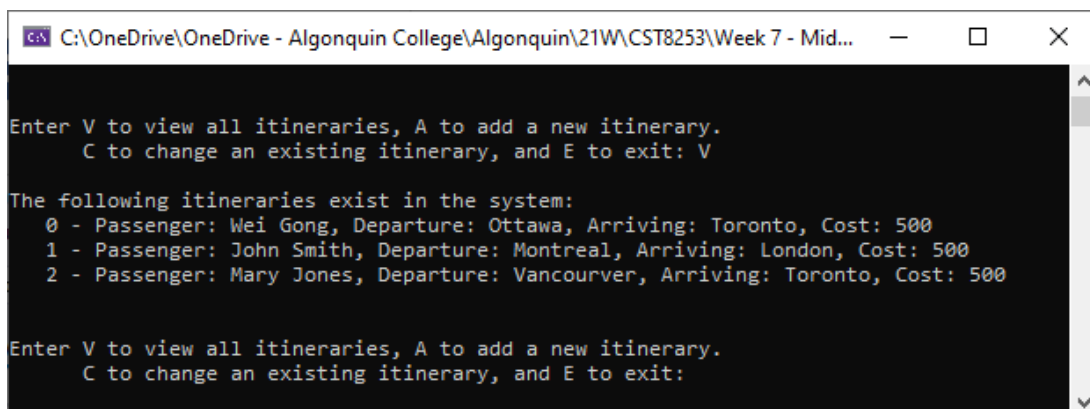
1. View itineraries (8 points)

When the user enters **V** at the prompt, if no itinerary exists yet, the system informs the user as such:



```
C:\OneDrive\OneDrive - Algonquin College\Algonquin\21W\CST8253... Welcome to Algonquin College Student Travel Agency! Enter V to view all itineraries, A to add a new itinerary. C to change an existing itinerary, and E to exit: V No itinerary exists in the system! Enter V to view all itineraries, A to add a new itinerary. C to change an existing itinerary, and E to exit:
```

Otherwise, the application displays all itineraries currently in the system. For each itinerary, the application shows the index of the itinerary in the system, passenger name, departure city, arriving city and the cost of the itinerary, as shown in the following screen capture as an example:



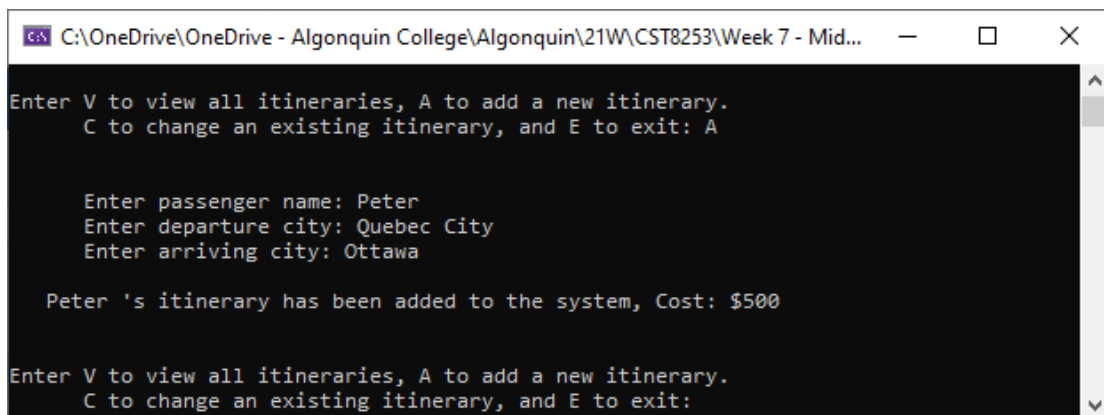
```
C:\OneDrive\OneDrive - Algonquin College\Algonquin\21W\CST8253\Week 7 - Mid... Enter V to view all itineraries, A to add a new itinerary. C to change an existing itinerary, and E to exit: V The following itineraries exist in the system: 0 - Passenger: Wei Gong, Departure: Ottawa, Arriving: Toronto, Cost: 500 1 - Passenger: John Smith, Departure: Montreal, Arriving: London, Cost: 500 2 - Passenger: Mary Jones, Departure: Vancourver, Arriving: Toronto, Cost: 500 Enter V to view all itineraries, A to add a new itinerary. C to change an existing itinerary, and E to exit:
```

Hints:

- Use **List<Itinerary> itineraries** to hold a list of itineraries in the system.
- The elements in a **List** can be accessed using an index (starting from 0) in the same way as accessing elements in an array.
- The number of elements in a **List** can be found using List's property **Count**

2. Add a new itinerary (10 points)

When the user enters **A** at the prompt, the application prompts the user for the passenger's name, departure city and arriving city of the new itinerary. After the user entered all data, the application adds a new itinerary with the specified data to the system and confirms to the user with the cost of the itinerary as shown below (as an example):



```
C:\OneDrive\OneDrive - Algonquin College\Algonquin\21W\CST8253\Week 7 - Mid...
Enter V to view all itineraries, A to add a new itinerary.
C to change an existing itinerary, and E to exit: A

Enter passenger name: Peter
Enter departure city: Quebec City
Enter arriving city: Ottawa

Peter 's itinerary has been added to the system, Cost: $500

Enter V to view all itineraries, A to add a new itinerary.
C to change an existing itinerary, and E to exit:
```

3. Change an existing itinerary (10 points)

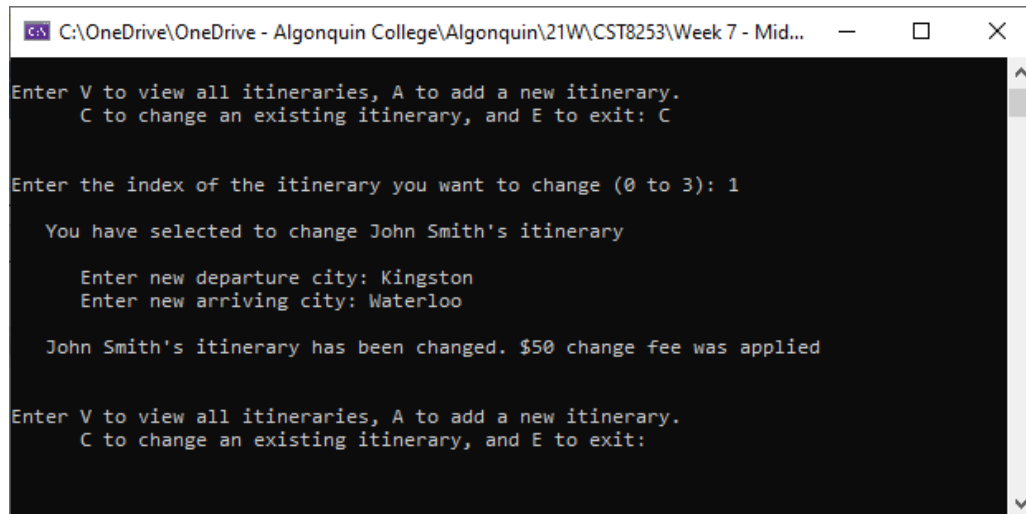
When the user enters **C** at the prompt:

- The application prompts the user for the index of the itinerary to be changed.

The index is the number displayed in the front of the itinerary when the **V** is entered. The application should show the range of valid index values the user can enter.

- When the user enters a valid index value, the application confirms the passenger name of the itinerary to be changed and prompts the user to enter the new departure city and the new arriving city.

- After the user enters the new departure city and new arriving city, the application changes the specified itinerary, and confirms to the user that the itinerary has changed with the amount of change fee applied.



```
C:\OneDrive\OneDrive - Algonquin College\Algonquin\21W\CST8253\Week 7 - Mid...
Enter V to view all itineraries, A to add a new itinerary.
C to change an existing itinerary, and E to exit: C

Enter the index of the itinerary you want to change (0 to 3): 1

You have selected to change John Smith's itinerary

Enter new departure city: Kingston
Enter new arriving city: Waterloo

John Smith's itinerary has been changed. $50 change fee was applied

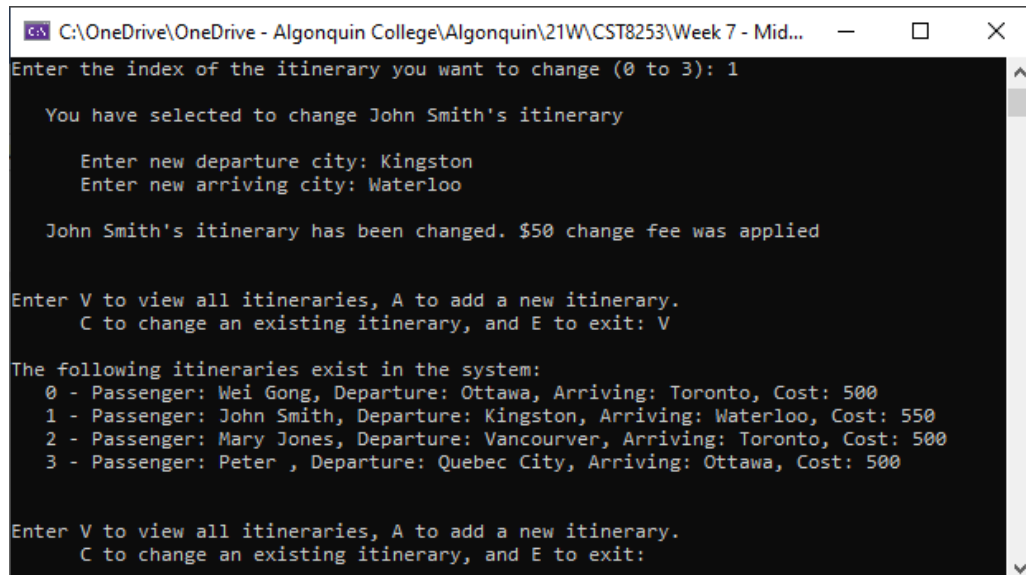
Enter V to view all itineraries, A to add a new itinerary.
C to change an existing itinerary, and E to exit:
```

Note:

The elements in a **List** can be accessed using an index (starting from 0) in the same way as accessing elements in an array.

Get the change fee from **Itinerary** class's static property **ChangeFee**. You **cannot** hardcode \$50 in the display message.

After change, the user should be able to view the changed itinerary when entering **V** at the prompt, as shown below (itinerary at index 1 has the specified new departure city, new arriving city as well a new cost):



```
C:\OneDrive\OneDrive - Algonquin College\Algonquin\21W\CST8253\Week 7 - Mid...
Enter the index of the itinerary you want to change (0 to 3): 1

You have selected to change John Smith's itinerary

Enter new departure city: Kingston
Enter new arriving city: Waterloo

John Smith's itinerary has been changed. $50 change fee was applied

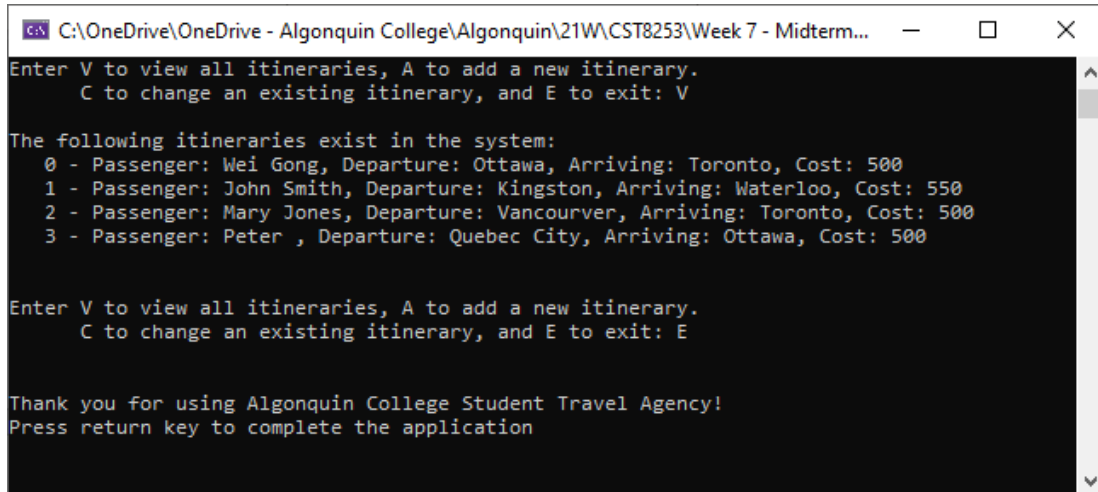
Enter V to view all itineraries, A to add a new itinerary.
C to change an existing itinerary, and E to exit: V

The following itineraries exist in the system:
0 - Passenger: Wei Gong, Departure: Ottawa, Arriving: Toronto, Cost: 500
1 - Passenger: John Smith, Departure: Kingston, Arriving: Waterloo, Cost: 550
2 - Passenger: Mary Jones, Departure: Vancourver, Arriving: Toronto, Cost: 500
3 - Passenger: Peter , Departure: Quebec City, Arriving: Ottawa, Cost: 500

Enter V to view all itineraries, A to add a new itinerary.
C to change an existing itinerary, and E to exit:
```

4. Exit (1 point)

If the user enters **E**, the application completes with a thank-you- message as shown below:



```
C:\OneDrive\OneDrive - Algonquin College\Algonquin\21W\CST8253\Week 7 - Midterm...
Enter V to view all itineraries, A to add a new itinerary.
C to change an existing itinerary, and E to exit: V

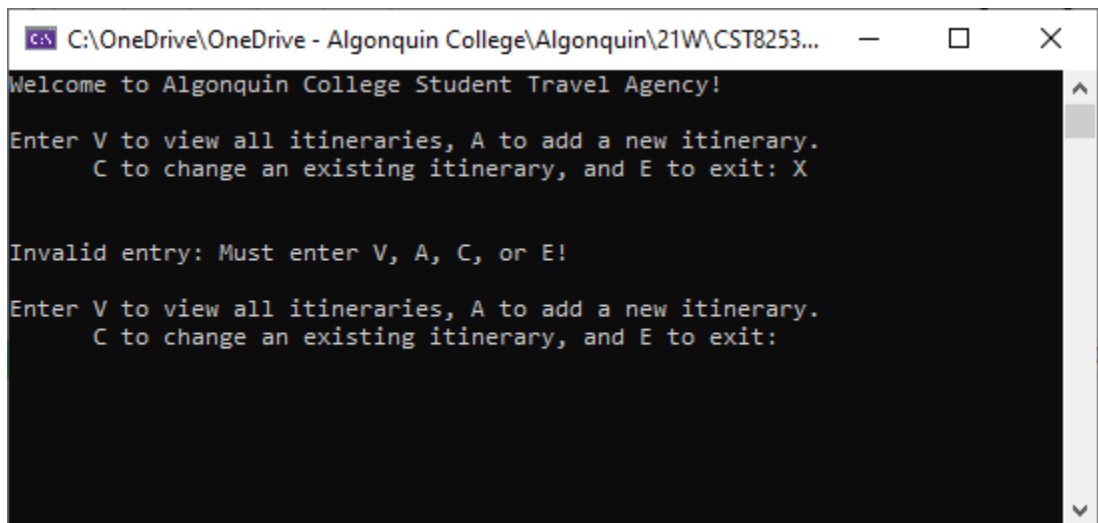
The following itineraries exist in the system:
0 - Passenger: Wei Gong, Departure: Ottawa, Arriving: Toronto, Cost: 500
1 - Passenger: John Smith, Departure: Kingston, Arriving: Waterloo, Cost: 550
2 - Passenger: Mary Jones, Departure: Vancourver, Arriving: Toronto, Cost: 500
3 - Passenger: Peter , Departure: Quebec City, Arriving: Ottawa, Cost: 500

Enter V to view all itineraries, A to add a new itinerary.
C to change an existing itinerary, and E to exit: E

Thank you for using Algonquin College Student Travel Agency!
Press return key to complete the application
```

5. Incorrect Entry (1 point)

If the user enters anything other than V, A, C, or E, the application prompts the user with an error message



```
C:\OneDrive\OneDrive - Algonquin College\Algonquin\21W\CST8253...
Welcome to Algonquin College Student Travel Agency!

Enter V to view all itineraries, A to add a new itinerary.
C to change an existing itinerary, and E to exit: X

Invalid entry: Must enter V, A, C, or E!

Enter V to view all itineraries, A to add a new itinerary.
C to change an existing itinerary, and E to exit:
```