



DUE DATE DETAILS

Java Program: Java program is due by May 8th @ 11:59pm.

Objective: Students will be able to use their problem-solving skills by implementing; variable declaration, conditional statements, loops, file reading, user input, methods, and objects and classes.

Description: Your program will allow the user to select from a list of available flights from El Paso to their chosen destination. The user will be able to do the following:

1. View Flight
2. Add flight
 1. One Way
 2. Round Trip
3. View trip
4. Manage trip
 1. Are you sure you want to clear flights selected? [Yes/No]
5. Checkout
6. Exit Mejia Airlines

Important: Before you get started, read this entire document. If anything is unclear, do not hesitate to come to your instructor, TA, or IA's for help or clarification. We will be happy to help you.

CLASS INSTRUCTIONS:

Your program will have the following classes:

CLASS	ATTRIBUTES	DESCRIPTION
CL3_LastName	NONE	MAIN CLASS
Flight	city: <code>String</code> country: <code>String</code> oneWayCost: <code>double</code> roundTripCost: <code>double</code>	The information per flight will be stored into an object of Flight . You will be able to access the name of the city, country, one way cost, and round trip cost through this object per flight.
Trip	flight: <code>Flight</code> isRoundTrip: <code>boolean</code> numOfSeats: <code>int</code>	This class will store information from a chosen Flight by the user, whether it is a round trip or round trip, and the number of seats selected.
CSVReader	fileReader: <code>Scanner</code>	This class will focus purely on reading any kind of file. It will store your flight information into a 1D array of Flight . For extra credit , it will also read the frequent flier file and return the total number of miles assigned to that flier number, <u>if applicable</u> .

- Methods to be implemented for CL3_LastName and CSVReader class are found from pages 3 - 5.
- Screenshots of output are found in pages 10 - 16
- Deliverables and Grading criteria are found in pages 17-18

CL3_LastName Methods

Method Name: displayMainMenu

Return Type: void

Parameters: None

Description: This method displays the options available to the user to navigate through Mejia Airlines (view flights, add flight, view trips, etc.)

Method Name: displayAvailableFlights

Return Type: void

Parameters: Flight[]

Description: This method receives all the Flights stored in a 1D array and displays them to the user.

Method Name: getDestinationIdx

Return Type: int

Parameters: String, Flight[]

Description: This method receives all the flights stored in a 1D array and the name of the city that the user chose. It will return the position where you find the given city. If the city chosen is not found, this method returns -1.

Method Name: updateReceipt

Return Type: String

Parameters: Trip, String

Description: This method receives a Trip object, where you can access the one way or round trip price, a current location, and returns the formatted string that will be used to update the receipt, as such:

CITY, COUNTRY → CITY, COUNTRY

Number of Seats: [digit]

Trip Type: [type of trip] | Flight Total: \$[price]

Method Name: getTripPrice

Return Type: double

Parameters: Trip

Description: This method will return the price of the current trip being booked.

Method Name: calculateDiscount Return Type: double Parameters: double, double Description: This method will return the total amount discounted
Method Name: calculateSubtotalWithDiscount Return Type: double Parameters: double, double Description: This method will return the subtotal considering the discount.
Method Name: calculateTotalTax Return Type: double Parameters: double, double Description: This method will return the total amount of tax charged based on the subtotal.
Method Name: calculateTotal Return Type: double Parameters: double, double Description: This method will return the total amount. In other words, (total + tax).
Method Name: viewFinalReceipt Return Type: void Parameters: double, double, double, double, double, double Description: This method will display the final part of the receipt which will include the following format: Subtotal: \${subtotal} Discount: [discount]% Discount Reduced: -\${reduction} Total after Discount: \${total} Tax Charge: \${tax charge} Trip Total: \${trip total}

CSVReader Methods

Class: CSVReader

Method Name: getFlights

Return Type: Flight[]

Parameters: String

Description: This method receives the name of the file that contains the flights' information. It creates and stores the Flight objects based on the information from the file.

Hint: Use `.split()` to parse the information

Class: CSVReader

Method Name: getFrequentFlierMiles **EXTRA CREDIT**

Return Type: int

Parameters: String, String

Description: This method receives a flier number and a file name. If the flier number is found in the file, your method will return the number of miles related to that flier number, -1 otherwise.

Hint: Use `.split()` to parse the information

Class: CSVReader

Method Name: getFileSize

Return Type: int

Parameters: String

Description: This method receives a file name. It returns the file size by counting the number of lines in the file.



Program Instructions

1. Your program will read from a given CSV file that holds all available flights from El Paso to a given destination. Your file (`"flights.csv"`) will be formatted as such:

`Destination,OneWayPrice,RoundTripPrice`

2. Your program will read from a given CSV file that holds all frequent flyers in Mejia Airlines. Your file (`"frequent-flier.csv"`) will be formatted as such:

`Flier Number,Number of Miles`

3. Your program will need to store all the flights' in 1D arrays (explained in the methods section). You will have this information stored so you should only read the files one time in your program.

4. Using a loop, create a menu to handle the following:

1. View Flights

- A list of available flights will be displayed to the user with their one way and round trip prices.

2. Add Flight

- Ask the user to enter the name of the city (chosen trip). The method `getDestinationIdx` will return the index in the 1D array where that flight exists, -1 otherwise. The -1 means that the city the user entered is either misspelled or not included in Mejia Airlines.
- You will ask the user to choose from the following options:
 1. One-way
 2. Round trip
- If the user chooses **option 1**, you will extract the one way cost from the flight chosen. You will need to look at your 1D array where all the flights are stored.

- If the user chooses **option 2**, you will extract the round trip cost from the flight chosen. You will need to look at your 1D array where all the flights are stored.
- Next, you will ask the user the **number of seats** they would like to purchase for that flight.
- From the given information, create a **Trip object** that you will use to **update the receipt**, if the trip is a **round trip**, and the **total number of seats selected for the flight**.
- Updating the receipt: You will update the receipt to have the location to destination, number of seats, trip type, and number of seats selected for the trip.
EXTRA CREDIT: Remember that we would always put the current location as El Paso? What if we ask for a one way to Tokyo, then a one way to Daegu? Technically, our route should look as such:
 EL PASO, UNITED STATES → TOKYO, JAPAN
 TOKYO, JAPAN → DAEGU, SOUTH KOREA
 This is because you asked for a one-way trip. So, El Paso should not be the current location anymore after arriving in Tokyo.
- Repeat the menu.

3. View Trips

- The users current cart total and their chosen flight will be displayed to them, for example:
 1. If the user chose a One way trip flight to Tokyo with two seats, and a one way flight to Daegu with two seats, it should show the following:

```

----- RECEIPT -----
EL PASO, UNITED STATES --> TOKYO, JAPAN
Number of Seats: 2
Trip Type: One-Way Trip | Flight Total: $2062.00
-----
TOKYO, JAPAN --> DAEGU, SOUTH KOREA
Number of Seats: 2
Trip Type: One-Way Trip | Flight Total: $7760.00
-----

```

- Repeat the menu.

4. Manage Trips

- The user will be able to clear their flight information. However, before clearing the cart, give the following message to the user: `"Are you sure you want to clear flights selected? [Yes / No]"`
- If the user enters yes, clear the cart and display `"NOTE: Your trip has been cleared"`. In other words, the receipt should be blank and subtotal should be 0, for the extra credit, your current location and previous location should also be reset. If the user enters no, display `"NOTE: Your trip was not cleared"`
- Repeat the menu

5. Checkout

- The user will be able to view their trip(s) and total (including tax 6.75%).
- [EXTRA CREDIT] Ask the user to enter their frequent flier number. If the frequent flier number is found in the `"frequent-flier.csv"` file, you will get the number of miles, based on their flier number, and give them a specific discount based on their miles:
 1. 5%: Miles between 0 and 5,000 (exclusive)
 2. 10%: More than 5,000 but less than 10,000 miles
 3. 15%: More than 10,000 but less than 15,000 miles
 4. 30%: More than 15,000 but less than 20,000 miles
 5. 40%: Less than 40,000 miles
 6. 50%: Anything greater or equal than 40,000 miles
- Print out their receipt which should include:
 1. The list of flight/s they have purchased
 2. Subtotal
 3. Discount Percentage Given

- 4. Total after applied discount
- 5. Tax charged
- 6. Trip Total

- Terminate the program

6. Exit Mejia Airlines

- Tell the user “Thank you for using Mejia Airlines. Goodbye! Stay Safe! Stay Hydrated! Happy Coding!” And terminate the program.

Your program must take care of all edge cases. For example: if you’re asking for “yes” or “no” as input, and the user enters something else, let them know and let them try again, etc.

[Option 1: View Flight]

Welcome to Mejia Airlines!

Please select a menu option below to get started. [Enter a number between 1 and 5]

1. View Flights
2. Add Flight
3. View Trips
4. Manage Trips
5. Checkout
6. Exit Mejia Airlines

1

MEJIA AIRLINES				
CITY	COUNTRY	ONE WAY	ROUND TRIP	
Beijing	China	\$ 2354.00	\$ 7822.00	
Cairo	Egypt	\$ 824.00	\$ 1377.00	
Kashgar	China	\$ 2012.00	\$ 8938.00	
Kathmandu	Nepal	\$ 913.00	\$ 2021.00	
Suzhou	China	\$ 784.00	\$ 6934.00	
Warsaw	Poland	\$ 935.00	\$ 1534.00	
Addis Ababa	Ethiopia	\$ 860.00	\$ 1926.00	
Ibadan	Nigeria	\$ 736.00	\$ 2019.00	
New Taipei City	Taiwan	\$ 996.00	\$ 1675.00	
Guadalajara	Mexico	\$ 165.00	\$ 366.00	
Santa Cruz de la Sierra	Bolivia	\$ 786.00	\$ 1783.00	
Rio de Janeiro	Brazil	\$ 539.00	\$ 1096.00	
Tokyo	Japan	\$ 1031.00	\$ 1554.00	
Casablanca	Morocco	\$ 930.00	\$ 1605.00	
T'bilisi	Georgia	\$ 536.00	\$ 1253.00	
Dubai	United Arab Emirates	\$ 917.00	\$ 1906.00	
Istanbul	Turkey	\$ 924.00	\$ 1587.00	
Makassar	Indonesia	\$ 1221.00	\$ 2543.00	
Singapore	Singapore	\$ 751.00	\$ 2064.00	
Daegu	South Korea	\$ 2849.00	\$ 5099.00	
El Paso	United States	\$ 1093.00	\$ 790.00	

[Option 2: Add Flight]

Please select a menu option below to get started. [Enter a number between 1 and 5]

1. View Flights
2. Add Flight
3. View Trips
4. Manage Trips
5. Checkout
6. Exit Mejia Airlines

2

Enter the name of a city listed above you'd like to travel to:

Warsaw

----- TRIP SELECTION -----

We found the following prices for WARSAW

* One Way price of \$935.0

* Round Trip price of \$1534.0

Which would you like to book? (Enter either 1 or 2)

1. One Way Trip
2. Round Trip

2

----- SEAT SELECTION -----

How many seats would you like to book? 4

NOTE: Trip to WARSAW was saved.

[Option 3: View Trip]

Please select a menu option below to get started. [Enter a number between 1 and 5]

1. View Flights
2. Add Flight
3. View Trips
4. Manage Trips
5. Checkout
6. Exit Mejia Airlines

3

----- RECEIPT -----

EL PASO, UNITED STATES --> WARSAW, POLAND

Number of Seats: 4

Trip Type: Round Trip | Flight Total: \$6136.00

EL PASO, UNITED STATES --> DAEGU, SOUTH KOREA

Number of Seats: 2

Trip Type: One-Way Trip | Flight Total: \$5698.00

DAEGU, SOUTH KOREA --> TOKYO, JAPAN

Number of Seats: 2

Trip Type: One-Way Trip | Flight Total: \$2062.00

TOKYO, JAPAN --> EL PASO, UNITED STATES

Number of Seats: 2

Trip Type: One-Way Trip | Flight Total: \$2186.00

[Option 4: Manage Trip]

If the user says YES to clearing their trip

Please select a menu option below to get started. [Enter a number between 1 and 5]

1. View Flights
2. Add Flight
3. View Trips
4. Manage Trips
5. Checkout
6. Exit Mejia Airlines

4

Are you sure you want to clear flights selected? [Yes/No]

Yes

NOTE: Your trip has been cleared.

Please select a menu option below to get started. [Enter a number between 1 and 5]

1. View Flights
2. Add Flight
3. View Trips
4. Manage Trips
5. Checkout
6. Exit Mejia Airlines

3

----- RECEIPT -----

If the user says **NO** to clearing their trip

Please select a menu option below to get started. [Enter a number between 1 and 5]

1. View Flights
2. Add Flight
3. View Trips
4. Manage Trips
5. Checkout
6. Exit Mejia Airlines

4

Are you sure you want to clear flights selected? [Yes/No]

No

NOTE: Your trip was not cleared.

Please select a menu option below to get started. [Enter a number between 1 and 5]

1. View Flights
2. Add Flight
3. View Trips
4. Manage Trips
5. Checkout
6. Exit Mejia Airlines

3

----- RECEIPT -----

EL PASO, TX --> WARSAW, POLAND

Number of Seats: 4

Trip Type: Round Trip | Flight Total: \$6136.00

EL PASO, TX --> DAEGU, SOUTH KOREA

Number of Seats: 2

Trip Type: One-Way Trip | Flight Total: \$5698.00

DAEGU, SOUTH KOREA --> TOKYO, JAPAN

Number of Seats: 2

Trip Type: One-Way Trip | Flight Total: \$2062.00

TOKYO, JAPAN --> EL PASO, UNITED STATES

Number of Seats: 2

Trip Type: One-Way Trip | Flight Total: \$2186.00

[Option 5: Checkout]

EXTRA CREDIT: Frequent Flier

Please select a menu option below to get started. [Enter a number between 1 and 5]

1. View Flights
 2. Add Flight
 3. View Trips
 4. Manage Trips
 5. Checkout
 6. Exit Mejia Airlines
- 5

----- CHECKOUT -----

If you are a frequent flyer, you are eligible to receive a discount.

Are you a frequent flyer? (Enter Yes or No):

Yes

Please input your frequent flyer number:

00DLE

----- RECEIPT -----

EL PASO, TX --> WARSAW, POLAND

Number of Seats: 4

Trip Type: Round Trip | Flight Total: \$6136.00

EL PASO, TX --> DAEGU, SOUTH KOREA

Number of Seats: 2

Trip Type: One-Way Trip | Flight Total: \$5698.00

DAEGU, SOUTH KOREA --> TOKYO, JAPAN

Number of Seats: 2

Trip Type: One-Way Trip | Flight Total: \$2062.00

TOKYO, JAPAN --> EL PASO, UNITED STATES

Number of Seats: 2

Trip Type: One-Way Trip | Flight Total: \$2186.00

Subtotal: 16082.0

Discount Percentage: %0.5

Discount: -\$8041.00

Total After Discount: \$8041.00

Tax: \$542.77

Trip Total: \$8583.77

Thank you for your purchase! Goodbye.

EXTRA CREDIT: frequent flier number is incorrect, allow them to re-enter:

Please select a menu option below to get started. [Enter a number between 1 and 5]

1. View Flights
 2. Add Flight
 3. View Trips
 4. Manage Trips
 5. Checkout
 6. Exit Mejia Airlines
- 5

----- CHECKOUT -----

If you are a frequent flyer, you are eligible to receive a discount.

Are you a frequent flyer? (Enter Yes or No):

Yes

Please input your frequent flyer number:

a0sdf

Invalid frequent flyer number. Try again.

00DLE

----- RECEIPT -----

EL PASO, UNITED STATES --> DAEGU, SOUTH KOREA

Number of Seats: 2

Trip Type: Round Trip | Flight Total: \$10198.00

Subtotal: 10198.0

Discount Percentage: 0.5%

Discount: -\$5099.00

Total After Discount: \$5099.00

Tax: \$344.18

Trip Total: \$5443.18

Thank you for your purchase! Goodbye.

No extra credit:

Please select a menu option below to get started. [Enter a number between 1 and 5]

1. View Flights
 2. Add Flight
 3. View Trips
 4. Manage Trips
 5. Checkout
 6. Exit Mejia Airlines
- 5

----- RECEIPT -----
EL PASO, UNITED STATES --> DAEGU, SOUTH KOREA
Number of Seats: 2
Trip Type: Round Trip | Flight Total: \$10198.00

Subtotal: 10198.0
Discount Percentage: 0.0%
Discount: -\$0.00
Total After Discount: \$10198.00
Tax: \$688.37

Trip Total: \$10886.37
Thank you for your purchase! Goodbye.

[Option 6: Exit Mejia Airlines]

Please select a menu option below to get started. [Enter a number between 1 and 5]

1. View Flights
 2. Add Flight
 3. View Trips
 4. Manage Trips
 5. Checkout
 6. Exit Mejia Airlines
- 6

Thank you for using Mejia Airlines.
Stay safe, stay hydrated, and happy coding!

Deliverables: You are expected to submit the following files to BlackBoard:

- CL3_YourLastName.**java** [Runner code]
- Trip.**java**
- Flight.**java**
- CSVReader.**java**

Grading Criteria

Checklist	Pts
“Certificate of Acknowledge” comment is included <pre>/* Your Full Name [CS1101 - SP22] Comprehensive Lab 3 This work is to be done individually. It is not permitted to share, reproduce, or alter any part of this assignment for any purpose. Students are not permitted from sharing code, uploading this assignment online in any form, or viewing/receiving/modifying code written from anyone else. This assignment is part of an academic course at The University of Texas at El Paso and a grade will be assigned for the work produced individually by the student. */</pre>	5 pts
Demo [10 pts] Student: is able to answer all questions asked by the Instructional Team member and their program achieves the criteria. Demo by May 6, 5:00pm.	10 pts
Program successfully compiles and runs	10 pts
Implementation <ul style="list-style-type: none">i. [10 pts] The program uses conditional statements and loops. Uses the correct way to compare string values and number values.i. [10 pts] Program allows users to enter more than 1 flight and displays the correct information.i. [10 pts] Flight total and tax calculations and correct and complete.ii. [10 pts] Calculations are done mathematically in code and not hardcoded.iii. [10 pts] Program is able to read flight information from the given file.	50 pts

Variable Names and Types	15 pts
<ul style="list-style-type: none"> i. [5 pts] Correct types for each variable. ii. [5 pts] Correct naming conventions (class name is camel case but first letter is capitalized). Variables are camel case but the first letter is in lowercase. i. [5 pts] Variables should have meaningful variable names. 	
Style, Formatting, and Documentation	10 pts
Total	100 pts

**Late submission: [-10 points] for every 24 hours after deadline
(weekends included)**