CS 1101 – Introduction to Computer Science
Spring 2022
Comprehensive Lab 1

Due Date Details:

Check-In: Check-in must be done by **March 10 @ 5:00pm**.

Java Program: Java program is due by **March 17 @ ll:59pm.** You will receive a Microsoft Bookings Link to demo to a designated Instructional Team member. You may only demo once you've turned in the program.

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

Background:
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. Add flight
   a. One Way
   b. Round Trip
2. View trip
3. Manage trip
4. Checkout
5. 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 IAs for help or clarification. We will be happy to help you.

Your program should have the following features:

1. Your program will read from a given text file that holds all available flights from El Paso to a given destination. Your file ("flights.txt") will be formatted as such:
   Destination OneWayPrice RoundTripPrice

2. Using a loop, create a menu to handle the following:
   1. Add flight(s)
      o A list of available flights will be displayed to the user with their one way and round-trip prices.
      o Ask the user to enter the name of the city (chosen trip).
      o Then, 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 information on the second column (OneWayCost) of the file for a specified destination.

      • If the user chooses option 2, you will extract the information on the third column (RoundTripCost) of the file for a specified destination.

      o Next, you will ask the user the number of seats they would like to purchase for that f light.
      o From the given information, calculate the sub total of the selected flight they added.
      o Display the menu again.

   2. View trips
      o The users current cart total and their chosen flight will be displayed to them, for example:

      If the user chose a Round Trip flight to Helsinki with 2 seats, and a one-way flight to Memphis with one seat, it should show the following:

      ```
      -------------------------- TRIP INFORMATION --------------------------
      EL PASO to Helsinki      Total: $2780.81 Type: Round Trip        Seats: 2
      EL PASO to Memphis       Total: $112.28  Type: One Way           Seats: 1
      ```
      o Display the menu again.

   3. Manage trips
      o 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 would like to clear your cart?
      o If the user enters yes, clear the cart. In other words, Trip Information should be blank. If the user enters no, display "Cart not changed. Going back to menu."
      o Display the menu again.

   4. Checkout
      o The user will be able to view their trip(s) and total (including tax 7.25%).

- Ask the user to enter their <u>16</u>-digit card number to complete the booking.
- Print out their receipt which should include:
    - The list of flight/s they have purchased
    - Their total
- Terminate the program

- [EXTRA CREDIT: 10 points] Ask the user to enter their frequent flyer number. Give them a 20% discount on their flight if, and only if, you find that frequent flyer number in the FILE called "frequent-flyer-list.txt"

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

Sample output per menu choice:

[Option 1: Adding Flight]

```
WELCOME TO MEJIA AIRLINES.
Please select a choice below [1-5]
  1. Add flight
  2. View trip
  3. Manage trip
  4. Checkout
  5. Exit Mejia Airlines
>> 1
+-----------------------------------+
|       AVAILABLE FLIGHTS FOR EP    |
+--------------+---------+----------+
|     CITY     | ONE WAY | ROUND TRIP |
+--------------+---------+----------+
|      Chicago | $142.45 | $   334.56 |
+--------------+---------+----------+
|       Dallas | $150.30 | $   375.20 |
+--------------+---------+----------+
|      Helsinki | $678.33 | $  1293.40 |
+--------------+---------+----------+
|      Memphis | $104.45 | $   389.40 |
+--------------+---------+----------+
|         Jeju | $924.56 | $  1839.56 |
+--------------+---------+----------+
|     Stokholm | $836.78 | $  1194.59 |
+--------------+---------+----------+
|  WashingtonDC | $134.78 | $   367.56 |
+--------------+---------+----------+
|       Tallin | $945.09 | $  1345.67 |
+--------------+---------+----------+
|        Cairo | $770.12 | $  1142.53 |
+--------------+---------+----------+
|   Copenhagen | $883.45 | $  1225.63 |
+--------------+---------+----------+
|   LosAngeles | $234.56 | $   376.56 |
+--------------+---------+----------+
|      Orlando | $256.78 | $   492.13 |
+--------------+---------+----------+
|        Tokyo | $987.34 | $  1450.34 |
+--------------+---------+----------+
|        Paris | $873.12 | $  1294.54 |
+--------------+---------+----------+
|     Shanghai | $723.99 | $  1156.10 |
+--------------+---------+----------+
|       London | $929.22 | $  1034.50 |
+--------------+---------+----------+
|      Huixtla | $445.23 | $   816.55 |
+--------------+---------+----------+
|       Cancun | $539.45 | $   869.34 |
+--------------+---------+----------+
|  Guadalajara | $436.78 | $   899.12 |
+--------------+---------+----------+
```

```
What flight would you like to get? Enter the name of the city
>> Huixtla
What are you purchasing?
  1. One-way
  2. Round trip
>> 2
How many seats will you be purchasing?
>> 4
FLIGHT ADDED!
```

.. displaying menu again to add a new flight and show list of available flights once again…

```
What flight would you like to get? Enter the name of the city
>> Helsinki
What are you purchasing?
  1. One-way
  2. Round trip
>> 1
How many seats will you be purchasing?
>> 1
FLIGHT ADDED!
```

[Option 2: View Trip]

```
WELCOME TO MEJIA AIRLINES.
Please select a choice below [1-5]
  1. Add flight
  2. View trip
  3. Manage trip
  4. Checkout
  5. Exit Mejia Airlines
>> 2

----------------------------- TRIP INFORMATION -------------------------------
EL PASO to Huixtla      [Total] $3266.20        [Type] Round Trip      [Seats] 4
EL PASO to Helsinki     [Total] $678.33         [Type] One Way         [Seats] 1

WELCOME TO MEJIA AIRLINES.
Please select a choice below [1-5]
  1. Add flight
  2. View trip
  3. Manage trip
  4. Checkout
  5. Exit Mejia Airlines
>>
```

[Option 3: Manage Trip]

If the user says NO to clearing the cart:

```
WELCOME TO MEJIA AIRLINES.
Please select a choice below [1-5]
  1. Add flight
  2. View trip
  3. Manage trip
  4. Checkout
  5. Exit Mejia Airlines
>> 3
This option clears your cart.
Are you sure you want to clear your trips? [type in YES or NO
>> no

Cart not changed.
Going back to menu...

WELCOME TO MEJIA AIRLINES.
Please select a choice below [1-5]
  1. Add flight
  2. View trip
  3. Manage trip
  4. Checkout
  5. Exit Mejia Airlines
>> ▮
```

If the user says YES to clearing the cart:

```
WELCOME TO MEJIA AIRLINES.
Please select a choice below [1-5]
  1. Add flight
  2. View trip
  3. Manage trip
  4. Checkout
  5. Exit Mejia Airlines
>> 3
This option clears your cart.
Are you sure you want to clear your trips? [type in YES or NO
>> yes

Cart cleared.

WELCOME TO MEJIA AIRLINES.
Please select a choice below [1-5]
  1. Add flight
  2. View trip
  3. Manage trip
  4. Checkout
  5. Exit Mejia Airlines
>> 2

----------------------------- TRIP INFORMATION --------------------------------

WELCOME TO MEJIA AIRLINES.
Please select a choice below [1-5]
  1. Add flight
  2. View trip
  3. Manage trip
  4. Checkout
  5. Exit Mejia Airlines
>> ▮
```

[Option 4: Checkout]

```
WELCOME TO MEJIA AIRLINES.
Please select a choice below [1-5]
  1. Add flight
  2. View trip
  3. Manage trip
  4. Checkout
  5. Exit Mejia Airlines
>> 4

Your current total is: $4240.37
Please enter a 16 digit visa/master card number
>>1111222233331234
Your purchase for:
EL PASO to Huixtla      [Total] $3266.20        [Type] Round Trip       [Seats] 4
EL PASO to Helsinki     [Total] $678.33         [Type] One Way          [Seats] 1
was successfull. You paid $4240.37 using the card: 1111222233331234
Have fun on your trip!
```

[Option 5: Exit Mejia Airlines]

```
WELCOME TO MEJIA AIRLINES.
Please select a choice below [1-5]
  1. Add flight
  2. View trip
  3. Manage trip
  4. Checkout
  5. Exit Mejia Airlines
>> 5
Thank you for using Mejia Airlines.
Stay Safe! Stay Hydrated! Happy Coding!
```

Deliverables: You are expected to submit one file in Blackboard:

    (i)   CL1_YourLastName.java --- the java file of your program.

Grading Criteria:

Checklist	Score

The program has proper documentation.
"Certificate of Acknowledge" comment is included
`/* Your Full Name`
`   [CS1101] Comprehensive Lab 1`
`   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.`
`*/`
	5 pts

<mark>**Check-In**</mark>
  i. [**5 pts**] Students **must** have an idea of a solution to CL1.
  ii. [**5 pts**] Students **must** have, at minimum, been able to extract information from the file.
	10 pts

Program successfully compiles and runs	10 pts

Implementation
  i.   [**10 pts**] The program uses conditional statements and loops. Uses the correct way to compare string values and number values.
  ii. [**10 pts**] Program allows user to enter more than 1 flight and displays the correct information.
  iii. [**5 pts**] Flight total and tax calculations and correct and complete.
  iv. [**5 pts**] Calculations are done mathematically **in code** and not hardcoded
  v.   [**10 pts**] Programs **reads** flight information from the given **file**.
	40 pts

Variable Names and Types
  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 first letter is in lowercase.
  iii. [**5 pts**] Variables should have meaningful variable names
	15 pts

Program output follows the correct format and style as the samples.	5 pts
The deliverable follows proper name	2 pts
The program is indented properly	3 pts
<mark>**Demo**</mark>	10 pts
Total	<mark>100 pts</mark>

<mark>Late submission: [**-10**] points for every 24 hours after the deadline.</mark>

If you need any clarification, please ask your TA for further details.