INFORMATICS INSTITUTE OF TECHNOLOGY

Individual Coursework

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Module Title	: Introduction to Programming Principles
Module Leader	: Ms.Tharushi Amarasinghe
Assessment Type	: Individual Course work
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Centre: Colombo

The department is not responsible if an assignment is lost. To cover this eventuality, you are advised to take a copy of the assignment OR to ensure you have the means of re-creating it.

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Exceptional Factors Affecting Your Performance:

Students should submit a Mitigating Circumstances Form with evidence, if they miss the submission deadline. This form must be submitted within five working days of the submission date. The Mitigating Circumstances Form is available on the LMS, in the General Information and Policies section.

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Assumptions

(This is in addition to the assumptions given by the lecturer on ICW specification)

- The Python program was made using Python IDLE version 3.13.5. It is assumed that whoever will use the program will do so with that version or one that is close as otherwise it may not execute as intended. When it was tested on IDLE 3.13.5 it performed well (take a look at screenshots if confirmation is needed, it is separated amongst the figures for ease of viewing).
- It is assumed that the correct username and password
  correct_username2025 = "sanithu"
  correct_password2025 = "20250212"
  [Please enter this Username and Password for the program to work correctly]

- When recreating figure 3 it is presumed that the user enters their flight number correctly (same as with the rest of the data for that menu).

- It is assumed in the "Search for Available Flights" menu (figure 5) that the user enters the correct destination that they are searching for the availability of flights for.

- It is assumed the user enters a valid option in the choice between Business/Economy (if function choice in figure 5). Here it is necessary that the spelling is correct.

- It is assumed the user will will a given departing time (6:30 am/2:00 pm/8:30 pm) and the proper destination (ORL/MIA/LAX) for figure 5.

Other Relevant Details

- I used dictionaries to make it more convenient since I was getting too many errors when I tried to do without them. I also used lists as well to organize data.
- correct_username2025 = "sanithu"
  correct_password2025 = "20250212"
  [Please enter this Username and Password for the program to work correctly]

- I didn't copy and paste any code as it was directly, but I did research on how to input dictionaries (as well as the def tag) on Youtube and found tutorials/guides from Youtube channels such as Codecamp and Brocode .
  (Code, 2022)

- The screenshots (of Test cases of Figures, in addition to the ones at the end of this report) are included in a separate folder in the larger folder which this report is stored in.

- I looked up how to add the following elements from YouTube channels or google and troubleshooted them (in addition to dictionaries)

❖ Import random - (for the flight ID generation for figure 5)
random is a standard python library module so it should function regularly on any IDLE version.
(Schafer, 2017)

❖ .lower() – (to turn inputs to lowercase so that less errors happen when checking for if condition)
(Courses, 2023).

❖ \n - (to move topics to the next line when printing text where I felt it was necessary)
(Electriangle, 2022)

❖ strip() - (to remove leading and trailing whitespace)
(Shrivastava, 2021)

❖ .exit() – (to exit program)
(Jakubication, 2023)

❖ Format specifiers – (to align text specially in figure 4)
(Brocode, 2022)

- import sys – (to close the program in the middle of the program in this program)
  sys.exit()
  (Jakubication, 2023)

- .replace(" ", "") – (removes all spaces from a string, so that even if the user makes a makes a mistake with the spacing it is negligible)
  (Python Software Foundation, 2025)

- Upon recognizing that I need to do some overhauling in some areas I decided to change certain areas so they work better with what is requested. Due to this there might be some changes in how certain test cases and the last program looks like since these overhauls happened around the 22nd of June and the rest of most of the work was done earlier.

❖ Algorithm for the Python Program

1. Start
2. Initializing Variables
   Username =""
   Password =""
   q1 =""
   Business =3
   Economy =5

   #Intializing the lists used in the python code
   flights= []
   customers= []
   availables= []
   bookings= []
   view_booking = []

   stafflogintitle1="CloudFare Airlines"
   stafflogintitle2="Staff Login"
   Mainmenutitle1="CloudFare Airlines"
   Mainmenutitle2="Main Menu"
   correct_username2025 = "sanithu"
   correct_password2025 = "20250212"
   line = "-"*80

3. 3.1 Display stafflogintitle1
   3.2 Display stafflogintitle2
   3.3 Enter "Username -"
   3.4 Enter "Password -"

4.
   4.1 If Username = correct_username2025 and Password = correct_password2025:
   Then
   4.2 Enter "Do you want to login (Yes/No)? "
      if Yes then login into system
      else go to 28.

5. While the user is logged in
   #Main Menu

5.1 Display Mainmenutitle1.center(80)
5.2 Display Mainmenutitle2.center(80)

6.

Display "(1) Add flight details"

"(2) Register a customer"

"(3) Search for available flight details"

"(4) Booking a flight"

"(5) View booking details"

"(6) Exit"

line = "-"*80, (line) is used to separate the sections but I haven't entered it after every section on this Algorithm also I make use of the define tag in the python code to better manage the sections

7. Enter "Your choice"

8. if choice 1 then go to "1) Add flight details" menu

Display "CloudFare Airlines."

"Add Flight Details.center"

Each of the menu topics were centered in the Python code

The presumption is made that the user enters the flight number correctly

8.1 Enter "1) Flight No-"
8.2 If the flight No starts with JFK then has 3 digits continue
Else Display "Invalid Inpit"

8.3 Display "2) Departure (From) – JFK"

8.4 Enter "3) Arrival (To) – "

If Orlando/Miami/Los Angelese is given continue

Else Display “Invalid Input”

"4) Departure Date - "

“5) Departure Time - "

"6) Total no of economy class seats - 5"

"7) Total no of business class seats-3"

"8) Fare for an economy class person -500"

“9) Fare for a business class person -1000"

9. Enter “Do you want to add (Yes/No)?”
   if Yes then Display "Flight added successfully."
   else "Flight not added"

10. elif choice 2 then go to "(2) Register a customer" menu
    10.1 Display “Register Customer”
    10.2 Enter “1) Customer ID-"
    10.3 If Customer ID starts with C and then is followed by 3 digits continue
    Else Display “Invalid Input”
    "2) Name-"
    "3) Passport Number-"
    "4) Adress-"
    "5) Telephone Number-"

11. Enter "Do you want to save (Yes/No)?"
    if Yes then Display "Customer registered."
    else "Customer not registered."

12. elif choice 3 then go to "(3) Search for available flight details" menu
    12.1 Generate flight ID
    12.2 Display "CloudFare Airlines"
    "Search for Available Flights"

13. Enter "Do you want to search (Yes/No)? "
    if Yes Display "Flight searched and added."
    else Display "Flight not searched."

14. 14.1 Enter "1) Departure Date - "
"2) Departure Time - "
#The user must input (6:30 am/2:00 pm/8:30 pm)

14.2 Enter “Flying To (Orlando/Miami/Los Angeles) -”

#The user must input (ORL/MIA/LAX)

Display flight ID using Departure Time

14.3 Enter “Travel Class (Business/Economy)-”
#Assume the user inputs one of the two

15. if Business then calculate remaining seats
elif Economy calculate remaining seats
else Display “Invalid option. Please select Business or Economy”

“No of seats available in the flight – {available seats}”
#calculated using the if function beforehand

16. elif choice 4 then go to "(4) Booking a flight" menu
17. Display "CloudFare Airlines"
“Booking a flight”
18. 18.1 Enter “1) Flight No -”
“2) Customer Name -”
“3) Passport Number -”
“4) Destination Airport -”
Must be one of three (Orlando/Miami/Los Angeles)
“5) Departure date -”
18.2 Display “6) Departure time-”
Auto Calculated depending on the destination airport

19. Enter “Do you want to book(Yes/No)?”
20. if yes then Display “Flight booked.”
Else Display “Flight not booked.”

21. Elif choice 5 then go to “(5) View booking details” menu

22. Display “CloudFare Airlines”
    “View booking details”

23. Enter “Enter Departure Date:” (Enter the same date as in the Booking a flight menu)
    # The appropriate distancing is included in the Python code.

24. Display “ “Departure Date”, “:” ”

25. Enter “Do you want to view the bookings?”
26. if Yes then Display ("Flight No", "Departure Time", "Destination", "No of passengers")
    # Used the correct formatting in the Python file
    # Data from Figure 6 is ported into this
    Display “Booking details viewed”
    else Display “Returning to main menu”

27. else choice 6 then exit the program
28. Display “Login cancelled.”
29. End

Test Cases

- The following pages contain the test cases for the figures.
  (from the next page onwards)

- Certain screenshots were taken at different points in the progression of the Python program. Please check the date at the corner of the screenshots to ascertain the dates. Certain mistakes like not centering some Menus were fixed later on.

- Certain Figures (5,6,7) went through some changes towards the later stages of the program so that the program could auto generate certain aspects for the user due to this they may appear a bit different to their respective test cases.

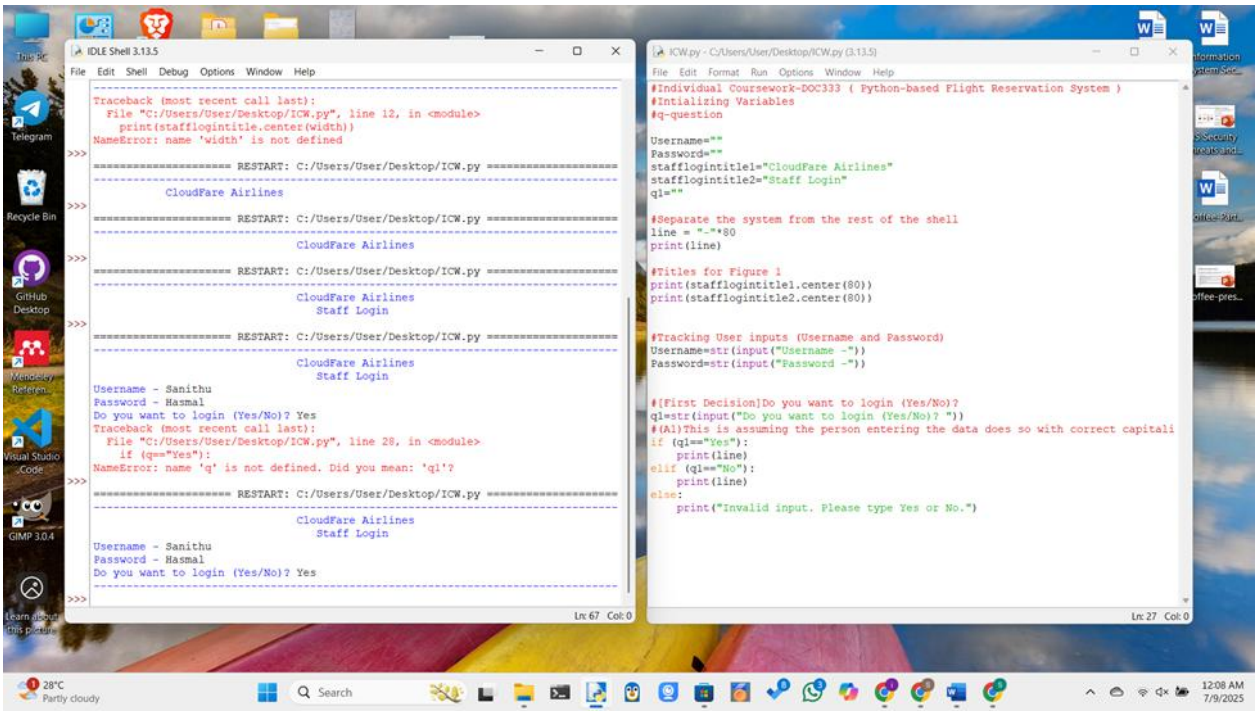

Figure	Input	Expected Output	Actual Output	Result
1	3 (Username,Password,Yes/No)	When answering Yes (or No) to the question “Do you want to login?”, successfully run the program and display the staff login interface menu	By mistake I had entered q1 as q and as a result the program didn’t properly and resulted in error.	I corrected the mistake by changing the variable name from q to q1 and then the program ran smoothly.

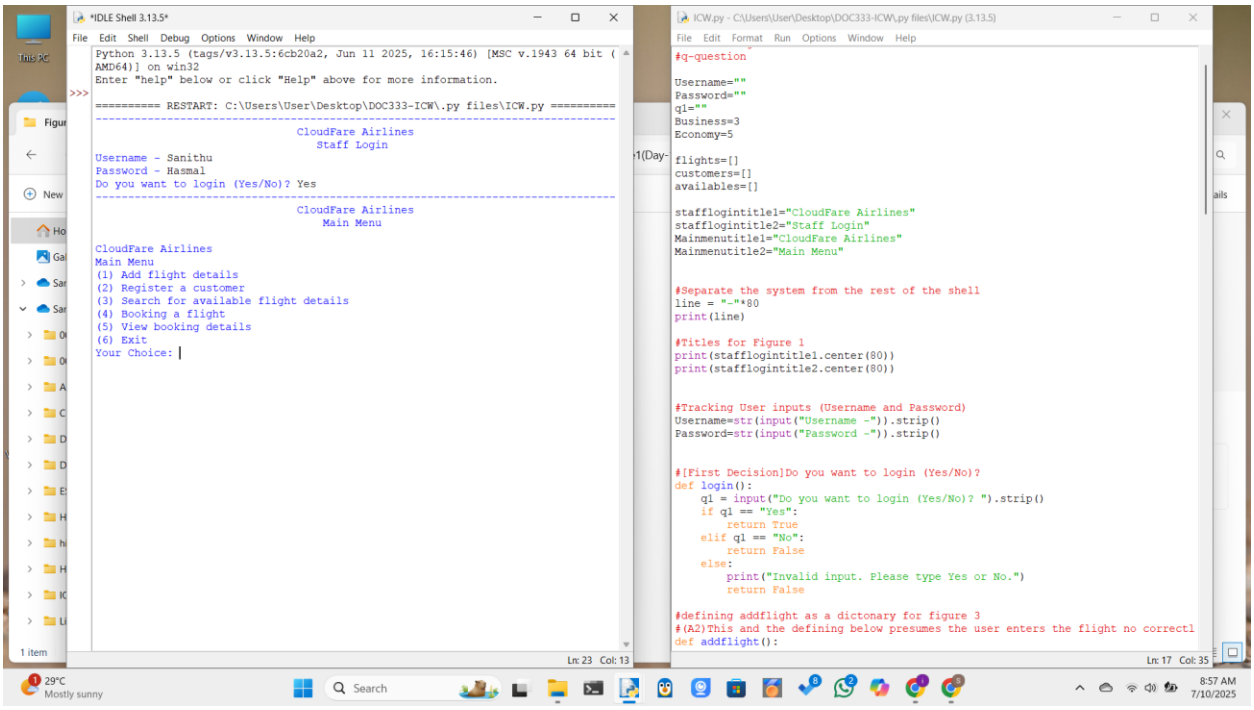

Figure	Input	Expected Output	Actual Output	Result
1	3 (Username,Password,Yes/No)	Display the line of separation then Display main menu	Display the line of separation then Display main menu	Pass

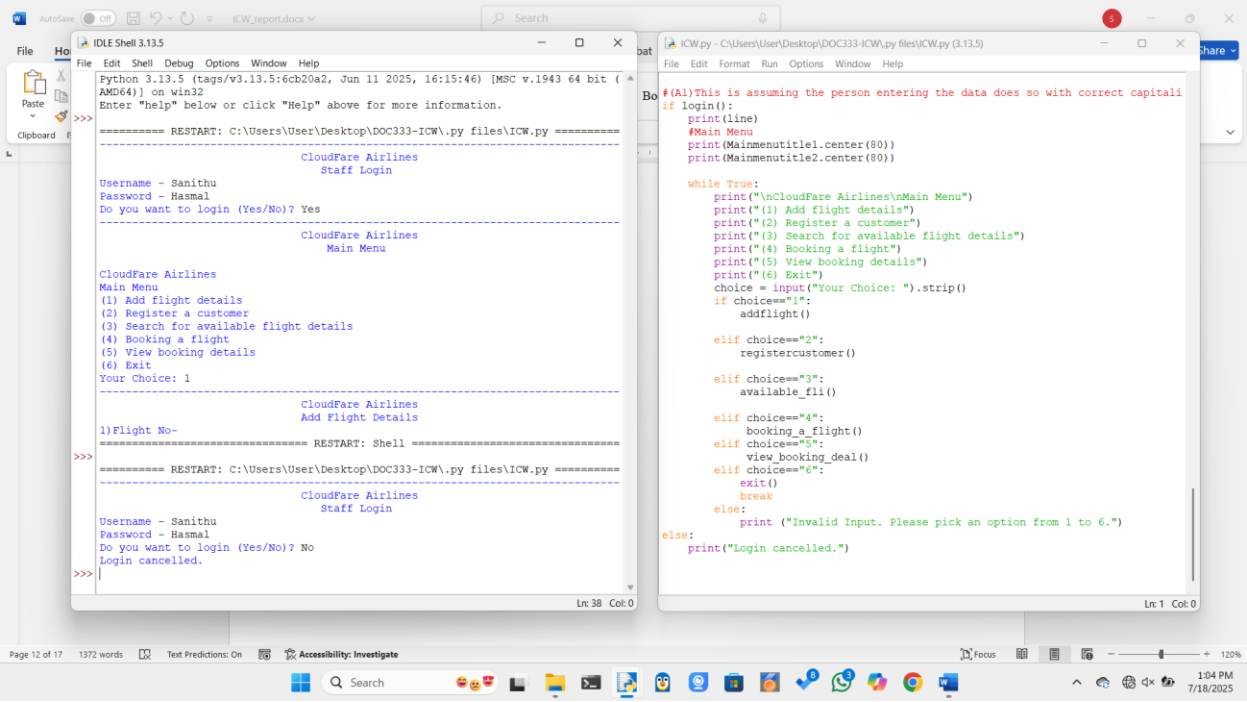

Figure	Input	Expected Output	Actual Output	Result
1	3 (Username,Password,Yes/No)	Display Login cancelled	Display Login cancelled	Pass

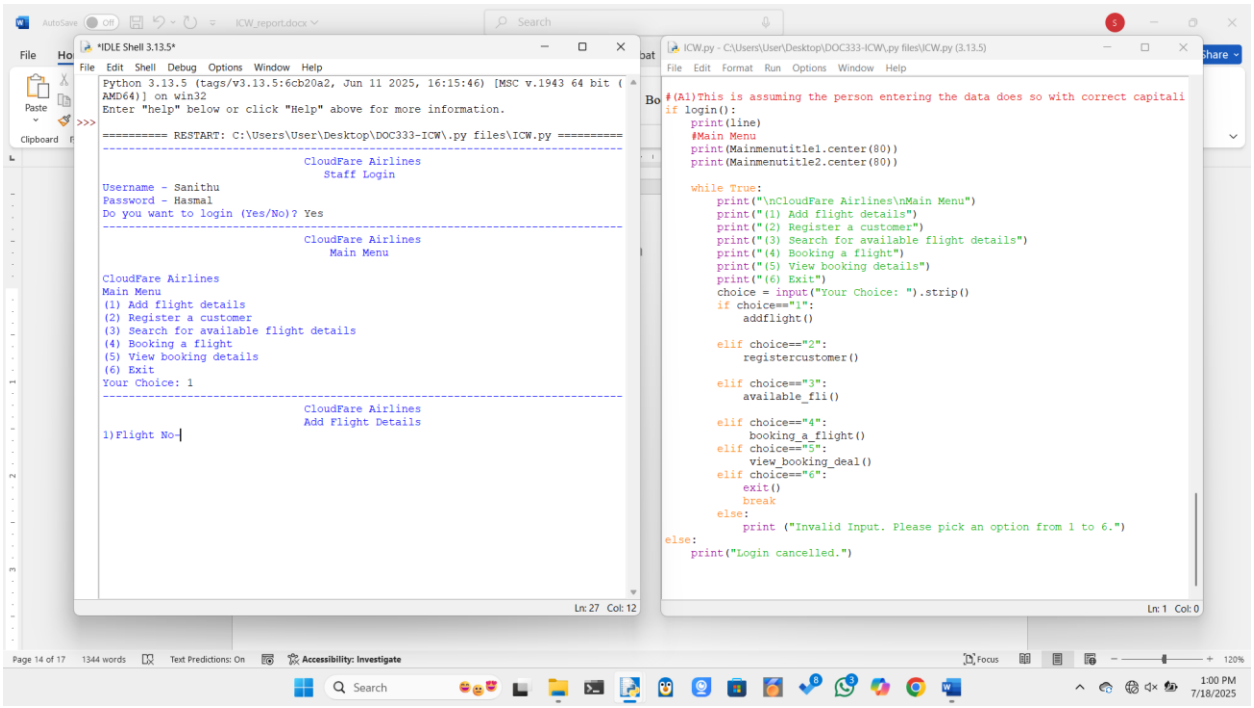

Figure	Input	Expected Output	Actual Output	Result
2	1 (Your choice – 1)	Display Add Flight Details menu	Display Add Flight Details menu	Pass

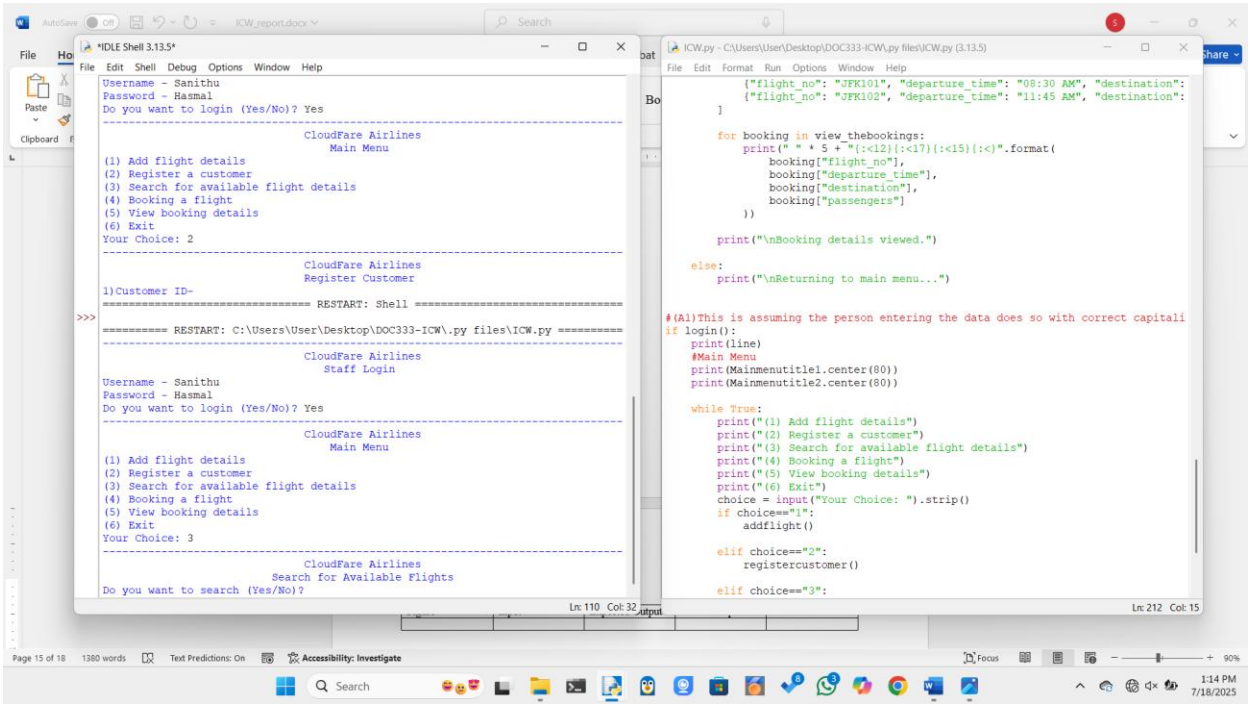

Figure	Input	Expected Output	Actual Output	Result
2	1 (Your choice – 3)	Display Search for Available Flights Menu	Display Search for Available Flights Menu	Pass

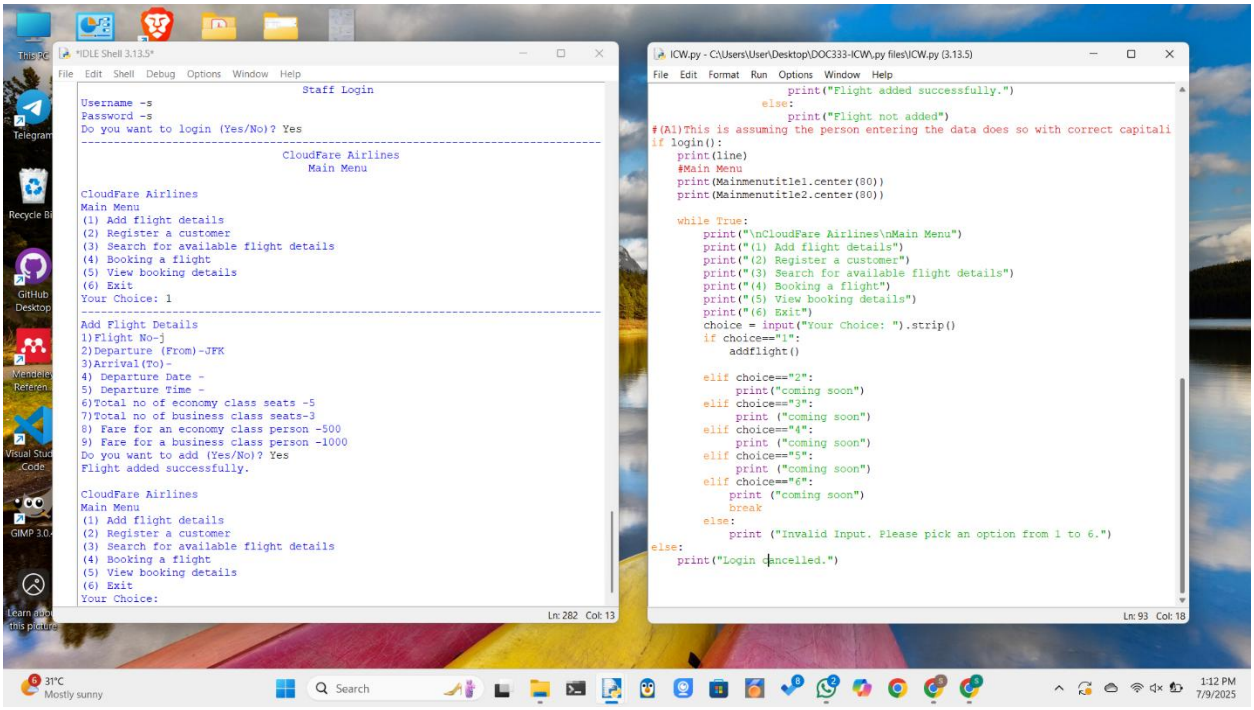

Figure	Input	Expected Output	Actual Output	Result
2	1 (Your choice – 2)	Display Register Customer Menu	Display Register Customer Menu	Pass

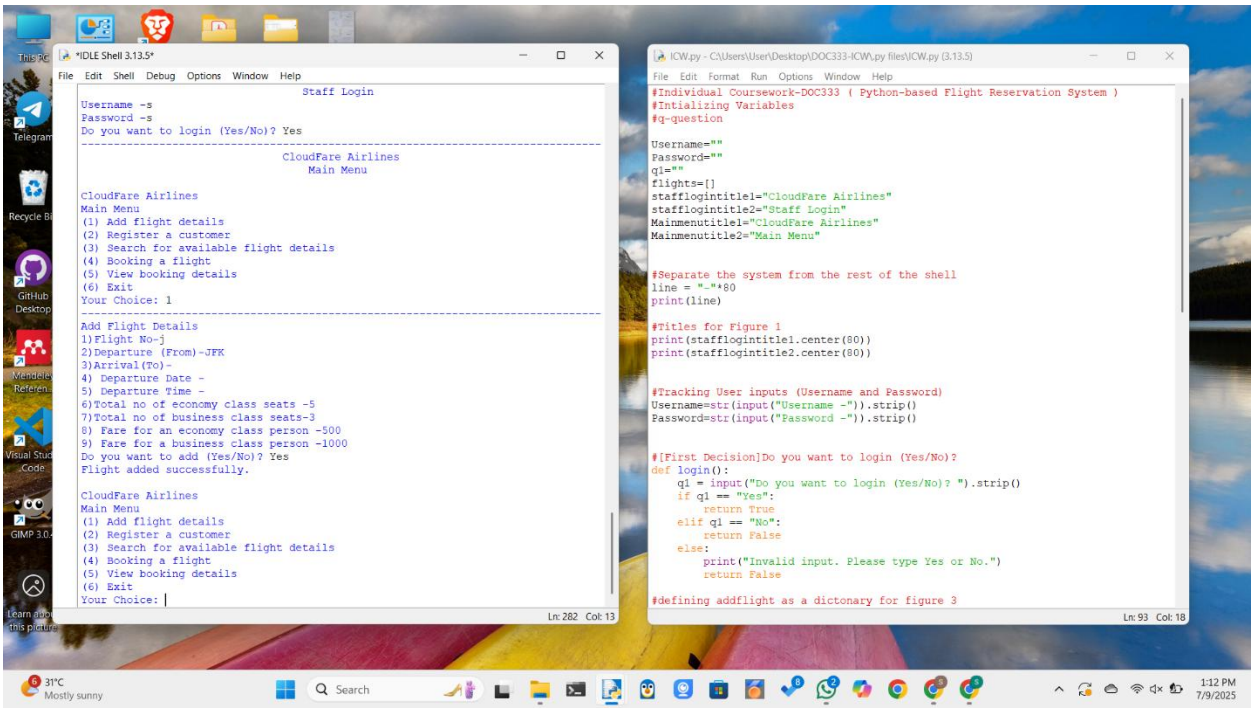

Figure	Input	Expected Output	Actual Output	Result
3	5 (Flight No,Arrival (to),Departure Date,Departure Time,Yes/No)	Display Flight added successfully (Alongside Displaying the Add Flight Details menu)	Display Flight added successfully (Alongside Displaying the Add Flight Details menu)	Pass

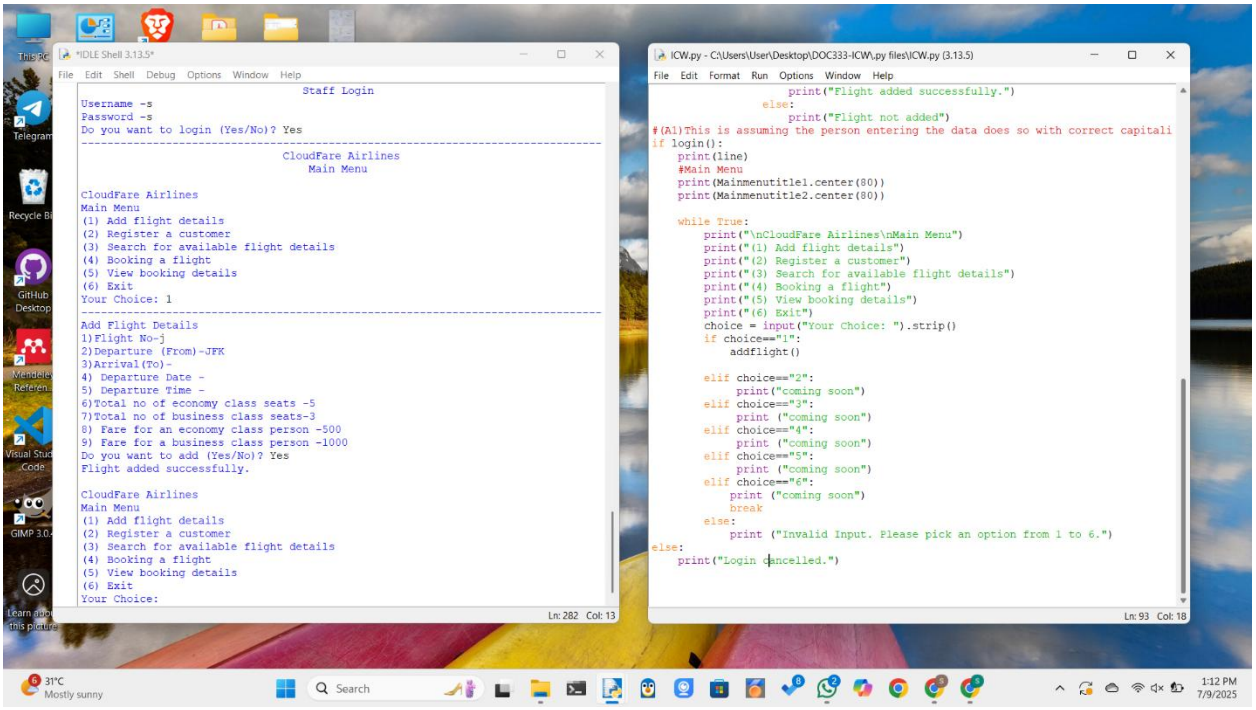

Figure	Input	Expected Output	Actual Output	Result
3	5 (Flight No,Arrival (to),Departure Date,Departure Time,Yes/No)	Display Flight added successfully (Alongside Displaying the Add Flight Details menu)	Display Flight added successfully (Alongside Displaying the Add Flight Details menu)	Pass

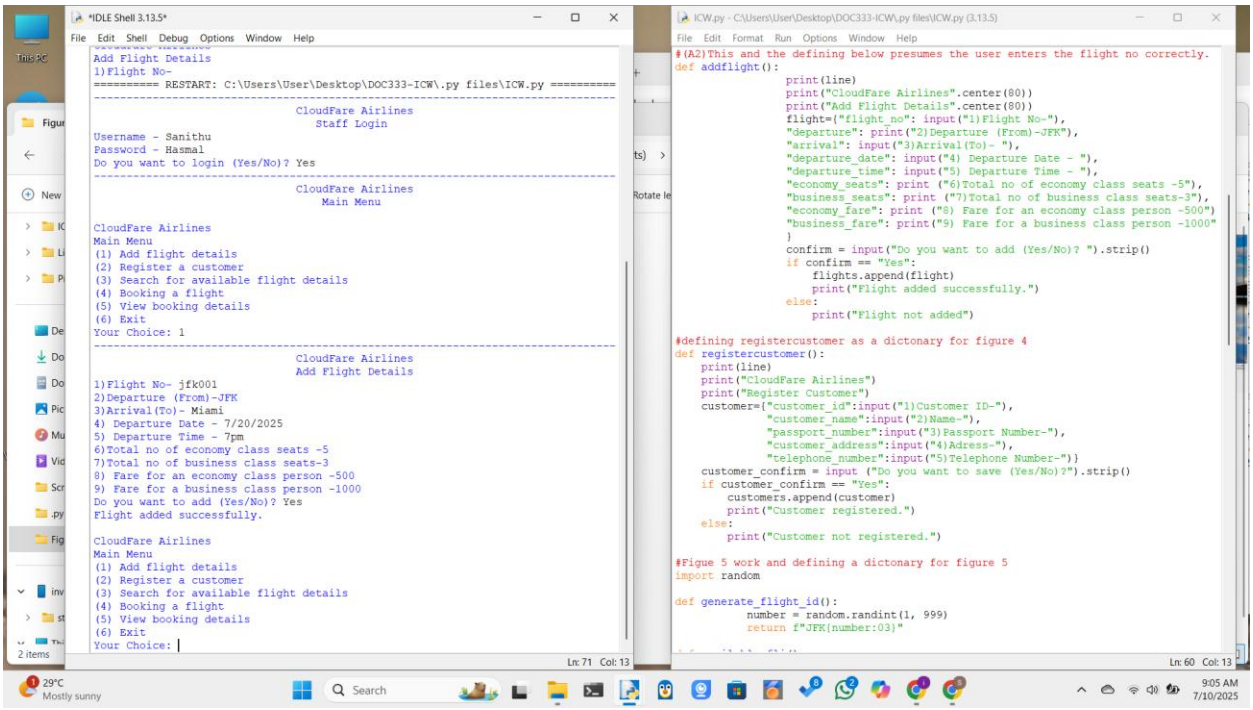

Figure	Input	Expected Output	Actual Output	Result
3	5 (Flight No,Arrival (to),Departure Date,Departure Time,Yes/No)	Display Flight added successfully (Alongside Displaying the Add Flight Details menu)	Display Flight added successfully (Alongside Displaying the Add Flight Details menu)	Pass

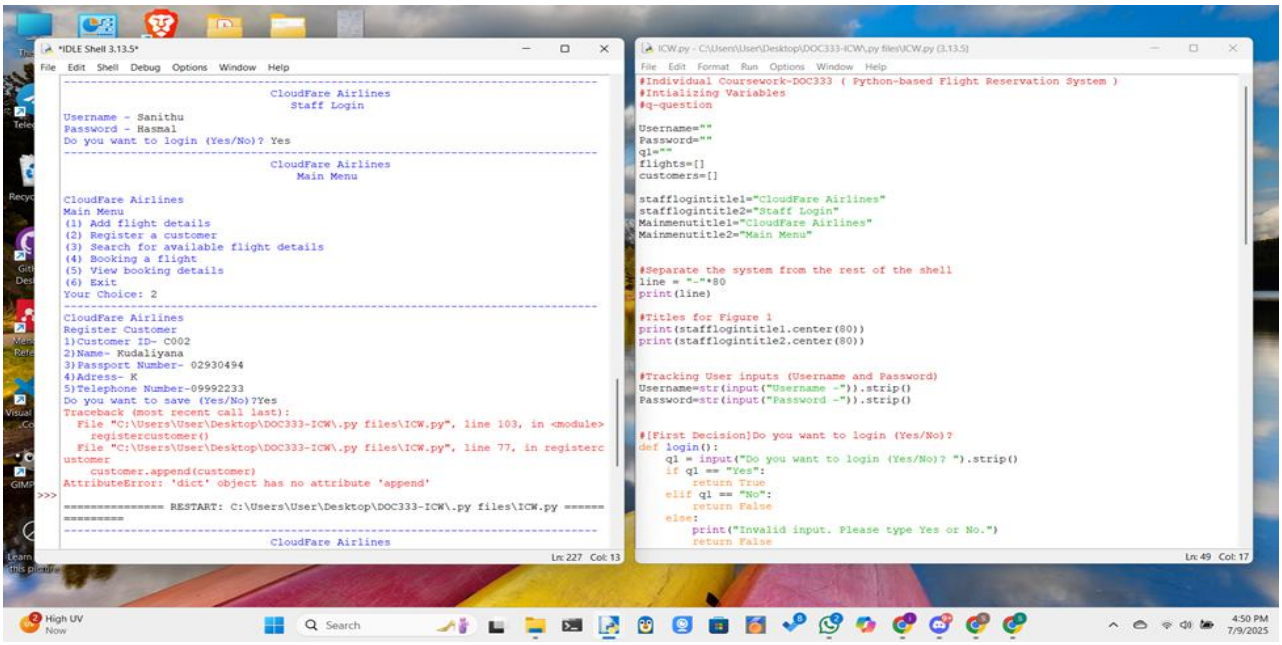

Figure	Input	Expected Output	Actual Output	Result
4	6 (Customer ID,Name,Passport Number,Address,Telephone Number,Yes/No)	Customer registered. (Alongside Displaying register a customer menu)	Due to incorrect use of append I got an error.	Fixed the error by correctly entering, .append (for if condition)

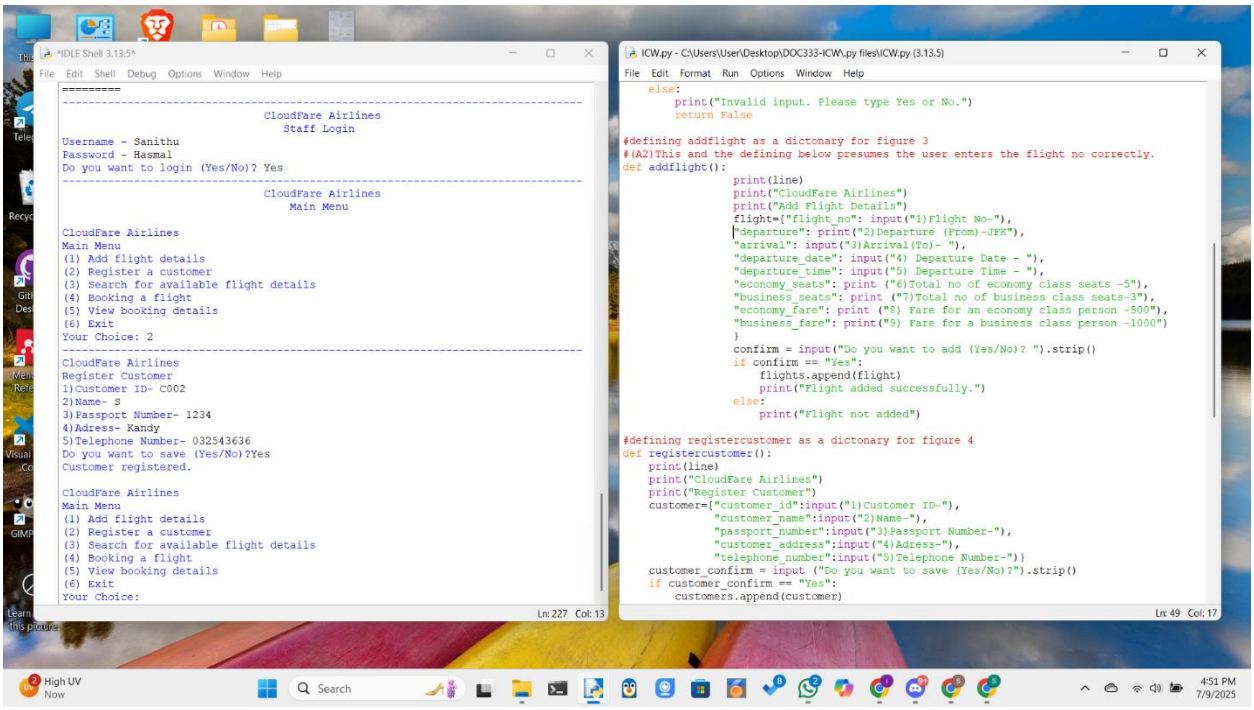

Figure	Input	Expected Output	Actual Output	Result
4	6 (Customer ID,Name,Passport Number,Address,Telephone Number,Yes/No)	Customer registered. (Alongside Displaying register a customer menu)	Customer registered. (Alongside Displaying register a customer menu)	Pass

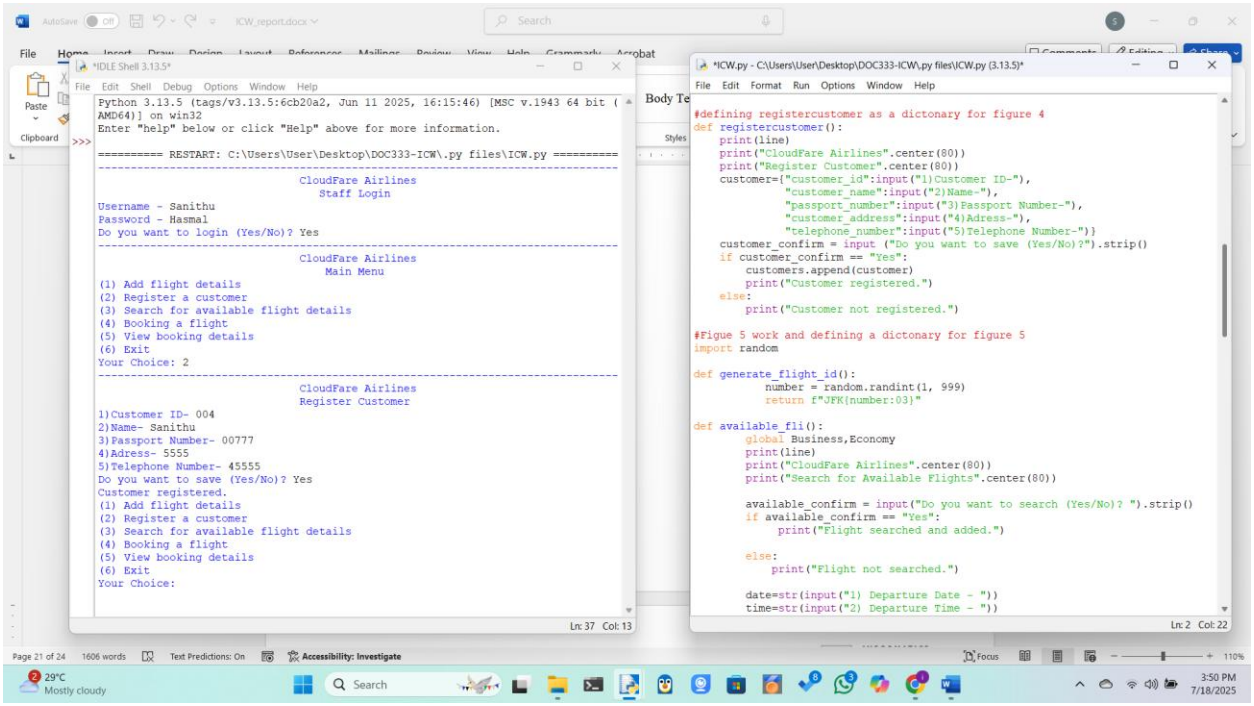

Figure	Input	Expected Output	Actual Output	Result
4	6 (Customer ID,Name,Passport Number,Address,Telephone Number,Yes/No)	Customer registered. (Alongside Displaying register a customer menu)	Customer registered. (Alongside Displaying register a customer menu)	Pass

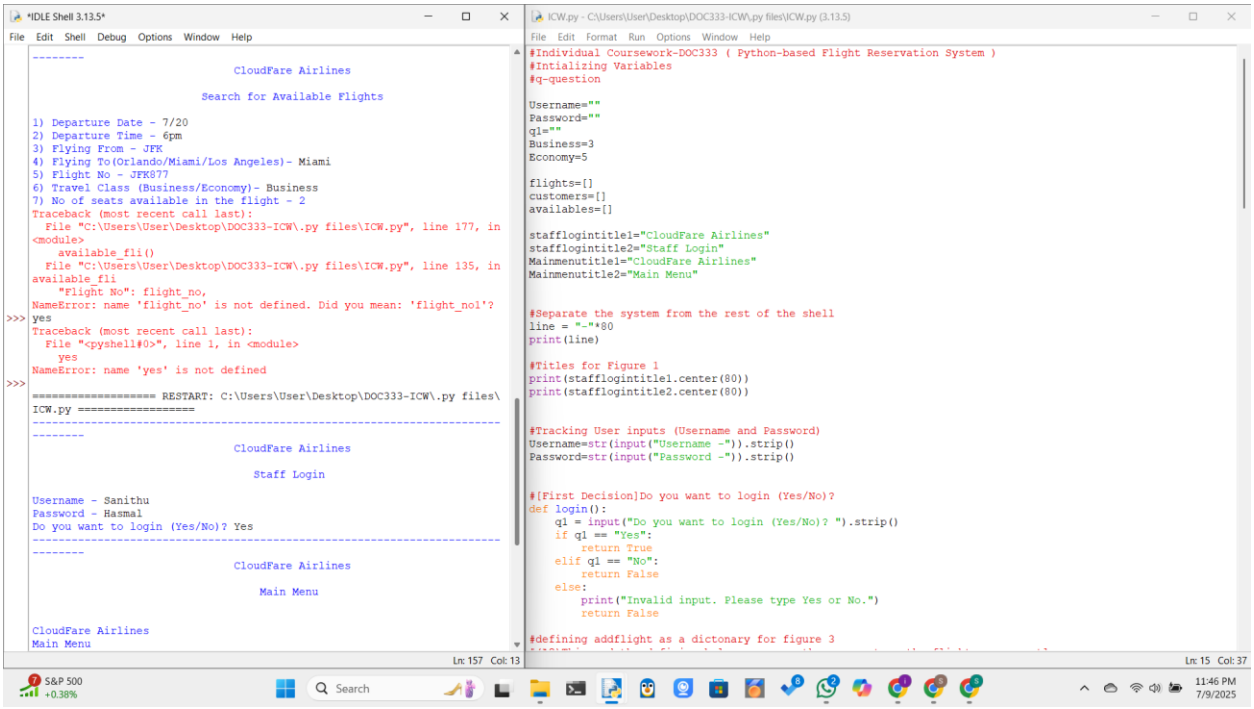

Figure	Input	Expected Output	Actual Output	Result
5	4 – Manual (Departure Date,Time,Flying to, Business/Economy) 2- Autogenerated (Flight No,Available Seat No)	Flight searched and added. (Alongside Displaying search for flight details menu)	Error due to how entered a wrong variable when I was trying to enter a variable to generate flight No.	Had to change flight_no to flight_no 1.

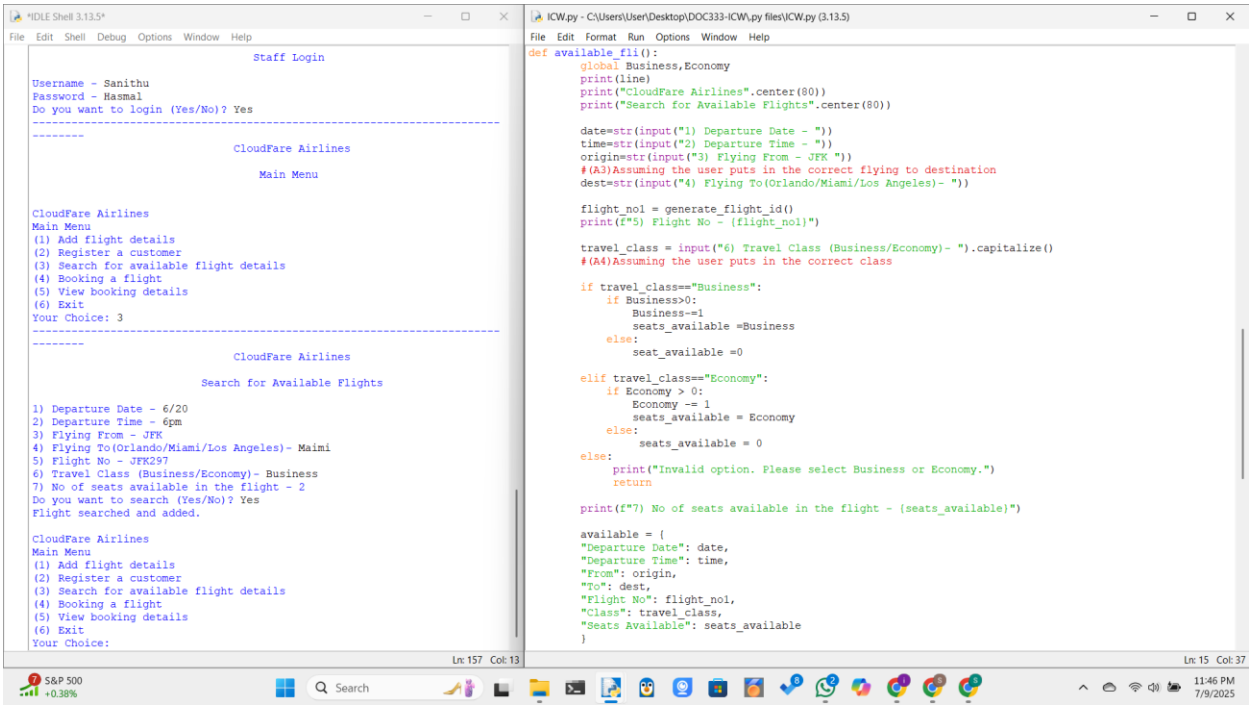

Figure	Input	Expected Output	Actual Output	Result
5	4 – Manual (Departure Date,Time,Flying to, Business/Economy) 2- Autogenerated (Flight No,Available Seat No)	Flight searched and added. (Alongside Displaying search for flight details menu)	Flight searched and added. (Alongside Displaying search for flight details menu)	Pass

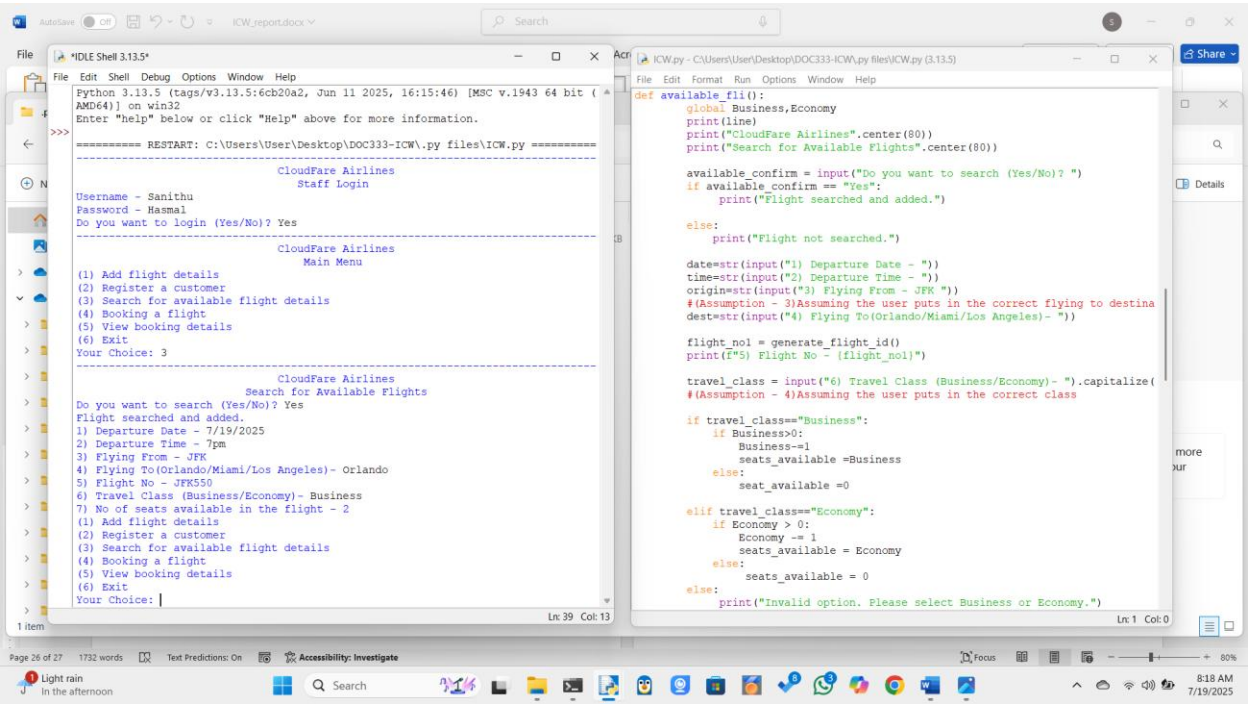

Figure	Input	Expected Output	Actual Output	Result
5	4 – Manual (Departure Date,Time,Flying to, Business/Economy) 2- Autogenerated (Flight No,Available Seat No)	Flight searched and added. (Alongside Displaying search for flight details menu)	Flight searched and added. (Alongside Displaying search for flight details menu)	Pass

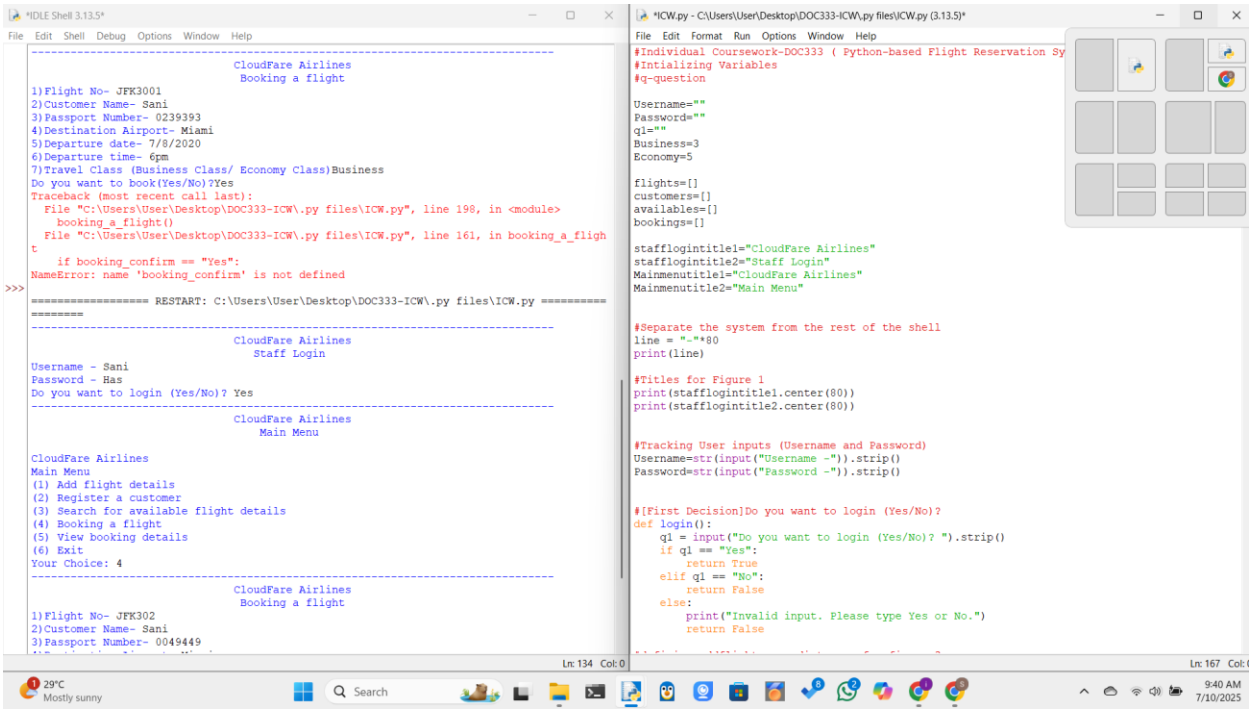

Figure	Input	Expected Output	Actual Output	Result
6	8 (No,Name,Number,Airport,date,time,class,Yes/No)	Flight booked. (Alongside Displaying view booking details menu)	Error due to using an undefined variable.	Definied the variable and fixed the error.

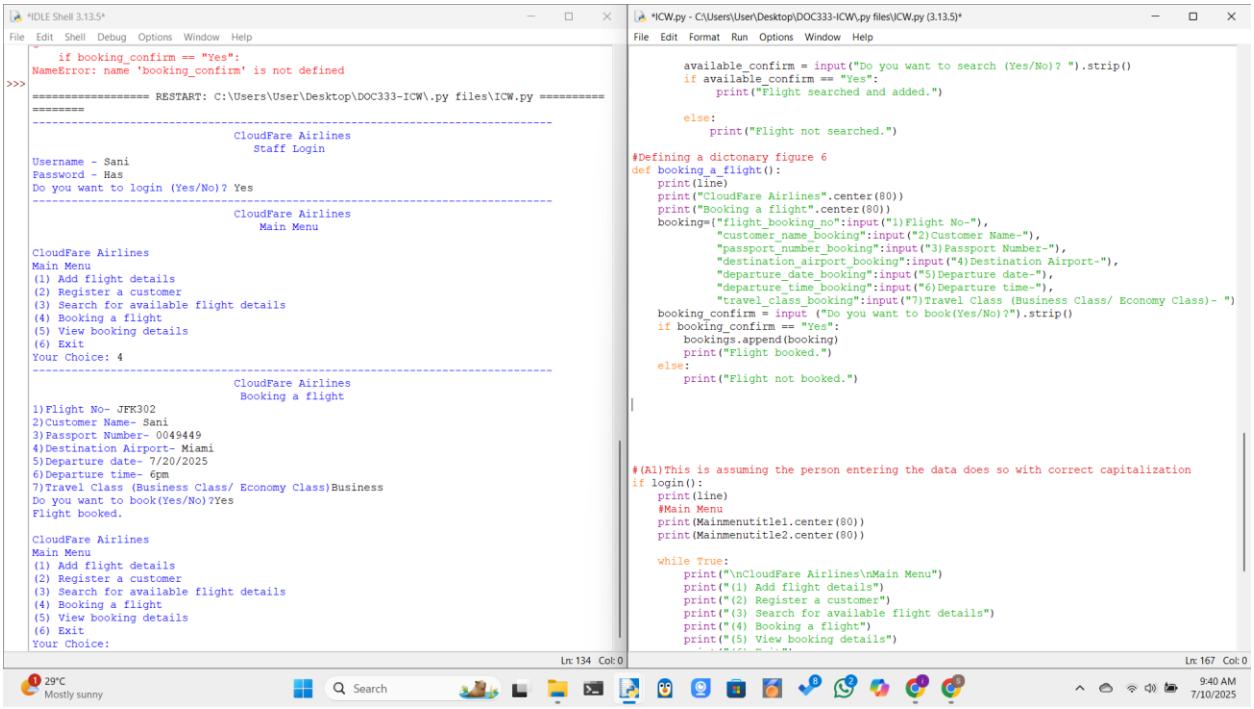

Figure	Input	Expected Output	Actual Output	Result
6	8 (No,Name,Number,Airport,date,time,class,Yes/No)	Flight booked. (Alongside Displaying view booking details menu)	Flight booked. (Alongside Displaying view booking details menu)	Pass

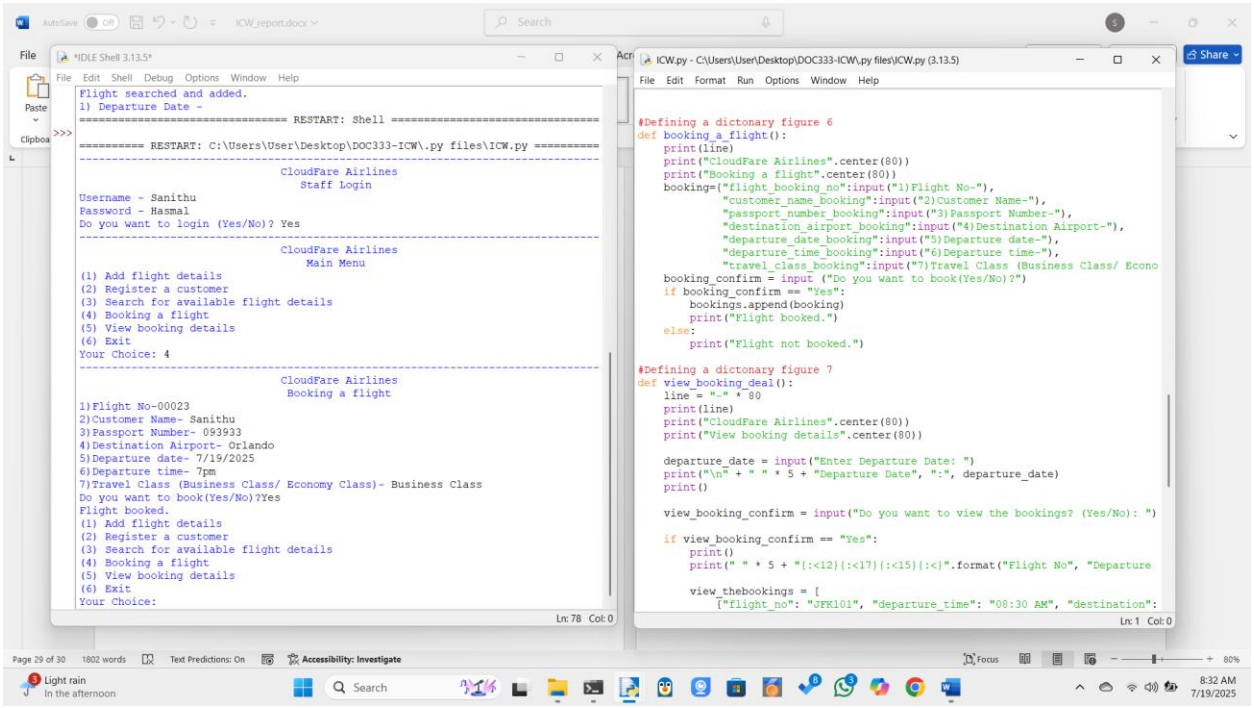

Figure	Input	Expected Output	Actual Output	Result
6	8 (No,Name,Number,Airport,date,time,class,Yes/No)	Flight booked. (Alongside Displaying view booking details menu)	Flight booked. (Alongside Displaying view booking details menu)	Pass

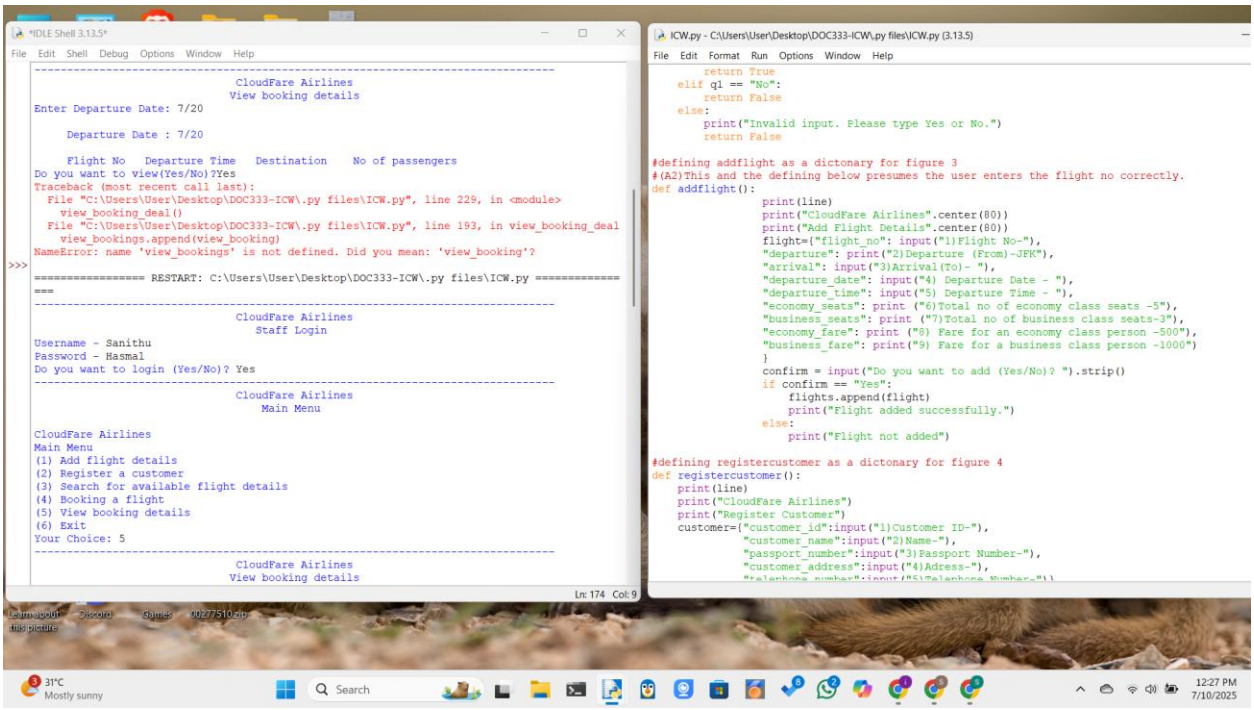

Figure	Input	Expected Output	Actual Output	Result
7	2	Booking details viewed. (Alongside Displaying View Booking Details)	Error due to using an undefined variable.	Fixed error by changing variable name.

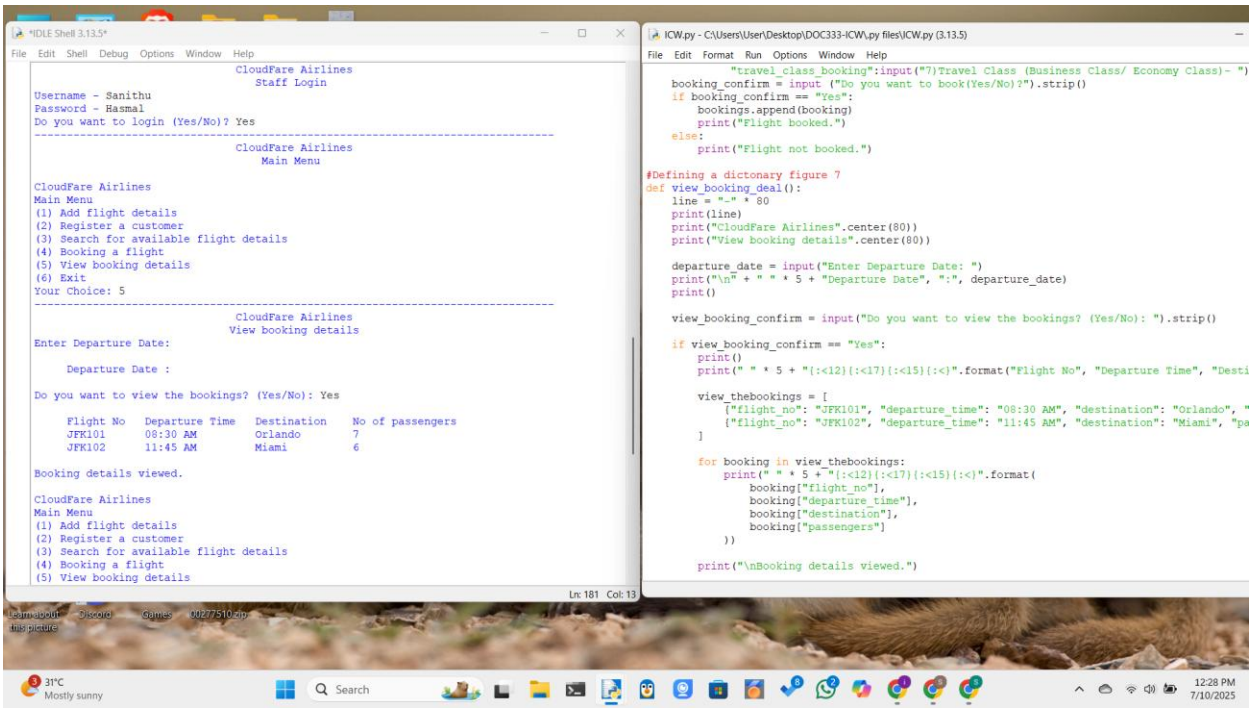

Figure	Input	Expected Output	Actual Output	Result
7	2	Booking details viewed. (Alongside Displaying View Booking Details)	Booking details viewed. (Alongside Displaying View Booking Details)	Pass

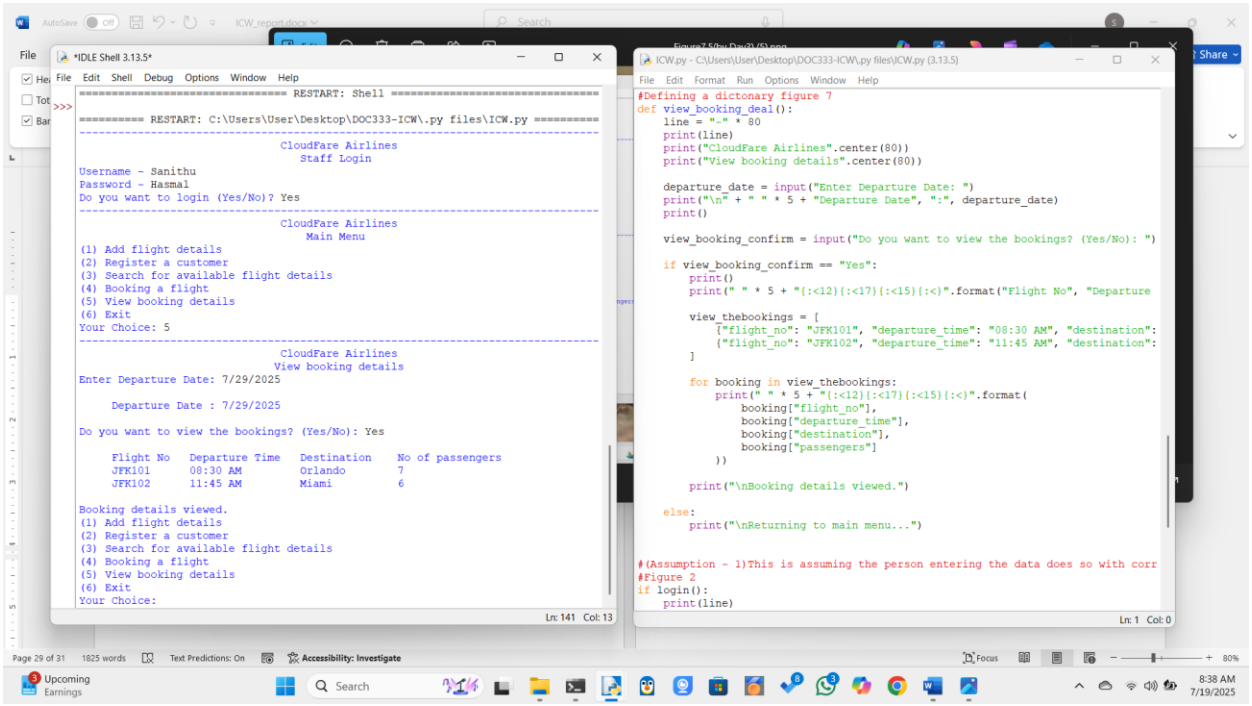

Figure	Input	Expected Output	Actual Output	Result
7	2	Booking details viewed. (Alongside Displaying View Booking Details)	Booking details viewed. (Alongside Displaying View Booking Details)	Pass

References

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