

CSCI160 Computer Science I

Midterm Exam (for real)

Objectives: This exercise will assess your ability to perform the following

- Deal with Python data types appropriately
- Process user input
- Create appropriate mathematical statements
- Apply basic data structures: String, List and Dictionary
- Write basic Boolean conditions
- Control program flow with if statements
- Nicely format output

Problem: You have been asked to write a simple Python script to compute the total of an airline ticket.

The ticket rates are based on age, as follows:

- Base Rate: \$300.00
- Passengers aged under 2: \$0.00
- Passengers between 60 and 80: \$290.00
- Passengers 80 or over: \$200.00
- You have been provided with a dictionary with these associations. ***You must use it for this.***

Additional Charges:

The airlines offers 4 classes of tickets:

- Economy \$0.00
- Business \$50.00
- First \$100.00
- VIP \$200.00
- Carry-on Bags. Only 1 allowed \$10.00, \$0.00 if no carry-on bags
- Checked Bags.
 - First bag Free
 - Second bag \$25.00
 - Each additional bag \$50.00 each

Your program should prompt the user to enter:

- The date of the ticket in “MM/DD/YYYY” format.
- The customer’s age.
- The ticket class.
- The number of carry-on bags . . . either 0 or 1.
- The number of checked bags.

Seats:

You have been given a list of available seat numbers in list format

```
seats = ["A3", "A5", "B3", "B4", "C5", "D2", "D4", "E2", "E3"]
```

To finalize the ticket, choose the first seat from the list and shorten the list by one. Using the list above, this would generate:

```
seat = "A3"  
seats = ["A5", "B3", "B4", "C5", "D2", "D4", "E2", "E3"]
```

The provided list must be used for this process. You must choose the first list item and modify the original list.

The seat will be displayed in the following fashion. You must use string slicing to break apart the seat numbers.

```
Seat Aisle:      A  
Seat Number:    3
```

Validation: The program should be able to detect the following issues with the user input. If any of these issues is detected, the program should display an appropriate message. The program should perform the validation immediately after each value is input, stopping the program from going forward if invalid data is detected.

1. You are only responsible for detecting invalid months. The month should be numeric and in the range 1 – 12. ***You have been provided a dictionary just for this task. You are required to use it.*** Use the membership operator.
2. Ticket Class should be validated for correct entries. ***You must use the provided dictionary for this.***
3. The age must be a number larger than zero
4. Carry-on bags must be either 0 or 1
5. Checked bags must be a number 0 or larger

Output:

MM/DD/YYYY dates should be displayed in **March 15, 2021** format. You have been given a dictionary specifically for this task. ***You are required to use it.*** This allows you the ability to translate a date number to the month name ***with no if statements.*** Points will be taken off if this requirement isn't followed.

The following screen shots will demonstrate the program flow and output format. The format must be adhered to. Use field width formatting to achieve the columns.

```
WELCOME TO THE TICKET CHECKER
=====

Enter the date of the ticket in MM/DD/YYYY format: 3/15/2021
Enter the ticket class (VIP, First, Economy, Business): VIP
Enter the age: 56
How many carry on bags? (0/1): 1
How many checked bags? 3

Available Seats: ['A3', 'A5', 'B3', 'B4', 'C5', 'D2', 'D4', 'E2', 'E3']

TICKET SUMMARY
=====
Ticket Date:      March 15, 2021
Passenger Age:    56
Base Charge:      $300.00
VIP Class:        $200.00
1 Carry On:       $10.00
3 Checked Bag(s): $75.00
Seat Aisle:       A
Seat Number:      3
=====
TOTAL CHARGE:     $585.00

Available Seats: ['A5', 'B3', 'B4', 'C5', 'D2', 'D4', 'E2', 'E3']
```

WELCOME TO THE TICKET CHECKER

=====

Enter the date of the ticket in MM/DD/YYYY format: 8/7/2021

Enter the ticket class (VIP, First, Economy, Business): Economy

Enter the age: 67

How many carry on bags? (0/1): 0

How many checked bags? 1

Available Seats: ['A3', 'A5', 'B3', 'B4', 'C5', 'D2', 'D4', 'E2', 'E3']

TICKET SUMMARY

=====

Ticket Date: August 7, 2021

Passenger Age: 67

Base Charge: \$290.00

Economy Class: \$0.00

0 Carry On: \$0.00

1 Checked Bag(s): \$0.00

Seat Aisle: A

Seat Number: 3

=====

TOTAL CHARGE: \$290.00

Available Seats: ['A5', 'B3', 'B4', 'C5', 'D2', 'D4', 'E2', 'E3']

WELCOME TO THE TICKET CHECKER

=====

Enter the date of the ticket in MM/DD/YYYY format: 10/12/2000

Enter the ticket class (VIP, First, Economy, Business): Business

Enter the age: 84

How many carry on bags? (0/1): 1

How many checked bags? 5

Available Seats: ['A3', 'A5', 'B3', 'B4', 'C5', 'D2', 'D4', 'E2', 'E3']

TICKET SUMMARY

=====

Ticket Date: October 12, 2000

Passenger Age: 84

Base Charge: \$200.00

Business Class: \$50.00

1 Carry On: \$10.00

5 Checked Bag(s): \$175.00

Seat Aisle: A

Seat Number: 3

=====

TOTAL CHARGE: \$435.00

Available Seats: ['A5', 'B3', 'B4', 'C5', 'D2', 'D4', 'E2', 'E3']

WELCOME TO THE TICKET CHECKER

=====

Enter the date of the ticket in MM/DD/YYYY format: 4/15/1998
Enter the ticket class (VIP, First, Economy, Business): First
Enter the age: 1
How many carry on bags? (0/1): 0
How many checked bags? 1

Available Seats: ['A3', 'A5', 'B3', 'B4', 'C5', 'D2', 'D4', 'E2', 'E3']

TICKET SUMMARY

=====

Ticket Date: April 15, 1998
Passenger Age: 1
Base Charge: \$0.00
First Class: \$100.00
0 Carry On: \$0.00
1 Checked Bag(s): \$0.00
Seat Aisle: A
Seat Number: 3

I

=====

TOTAL CHARGE: \$100.00

Available Seats: ['A5', 'B3', 'B4', 'C5', 'D2', 'D4', 'E2', 'E3']

WELCOME TO THE TICKET CHECKER

=====

Enter the date of the ticket in MM/DD/YYYY format: 23/34/1980
23 is not a valid month. Ticket cannot be processed. Program Aborting

WELCOME TO THE TICKET CHECKER

=====

Enter the date of the ticket in MM/DD/YYYY format: 11/23/2018
Enter the ticket class (VIP, First, Economy, Business): Second
'Second' is not a valid ticket class. Program Aborting

WELCOME TO THE TICKET CHECKER

=====

Enter the date of the ticket in MM/DD/YYYY format: 10/23/1978
Enter the ticket class (VIP, First, Economy, Business): Economy
Enter the age: -3
Age must be a number greater than 0. Program Aborting

WELCOME TO THE TICKET CHECKER

=====

Enter the date of the ticket in MM/DD/YYYY format: 10/23/2020
Enter the ticket class (VIP, First, Economy, Business): Economy
Enter the age: 45
How many carry on bags? (0/1): 3
Proper input is 0 or 1 for carry on bags. Program Aborting

WELCOME TO THE TICKET CHECKER

=====

Enter the date of the ticket in MM/DD/YYYY format: 5/23/2019
Enter the ticket class (VIP, First, Economy, Business): VIP
Enter the age: 67
How many carry on bags? (0/1): 1
How many checked bags? -4
This must be a number greater than 0. Aborting program