



Practice program: Passenger Records Management System

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France Tourism center conducts a special tour program in January every year. This year they are celebrating their 25th anniversary. So, they plan to take the passengers on a big tour around Singapore as per their wish. As part of this, the tourism center requires an application to store and retrieve the passenger_name, place, no_of_days, no_of_tickets, and bill_amount.

Place	Price for one ticket per day
Beach	270
Pilgrimage	350
Heritage	430
Hill Station	780
Water Falls	1200
Adventures	4500

The admin of France Tourism center wants to add different passenger details to the list and needs to alert the passengers when a place is different from the ones given in the above table.

You being their software consultant have been approached to develop a software system which can be used for managing the passenger's details. You need to implement a Python program using the collection to meet the above requirement. Passenger details should be obtained from the user in the console.

Component Specification: Passenger (Model Class)

Type(Class)	Attributes	Methods	Responsibilities
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Passenger	passenger_name - string type place - string type no_of_days - integer type no_of_tickets - integer type bill_amount - float	Include the getters and setters method for all the attributes.	
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Note: All the attributes should be declared as private

Requirement 1: Calculate the bill amount

This method calculateBillAmount should accept the place as an argument and calculate the bill amount and return the same. Bill amount is calculated by multiplying the noOfDays and noOfTickets and also, multiply the price for one ticket per day which is relevant to the passing place name

Component Specification: Passenger (Utility Class)

Component Name	Type(Class)	Methods	Responsibilities
Calculate the bill amount	Passenger	calculate_bill_amount(place)	This method has to calculate the bill amount and return the same

Note: All the attributes should be declared as private

Component Specification: InvalidPlaceException(Exception Class)

Type(Class)	Attributes	Methods	Responsibilities
InvalidPlaceException		Include a single argument constructor - InvalidPlaceException(message)	

Note: All the attributes should be declared as private

Requirement 2: Validate Place Name

The place should be one of the values from the given place table. If the place name is valid then this method should return true, else it should throw a user-defined Exception "InvalidPlaceException" with a message "Invalid Place Name"

Component Specification: Tourism (Utility Class)

Component Name	Type(Class)	Methods	Responsibilities	Exception

Validating the place	Tourism	validate_place_name(place)	Validate the place, if valid return true else this method should throw a user-defined exception	Throw a user-defined exception "InvalidPlaceException" if the place is invalid.
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Note: The class and methods should be declared as public and all the attributes should be declared as private

Requirement 3: Add the Passenger object to the list

Whenever Passengers book the tickets for a tour, the Passenger details need to be stored for future reference.

The method `add_passenger_details()` should accept `passenger_name`, `place`, `no_of_days`, and `no_of_tickets` as arguments, and should do the following:

- Create a 'Passenger' object
- Set the values to all the attributes
- Calculate the `bill_amount` by invoking the `calculateBillAmount` in Passenger class and set its value.
- Add this Passenger object to the '`passenger_list`'.

Component Specification: Tourism (Utility Class)

Component Name	Type(Class)	Attributes	Methods	Responsibilities
	Tourism	<code>passenger_list</code>	Include the getter and setter method for the passenger list	
Add a Passenger object to the <code>passenger_list</code>	Tourism		<code>add_passenger_details(passenger_name, place, no_of_days, no_of_tickets)</code>	This method should create a Passenger object and add that object to the passenger list.

Note: All the attributes should be declared as private

Requirement 4: View the Passenger details based on a place

This method `viewPassengerDetails` takes `place` as input and returns the list of Passenger objects. This list contains the object of the passenger whose destination is equal to the passed destination.

Component Specification: Tourism(Utility Class)

Component Name	Type(Class)	Methods	Responsibilities
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View Passenger details	Tourism	view_passenger_details(place)	<p>This method takes place as input then calculate the bill amount and returns the list of Passenger objects.</p> <p>This list contains the object of the passenger whose destination is equal to the passed destination.</p>
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Note: All the attributes should be declared as private

The file 'tourism_main.py' is to get the inputs like the number of Passengers from the user.

The booking details are in the form of a string in the following format **passenger_name:place:no_of_days:no_of_tickets**

Parse the passenger details and invoke the **validate_place_name()** method in the Tourism class by passing the **place**.

If the place is valid then invoke the **add_passengerDetails()** the method in the Tourism class by passing the **passenger_name, place, no_of_days, no_of_tickets** and continue to parse the next record.

If the place is not valid then display the message "Invalid Place Name" and continue to parse the next record.

Note: The passenger details contain both valid and invalid information. All valid passenger records should be added to the list and for the invalid ones, a user-defined exception should be thrown.

Then, get the inputs like **Place that needs to be searched** from the user and invoke **viewPassengerDetails()** the method in Tourism class by passing the place.

If the list returned by this method is empty then display the message "No Passengers found" else display the list of passenger details based on place name as shown in the sample input and output.

Note:

In the **Sample Input / Output** provided, the highlighted text in bold corresponds to the input given by the user, and the rest of the text represents the output.

Ensure to follow the object-oriented specifications provided in the question.

Ensure to provide the names for classes, attributes, and methods as specified in the question.

Adhere to the code template, if provided.

Sample Input / Output 1:

Enter the number of registrations:

3

Enter the registration details 1:

Alex:Beach:2:4

Enter the registration details 2:

Jerold:Pilgrimage:4:12

Enter the registration details 3:

Oliver:Adventures:15:1

Enter the Place that needs to be searched:

Adventures

Passenger Name Oliver

Number Of Days 15

Number Of Tickets 1

Bill Amount 67500.0

Sample Input / Output 2:

Enter the number of registrations:

2

Enter the registration details 1:

Sam:Camp:7:8

Invalid Place Name

Enter the Registration Details 2

Harry:Heritage:6:5

Enter the Place that needs to be searched:

Hill Station

No Passengers found

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