Lab 1 (Page 54~55) Oct 2025

Given the following class diagram and main() program as follows:

Flight
destination no_passenger capacity status ticketPrice discount totalPayment

constructor
book(int, char[])
cancel(int)
checkDetail()

```
main()
{
    Flight Flight1("Kuching", 150, 120.00, 50);
    Flight Flight2;

    Flight1.book(20, "senior citizen");
    Flight1.cancel(2);
    Flight1.checkDetail();
}
```

Answer question a, b, c and d by dividing the program into **header file**, **implementation file**, and **client file**.

a. Based on the class diagram, write the declaration of class Flight.

b. Write source codes for the member function of class Flight with the following properties:

i. **Constructor with default argument** that receives 4 parameters that will initialize destination, capacity, ticketPrice, and discount. (You are required to set your own default argument.)

ii. **book(int, string):** A member function that receives 2 parameters:

- number of passengers who book the ticket, and
- the status of the passenger (“normal” or “senior citizen”).

If the passenger is a **“Senior Citizen”**, they will be given **50% discount** for the ticket price. Update the total payment that the company will receive and update the number of passengers already booked for the flight. Ensure that the number of passengers does not exceed the flight capacity.

iii. **cancel(int):** This member function will receive the number of passengers who want to cancel the booking. Update the number of passengers by deducting with the number of passengers that cancel the booking. All cancellation will only be refunded by **50%** of the ticket price. (Example: If the ticket price is RM200.00, the passenger will get back only RM100.00). Update total earnings.

iv. **checkDetail():** Print information for all passengers.

c. Change the main() program above based on the following instructions:

```
main()
{
    Flight *Flight1;

    (i)   // Declare memory for Flight1 dynamically

    (ii)  // Implement all operations in Flight class using the pointer

    (iii) // Delete the memory pointed by Flight1
}
```

d. Extend the program to handle multiple flights using an array of objects. Create an array of 3 Flight objects. Use a loop to:

- Input flight details for each object as below:

destination	**capacity**	**price**	**discount**
Kuala Lumpur	200	150.0	40
Kuching	120	180.0	30
Langkawi	80	220.0	25

- Perform book() and cancel() operations for each flight.
- Display all flight details using checkDetail().

Hint: Use for loops and object arrays such as Flight flights[3];