CSC186 – Object Oriented Programming
Academic Session October 2022 – February 2023
Lab Assignment 4 – Classes, Array of Object and Composite Object II

Course Outcomes (CO)	LO1	LO2	LO3
CO1			
CO2	√	√	√
CO3			

Answer ALL questions.

1. Sweet Hotel is a four-star hotel that offers promotion for vacation at reduced rates. The company is committed to offer the best services to its customers with the fast check-in process. Sweet Hotel also providing a sought out some attractive promotions with discount price that will fit customer's plan and budget.

   To help staff to search for details of customer booking during check-in process, Sweet Hotel appoint you as a programmer to develop a system. Figure 1 shows the UML class diagram as the information needed in the development of Hotel promotion and check-in system.

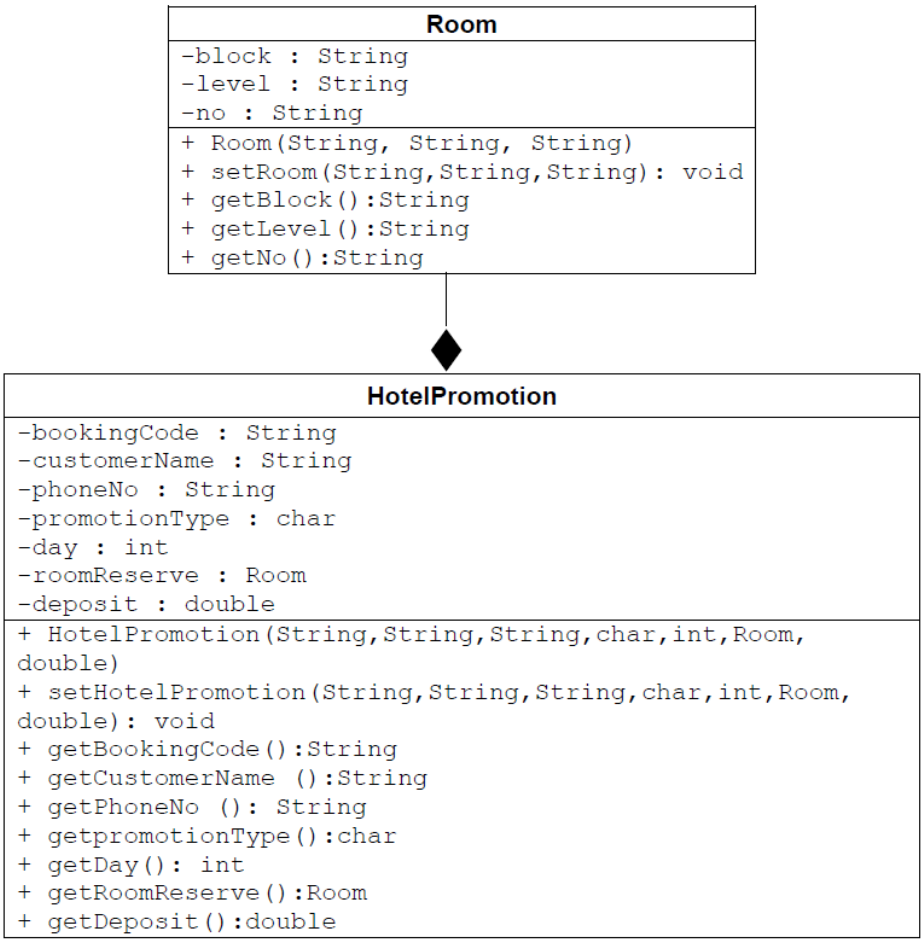

Figure 1: UML class diagram of the class `HotelPromotion` and class `Room`

There are some attractive promotions with discount prices to choose from, according to customers' needs.

Promotion Type	Price (RM)	Promotion discount
L - Luxury	4000.00	25%
B - Budget	1500.00	20%
S - SweetEscape	3300.00	15%

Formula: Promotion = Price * Promotion discount * Day

a) Write a complete definition of the class `Room`.

b) Write a complete definition of the class `HotelPromotion`. Add the following methods in the class definition.
   i. Processor methods `calculatePromotion()` to calculate and return the price after promotion discount that should be paid by the customer.
   ii. Processor method `isSameBlock(HotelPromotion)` that compares two `HotelPromotion` objects. It returns `true` if the objects are located at the same block. It returns `false` otherwise.
   iii. A printer method that displays all the information of the `HotelPromotion` object.

c) Write Java application (main program) for the following tasks:

   i. Declare an array named `promo` that can hold 50 objects.
   ii. Read and store all data into objects.
   iii. Count and display the booking code of customers who already paid for booking.
   iv. Find the customer check-in based on booking code entered by the user. If the record found displays the customer's detail and balance of payment that he/she need to pay. If the record does not exist, display an appropriate message.

2. MoveR is an efficient and professional rental company that offers full range of transportation for hire. The company is committed to offer the best transportation services to its customers with the least hassle and procedures. Besides giving the best and consistent rental experiences to the renters, MoveR also provides a flexible option and reasonable price that will fit renter's requirement budget and schedule.

   To keep track of the renter information, either existing or prospective renters, MoveR hires InsanSoftHouse Sdn Bhd a well-known developer company to develop a system. This system will ensure the renters receive the best services from them.

   Figure 1 shows the UML class diagram as the information needed in this development process.

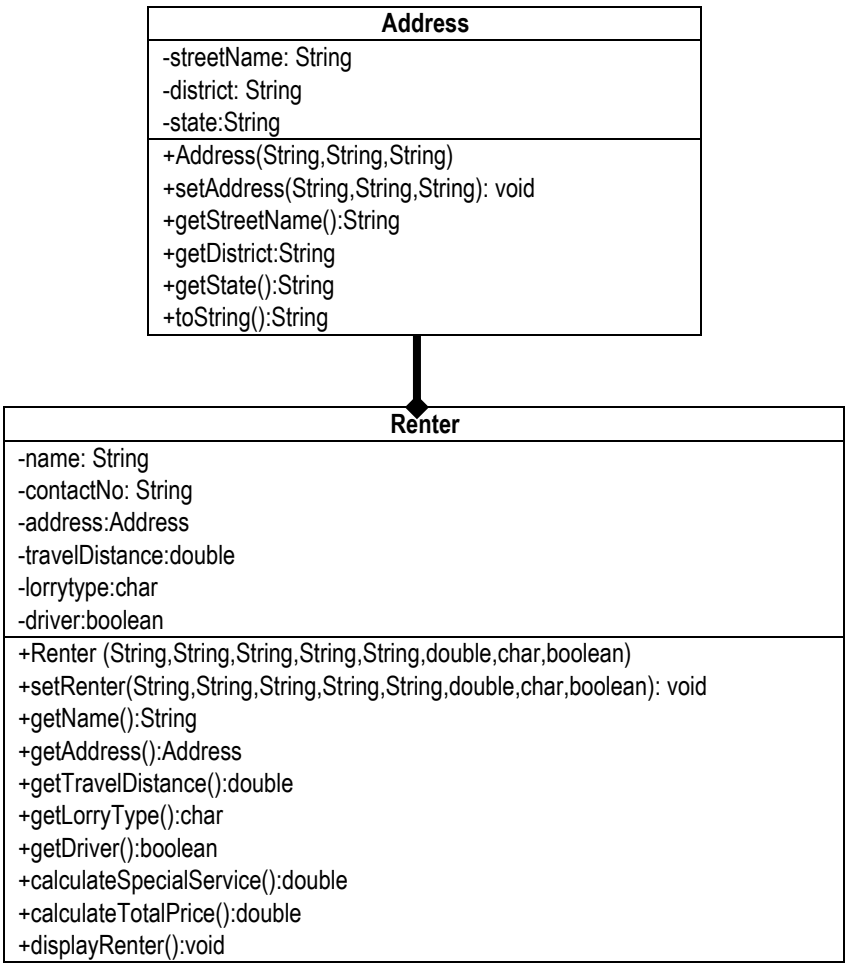

Figure 1: UML class diagram of the class `Renter` and composition

There are various moving services and lorry options to choose from, according to renter needs. The charges for lorry type are as follows:

Type of Lorry	Description	Charges
A	1 Ton (10 ft) with 2 movers	RM560.00
B	3 Ton (17 ft) with 3 movers	RM720.00
C	5 Ton (17 ft) with 5 movers	RM1300.00

Total price is calculated based on the lorry type rented plus with the special service charges. Additionally, if the travel distance is more than 200 km, renter will need to pay extra RM350.

Special service cost is charged if driver is needed for the lorry rental. For every driver, the extra charge is RM150. Number of drivers is calculated based on the distance of the trip as shown below:

Trip Distance	Number of driver
>= 200 km	2
< 200 km	1

Based on the given information, answer all the following questions:

a) Write a complete definition of the class `Address`.

b) Write a complete definition of the class `Renter`. Add the following methods in the class definition.

- normal constructor for all data members.
- accessor methods for each data member.
- processor methods; `calculateSpecialService()` and `calculateTotalPrice()`.
- display method.

c) Write the `main` method to do the following tasks:

- Declare an array to store `Renter` objects. The size of array is determined by the user.
- Read and store all data into the array of objects.
- Count and display the number of renters who choose 1-ton lorry with no driver option.
- Find and display the details of renter based on contact number entered by the user. If the record does not exist, display an appropriate message.