UNIVERSITI TEKNOLOGI MARA

CSC186 – OBJECT ORIENTED PROGRAMMING

LAB ASSIGNMENT 4

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QUESTION 4.1

SOURCE CODE 1.1 : MAIN CLASS

```
import java.util.*;

public class Main {
    public static void main(String[] args) {

        HotelPromotion promo[] = new HotelPromotion[2];

        Scanner in = new Scanner(System.in);//for string
        Scanner in1 = new Scanner(System.in);//for others

        for(int i = 0; i < promo.length; i++) {
            //input
            System.out.println("Enter the information of customer " + (i
+ 1) + ": ");
            System.out.println("Enter booking code: ");
            String bookingCode = in.nextLine();
            System.out.println("Enter customer name: ");
            String customerName = in.nextLine();
            System.out.println("Enter phone number: ");
            String phoneNo = in.nextLine();
            System.out.println("\nL-Luxury, B-Budget, S-
SweetEscape\nChoose the promotion type(L/B/S): ");
            char promotionType = in1.next().toLowerCase().charAt(0);
            System.out.println("Enter length of stay in days: ");
            int day = in1.nextInt();
            System.out.println("Enter the block: ");
            String block = in.nextLine();
            System.out.println("Enter the level: ");
            String level = in.nextLine();
            System.out.println("Enter the room number: ");
            String no = in.nextLine();
            System.out.println("Enter the deposit: RM");
            double deposit = in1.nextDouble();

            //create promo array object
            Room roomReserve = new Room(block, level, no);
            promo[i] = new HotelPromotion(bookingCode, customerName,
phoneNo, promotionType, day, roomReserve, deposit);
            System.out.println();
        }
```

```
        int choice = 0;
        int count = 0;
        String bookingCode = "";
        while (choice != 3) {
            System.out.println("1. Count and display the booking code of
customers who already paid for booking.");
            System.out.println("2. Find the customer check-in based on
booking code entered by the user.");
            System.out.println("3. Exit");
            System.out.print("\nEnter your choice: ");
            choice = in1.nextInt();
            System.out.println();
            switch (choice) {
                    case 1:
                            count = 0;
                            for (int i = 0; i < promo.length; i++) {
                                    if (promo[i].getDeposit() > 0) {
                                            count++;
                                    }
                            }
                            System.out.println("The number of customers
who already paid for booking: " + count);
                            break;
                    case 2:
                            boolean found = false;
                            double originalPrice = 0;
                            System.out.print("Enter the booking code
(e.g. " + promo[0].getBookingCode() + "): ");
                            bookingCode = in.nextLine();
                            System.out.println();

                            for (int i = 0; i < promo.length; i++) {
                                    if
(promo[i].getBookingCode().equals(bookingCode)) {
                                            // Using getters to access
the object's attributes
                                            System.out.println("Customer
name: " + promo[i].getCustomerName());
                                            System.out.println("Phone
number: " + promo[i].getPhoneNo());
                                            System.out.println("Promotion
type: " + promo[i].getPromotionType());
                                            System.out.println("Day: " +
promo[i].getDay());
                                            // Using composition to
access the Room object inside
```

```
                                        // HotelPromotion object
                                        System.out.println("Room
block: " + promo[i].getRoomReserve().getBlock());
                                        System.out.println("Room
level: " + promo[i].getRoomReserve().getLevel());
                                        System.out.println("Room
number: " + promo[i].getRoomReserve().getNo());

                                        switch
(promo[i].getPromotionType()) {
                                                case 'L':
                                                        originalPrice
= 4000.00 * promo[i].getDay();
                                                        break;
                                                case 'B':
                                                        originalPrice
= 1500.00 * promo[i].getDay();
                                                        break;
                                                case 'S':
                                                        originalPrice
= 3300.00 * promo[i].getDay();
                                                        break;
                                        }

                                        // Using methods to perform
calculations
                                        System.out.printf("Original
price: RM %,.2f\n", originalPrice);
                                        System.out.printf("Discount
deducted : RM %,.2f\n", promo[i].calculatePromotion());
                                        System.out.printf("Total
price after discount: RM %,.2f\n", originalPrice -
promo[i].calculatePromotion());
                                        System.out.printf("Deposit:
RM %,.2f\n", promo[i].getDeposit());
                                        System.out.printf("Balance
left to be paid: RM %,.2f\n", originalPrice - promo[i].getDeposit() -
promo[i].calculatePromotion());
                                        found = true;
                                }
                        }
                        if (!found) {
                                System.out.println("Booking code not
found.");
                        }
                        break;
```

```
                    case 3:
                            System.out.println("Thank you for using Hotel
Reservation System");
                            break;
                    default:
                            System.out.println("Invalid choice.");
                            break;
            }
            System.out.println();
        }
    in.close();
    in1.close();
    }
}
```

SOURCE CODE 1.2 : HOTELPROMOTION CLASS

```
public class HotelPromotion {
    private String bookingCode;
    private String customerName;
    private String phoneNo;
    private char promotionType;
    private int day;
    private Room roomReserve;
    private double deposit;

    public HotelPromotion(String bookingCode, String customerName, String
phoneNo, char promotionType, int day, Room roomReserve, double deposit) {
        this.bookingCode = bookingCode;
        this.customerName = customerName;
        this.phoneNo = phoneNo;
        this.promotionType = promotionType;
        this.day = day;
        this.roomReserve = roomReserve;
        this.deposit = deposit;
    }

    public void setHotelPromotion(String bookingCode, String
customerName, String phoneNo, char promotionType, int day,
            Room roomReserve, double deposit) {
        this.bookingCode = bookingCode;
        this.customerName = customerName;
        this.phoneNo = phoneNo;
        this.promotionType = promotionType;
```

```java
        this.day = day;
        this.roomReserve = roomReserve;
        this.deposit = deposit;
    }

    public String getBookingCode() {
        return bookingCode;
    }

    public String getCustomerName() {
        return customerName;
    }

    public String getPhoneNo() {
        return phoneNo;
    }

    public char getPromotionType() {
        return promotionType;
    }

    public int getDay() {
        return day;
    }

    public Room getRoomReserve() {
        return roomReserve;
    }

    public double getDeposit() {
        return deposit;
    }

    // processors
    public double calculatePromotion() {
        double price = 0.0;
        switch (promotionType) {
            case 'L':
            case 'l':
                price = 4000.0 * (1 - 0.25);
                break;
            case 'B':
            case 'b':
                price = 1500.0 * (1 - 0.20);
                break;
            case 'S':
```

```
            case 's':
                price = 3300.0 * (1 - 0.15);
                break;
            default:
                price = 0.0;
                System.out.print("Invalid promotion type!");
                break;
        }
        return price;
    }

    // compares two blocks is the same
    public boolean isSameBlock(HotelPromotion hotelPromotion) {
        String block1 = getRoomReserve().getBlock();
        String block2 = hotelPromotion.getRoomReserve().getBlock();
        if (block1.equals(block2)) {
            return true;
        } else {
            return false;
        }
    }

    public String toString() {
        return String.format("Booking code: %s\nCustomer name: %s\nPhone
number: %s\nPromotion type: %cLength of stay: %d day(s)\nRoom
reserve: %s\nDeposit: RM%.2f", bookingCode, customerName, phoneNo,
promotionType, day, roomReserve, deposit);
    }
}
```

SOURCE CODE 1.3 : ROOM CLASS

```
public class Room {
    private String block;
    private String level;
    private String no;

    public Room(String block, String level, String no) {
        this.block = block;
        this.level = level;
        this.no = no;
    }

    public void setRoom(String block, String level, String no) {
        this.block = block;
        this.level = level;
        this.no = no;
    }

    public String getBlock() {
        return block;
    }

    public String getLevel() {
        return level;
    }

    public String getNo() {
        return no;
    }
}
```

QUESTION 4.2

SOURCE CODE 2.1 :MAIN CLASS

```
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.println("Welcome to Lorry Rental System");
        System.out.println();
        System.out.print("Enter the amount of array: ");
        int size = input.nextInt();
        input.nextLine();
        System.out.println();

        Renter[] renters = new Renter[size];

        String name, contactNo, streetName, district, state;
        double travelDistance;
        char lorryType;
        boolean driver;
        for (int i = 0; i < size; i++) {
            System.out.print("Enter name (e.g. Ali bin Abu): ");
            name = input.nextLine();
            System.out.print("Enter contact number (e.g. 0123456789): ");
            contactNo = input.nextLine();
            System.out.print("Enter street name (e.g. Jalan 1): ");
            streetName = input.nextLine();
            System.out.print("Enter district (e.g. Cheras): ");
            district = input.nextLine();
            System.out.print("Enter state (e.g. Selangor): ");
            state = input.nextLine();
            System.out.print("Enter travel distance (KM): ");
            travelDistance = input.nextDouble();
            System.out.print("A - 1 Ton (10 ft) with 2 movers\nB - 3 Ton
(17 ft) with 3 movers\nC - 5 Ton (17 ft) with 5 movers\n\nEnter lorry
type: ");
            lorryType = Character.toUpperCase(input.next().charAt(0));

            System.out.print("Do you need a driver? (Y/N): ");
            char driverChar = input.next().charAt(0);
            driverChar = Character.toUpperCase(driverChar);

            if (driverChar == 'Y') {
```

```
                driver = true;
            } else {
                driver = false;
            }

            renters[i] = new Renter(name, contactNo, streetName,
district, state, travelDistance, lorryType, driver);

            input.nextLine();
            System.out.println();
        }

        int count = 0;
        for (int i = 0; i < size; i++) {
            if (renters[i].getLorryType() == 'A'
&& !renters[i].getDriver()) {
                count++;
            }
        }

        System.out.println("Number of renters who choose 1-ton lorry with
no driver option: " + count);

        for (int i = 0; i < size; i++) {
            if (renters[i].getLorryType() == 'A'
&& !renters[i].getDriver()) {
                System.out.println("\nRenter who choose 1-ton lorry with
no driver option:\n");
                renters[i].displayRenter();
            }
        }

        System.out.print("Do you want to search for a renter? (Y/N): ");
        char searchChar = input.next().charAt(0);
        searchChar = Character.toUpperCase(searchChar);

        while (searchChar == 'Y') {
            boolean found = false;
            System.out.print("Enter the contact number of the renter
(e.g. 0123456789): ");
            String searchContactNo = input.next();

            for (int i = 0; i < size; i++) {
                if (searchContactNo.equals(renters[i].getContactNo())) {
                    found = true;
                    renters[i].displayRenter();
```

```
                }
            }

            if (found == false) {
                System.out.println("Renter not found");
            }

            System.out.print("\nDo you want to search for another renter?
(Y/N): ");
            searchChar = Character.toUpperCase(input.next().charAt(0));
        }
        System.out.println("Thank you for using Lorry Rental
System\n\nDeveloped by: InsanSoftHouse Sdn Bhd");
        input.close();
    }
}
```

SOURCE CODE 2.2 : RENTER CLASS

```
public class Renter {
    private String name;
    private String contactNo;
    private Address address;
    private double travelDistance;
    private char lorrytype;
    private boolean driver;

    public Renter(String name, String contactNo, String streetName,
String district, String state,
            double travelDistance, char lorrytype, boolean driver) {
        this.name = name;
        this.contactNo = contactNo;
        this.address = new Address(streetName, district, state);
        this.travelDistance = travelDistance;
        this.lorrytype = lorrytype;
        this.driver = driver;
    }

    public void setRenter(String name, String contactNo, Address address,
double travelDistance, char lorrytype,
            boolean driver) {
        this.name = name;
        this.contactNo = contactNo;
        this.address = address;
        this.travelDistance = travelDistance;
```

```
        this.lorrytype = lorrytype;
        this.driver = driver;
    }

    public String getName() {
        return name;
    }

    public Address getAddress() {
        return address;
    }

    public double getTravelDistance() {
        return travelDistance;
    }

    public char getLorryType() {
        return lorrytype;
    }

    public boolean getDriver() {
        return driver;
    }

    public String getContactNo() {
        return contactNo;
    }

    public double calculateSpecialService() {
        double specialService = 0;
        if (lorrytype == 'A') {
            specialService = 0.1 * travelDistance;
        } else if (lorrytype == 'B') {
            specialService = 0.2 * travelDistance;
        } else if (lorrytype == 'C') {
            specialService = 0.3 * travelDistance;
        }
        return specialService;
    }

    public double calculateTotalPrice() {
        double totalPrice = 0;
        if (lorrytype == 'A') {
            totalPrice = 560 + calculateSpecialService();
        } else if (lorrytype == 'B') {
            totalPrice = 720 + calculateSpecialService();
```

```
        } else if (lorrytype == 'C') {
            totalPrice = 1300 + calculateSpecialService();
        }

        if (driver) {
            if (travelDistance >= 200) {
                totalPrice += 150 * 2;
            } else {
                totalPrice += 150;
            }
        }

        return totalPrice;

    }

    public void displayRenter() {
        System.out.println("Name: " + name);
        System.out.println("Contact No: " + contactNo);
        System.out.println("Address: " + address);
        System.out.printf("Travel Distance: %,.2f km\n", travelDistance);
        System.out.println("Lorry Type: " + lorrytype);
        System.out.println("Driver: " + driver);
        System.out.printf("Special Service: RM %,.2f\n",
calculateSpecialService());
        System.out.printf("Total Price: RM %,.2f\n",
calculateTotalPrice());
        System.out.println();

    }

}
```

SOURCE CODE 2.2 : ADDRESS CLASS

```
public class Address {
    private String streetName;
    private String district;
    private String state;

    public Address(String streetName, String district, String state) {
        this.streetName = streetName;
        this.district = district;
        this.state = state;
    }

    public void setAddress(String streetName, String district, String
state) {
        this.streetName = streetName;
        this.district = district;
        this.state = state;
    }

    public String getStreetName() {
        return streetName;
    }

    public String getDistrict() {
        return district;
    }

    public String getState() {
        return state;
    }

    @Override
    public String toString() {
        return "Street Name: " + streetName + "\n" +
                "District: " + district + "\n" +
                "State: " + state + "\n";
    }
}
```