

**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;

        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";

    }

}