```
import java.util.ArrayList;
import java.util.Scanner;
class Room {
    int roomNumber;
    String category;
    double price;
    boolean isReserved;
    Room(int roomNumber, String category, double price) {
        this.roomNumber = roomNumber;
        this.category = category;
        this.price = price;
        this.isReserved = false;
    }
    public boolean reserve() {
        if (!isReserved) {
            isReserved = true;
            return true;
        }
        return false;
    }
    public void cancelReservation() {
        isReserved = false;
    }
    public boolean isAvailable() {
        return !isReserved;
    }
    @Override
    public String toString() {
        return "Room " + roomNumber + " (" + category + ", $" + price + " per
night, " +
                (isReserved ? "Reserved" : "Available") + ")";
    }
}
class Hotel {
    ArrayList<Room> rooms;
    Hotel() {
        rooms = new ArrayList<>();
        rooms.add(new Room(101, "Single", 100));
        rooms.add(new Room(102, "Double", 150));
        rooms.add(new Room(103, "Suite", 250));
        rooms.add(new Room(104, "Single", 100));
        rooms.add(new Room(105, "Double", 150));
    }
    public void showAvailableRooms() {
        System.out.println("Available Rooms:");
        for (Room room : rooms) {
            if (room.isAvailable()) {
                System.out.println(room);
            }
        }
```

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    }
    public void searchRoomsByCategory(String category) {
        System.out.println("Rooms in category: " + category);
        for (Room room : rooms) {
            if (room.category.equalsIgnoreCase(category) && room.isAvailable()) {
                System.out.println(room);
            }
        }
    }
    public boolean makeReservation(int roomNumber) {
        if (roomNumber > 0 && roomNumber <= rooms.size()) {
            return rooms.get(roomNumber - 101).reserve(); // Adjusting index for
array
        }
        return false;
    }
    public void cancelReservation(int roomNumber) {
        if (roomNumber > 0 && roomNumber <= rooms.size()) {
            rooms.get(roomNumber - 101).cancelReservation();
        }
    }
    public void showBookingDetails(int roomNumber) {
        if (roomNumber > 0 && roomNumber <= rooms.size()) {
            Room room = rooms.get(roomNumber - 101);
            System.out.println(room);
        } else {
            System.out.println("Invalid room number.");
        }
    }
    public boolean processPayment(double amount) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Total amount is $" + amount + ". Please enter payment
amount: ");
        double payment = scanner.nextDouble();
        if (payment >= amount) {
            System.out.println("Payment successful. Change returned: $" + (payment
- amount));
            return true;
        } else {
            System.out.println("Insufficient payment. Transaction failed.");
            return false;
        }
    }
}
public class HotelReservationSystem {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        Hotel hotel = new Hotel();
        while (true) {
            System.out.println("Welcome to the Hotel Reservation System");
```

```
            System.out.println("1. Show Available Rooms");
            System.out.println("2. Search Rooms by Category");
            System.out.println("3. Make a Reservation");
            System.out.println("4. Cancel a Reservation");
            System.out.println("5. View Booking Details");
            System.out.println("6. Exit");
            System.out.print("Please choose an option: ");
            int choice = scanner.nextInt();
            switch (choice) {
                case 1:
                    hotel.showAvailableRooms();
                    break;
                case 2:
                    System.out.print("Enter room category (Single, Double, Suite):
");
                    String category = scanner.next();
                    hotel.searchRoomsByCategory(category);
                    break;
                case 3:
                    System.out.print("Enter room number to reserve: ");
                    int roomToReserve = scanner.nextInt();
                    Room room = hotel.rooms.get(roomToReserve - 101);
                    if (hotel.makeReservation(roomToReserve)) {
                        System.out.println("Room " + roomToReserve + " has been
reserved.");
                        if (hotel.processPayment(room.price)) {
                            System.out.println("Reservation confirmed.");
                        } else {
                            hotel.cancelReservation(roomToReserve);
                        }
                    } else {
                        System.out.println("Sorry, room " + roomToReserve + " is
not available.");
                    }
                    break;
                case 4:
                    System.out.print("Enter room number to cancel reservation: ");
                    int roomToCancel = scanner.nextInt();
                    hotel.cancelReservation(roomToCancel);
                    System.out.println("Reservation for room " + roomToCancel + "
has been canceled.");
                    break;
                case 5:
                    System.out.print("Enter room number to view booking details:
");
                    int roomToView = scanner.nextInt();
                    hotel.showBookingDetails(roomToView);
                    break;
                case 6:
                    System.out.println("Thank you for using the Hotel Reservation
```

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System!");
                    scanner.close();
                    System.exit(0);
                default:
                    System.out.println("Invalid choice. Please try again.");
            }
            System.out.println();
        }
    }
}
```