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OOPS WITH JAVA

MINI PROJECT-BUS TICKET RESERVATION SYSTEM

BUS TICKET RESERVATION SYSTEM

```
import java.util.*;

public class Main {
    static class Bus {
        private int id;
        private String source;
        private String destination;
        private int seatsAvailable;

        public Bus(int id, String source, String destination, int seats) {
            this.id = id;
            this.source = source;
            this.destination = destination;
            this.seatsAvailable = seats;
        }

        public int getId() {
            return id;
        }

        public String getSource() {
            return source;
        }
        public String getDestination() {
            return destination;
        }

        public int getSeatsAvailable() {
            return seatsAvailable;
        }

        public boolean isAvailable() {
            return seatsAvailable > 0;
        }

        public void bookTicket() {
            if (seatsAvailable > 0) {
                seatsAvailable--;
            } else {
                System.out.println("No seats available on this bus.");
            }
        }

        public void cancelTicket() {
            seatsAvailable++;
        }
```

```
        @Override
        public String toString() {
            return "Bus ID: " + id + ", From: " + source + ", To: " + destination +
                    ", Seats Available: " + seatsAvailable;
        }
    }

    static class BusReservationSystem {
        private Map<Integer, Bus> buses = new HashMap<>();

        public void addBus(Bus bus) {
            buses.put(bus.getId(), bus);
        }

        public void viewBuses() {
            if (buses.isEmpty()) {
                System.out.println("No buses available.");
                return;
            }
            for (Bus bus : buses.values()) {
                System.out.println(bus);
            }
        }

        public void bookTicket(int busId) {
            Bus bus = buses.get(busId);
            if (bus != null && bus.isAvailable()) {
                bus.bookTicket();
                System.out.println("Ticket booked successfully on Bus ID: " + bus.getId());
            } else if (bus != null) {
                System.out.println("Sorry, no seats available on this bus.");
            } else {
                System.out.println("Bus not found.");
            }
        }

        public void cancelTicket(int busId) {
            Bus bus = buses.get(busId);
            if (bus != null && bus.getSeatsAvailable() < 50) { // Assuming 50 is the maximum capacity
                bus.cancelTicket();
                System.out.println("Ticket canceled successfully on Bus ID: " + bus.getId());
            } else if (bus != null) {
                System.out.println("No tickets to cancel for this bus.");
            } else {
                System.out.println("Bus not found.");
            }
        }
    }
```

```java
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        BusReservationSystem system = new BusReservationSystem();

        // Add predefined buses
        system.addBus(new Bus(1, "New York", "Boston", 40));
        system.addBus(new Bus(2, "San Francisco", "Los Angeles", 35));
        system.addBus(new Bus(3, "Chicago", "Detroit", 50));
        system.addBus(new Bus(4, "Houston", "Dallas", 30));

        System.out.println("Welcome to the Bus Ticket Reservation System!");
        System.out.println("Here are the available buses:");
        system.viewBuses();

        while (true) {
            System.out.println("\nBus Ticket Reservation System");
            System.out.println("1. Add Bus");
            System.out.println("2. View Buses");
            System.out.println("3. Book Ticket");
            System.out.println("4. Cancel Ticket");
            System.out.println("5. Exit");
            System.out.print("Enter your choice: ");
            int choice = scanner.nextInt();
            scanner.nextLine(); // Consume newline
```

```
switch (choice) {
  case 1:
    System.out.print("Enter Bus ID: ");
    int id = scanner.nextInt();
    scanner.nextLine(); // Consume newline
    System.out.print("Enter Source: ");
    String source = scanner.nextLine();
    System.out.print("Enter Destination: ");
    String destination = scanner.nextLine();
    System.out.print("Enter Number of Seats: ");
    int seats = scanner.nextInt();
    system.addBus(new Bus(id, source, destination, seats));
    System.out.println("Bus added successfully.");
    break;
  case 2:
    system.viewBuses();
    break;
  case 3:
    System.out.print("Enter Bus ID to book ticket: ");
    int bookId = scanner.nextInt();
    system.bookTicket(bookId);
    break;
  case 4:
    System.out.print("Enter Bus ID to cancel ticket: ");
```

```
                    int cancelId = scanner.nextInt();
                    system.cancelTicket(cancelId);
                    break;
                case 5:
                    System.out.println("Exiting...");
                    scanner.close();
                    return;
                default:
                    System.out.println("Invalid choice. Please try again.");
            }
        }
    }
}
```