

# Java Program: Bus Ticket Booking System

```
package busticket;
import java.util.*;
class Bus {
    String route;
    String operator;
    String departure;
    String arrival;
    Map<Integer, String> bookedSeats = new HashMap<>();
    Bus(){}
    Bus(String route, String operator, String departure, String arrival) {
        this.route = route;
        this.operator = operator;
        this.departure = departure;
        this.arrival = arrival;
    }
}
public class BusTicketBooking1 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        ArrayList<Bus> buses = new ArrayList<>();
        buses.add(new Bus("Tirupati → Hyderabad", "Orange Travels", "08:00 AM", "02:00 PM"));
        buses.add(new Bus("Tirupati → Bangalore", "VRL Travels", "09:30 AM", "04:00 PM"));
        buses.add(new Bus("Tirupati → Chennai", "KPN Travels", "10:00 AM", "05:30 PM"));
        ArrayList<Map<String, Object>> allTickets = new ArrayList<>();

        System.out.println("--- Welcome to Route-Based Bus Ticket Booking ---");

        while (true) {
            System.out.println("Available Buses by Route:");
            for (int i = 0; i < buses.size(); i++) {
                Bus b = buses.get(i);
                System.out.println((i + 1) + ". " + b.route + " | " + b.operator +
                    " | Departure: " + b.departure + " | Arrival: " + b.arrival);
            }
            System.out.println("0. Exit Application");
            System.out.print("Select a bus (1-" + buses.size() + ", or 0 to Exit): ");
            int busChoice = sc.nextInt();
            if (busChoice == 0) {
                System.out.println("\n■ Thank you! App closed.");
                break;
            }
            if (busChoice < 1 || busChoice > buses.size()) {
                System.out.println("■ Invalid choice! Try again.");
                continue;
            }
            Bus selectedBus = buses.get(busChoice - 1);
            System.out.println("--- Selected Bus ---");
            System.out.println("Route      : " + selectedBus.route);
            System.out.println("Operator   : " + selectedBus.operator);
            System.out.println("Departure  : " + selectedBus.departure);
            System.out.println("Arrival    : " + selectedBus.arrival);

            System.out.println("Current Bus Layout :");
            displayBusLayout(selectedBus.bookedSeats);

            System.out.print("How many seats do you want to book? ");
            int n = sc.nextInt();
            sc.nextLine();

            List<Map<String, Object>> bookedNow = new ArrayList<>();

            for (int i = 0; i < n; i++) {
                System.out.print("Enter seat number: ");
                int seatNo = sc.nextInt();
                sc.nextLine();

                if (seatNo < 1 || seatNo > 51) {
                    System.out.println("■ Seat " + seatNo + " is invalid!");
                    i--;
                    continue;
                } else if (selectedBus.bookedSeats.containsKey(seatNo)) {
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        System.out.println("■■ Seat " + seatNo + " is already booked by "
            + selectedBus.bookedSeats.get(seatNo));
        i--;
        continue;
    } else {
        System.out.print("Enter passenger name: ");
        String name = sc.nextLine();

        selectedBus.bookedSeats.put(seatNo, name);

        Map<String, Object> ticket = new HashMap<>();
        ticket.put("name", name);
        ticket.put("seat", seatNo);
        ticket.put("route", selectedBus.route);
        ticket.put("operator", selectedBus.operator);
        ticket.put("departure", selectedBus.departure);
        ticket.put("arrival", selectedBus.arrival);

        bookedNow.add(ticket);
        allTickets.add(ticket);
    }
}

System.out.println("\n===== TICKET CONFIRMATION =====");
for (Map<String, Object> t : bookedNow) {
    System.out.println("Passenger : " + t.get("name"));
    System.out.println("Seat No   : " + t.get("seat"));
    System.out.println("Route      : " + t.get("route"));
    System.out.println("Operator   : " + t.get("operator"));
    System.out.println("Departure  : " + t.get("departure"));
    System.out.println("Arrival    : " + t.get("arrival"));
    System.out.println("-----");
}
System.out.println("=====");

System.out.println("\n■ All Tickets Booked in This Session:");
for (Map<String, Object> t : allTickets) {
    System.out.println("Passenger : " + t.get("name") +
        " | Seat: " + t.get("seat") +
        " | Route: " + t.get("route"));
}

System.out.print("\nDo you want to go back to bus list? (yes/no): ");
String choice = sc.next();
if (choice.equalsIgnoreCase("no")) {
    System.out.println("\n■ Thank you! Application closed.");
    break;
}
}

private static void displayBusLayout(Map<Integer, String> bookedSeats) {
    int seatNo = 1;
    for (int row = 1; row <= 10; row++) {
        for (int i = 0; i < 2; i++) {
            printSeat(seatNo++, bookedSeats);
        }
        System.out.print("    "); // aisle

        for (int i = 0; i < 3; i++) {
            printSeat(seatNo++, bookedSeats);
        }
        System.out.println();
    }

    for (int i = 0; i < 6; i++) {
        printSeat(seatNo++, bookedSeats);
    }
    System.out.println();
}

private static void printSeat(int seatNo, Map<Integer, String> bookedSeats) {
    if (bookedSeats.containsKey(seatNo)) {
        System.out.print("[X] ");
    }
}

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        } else {
            if(seatNo<10)
                System.out.print(seatNo+"  ");
            else
                System.out.print(seatNo+" ");
        }
    }
}
```