**Bus Transport Service Java Project Documentation**

**1. Introduction**

The Bus Transport Service Java project is a simple application that provides details about a bus, its timings, and stops. This project is designed to showcase the basic structure of a bus transport service application.

**2. Classes**

**2.1 Bus Class**

The Bus class represents information about a bus, including its number, route, capacity, fare, and timing details.

**Attributes:**

**busNumber (String):** Unique identifier for the bus.

**route (String):** The route the bus follows.

**capacity (int):** Maximum number of passengers the bus can accommodate.

**fare (double):** The fare charged for a bus ticket.

**busTiming (BusTiming):** An instance of the BusTiming class representing the bus timings.

**Methods:**

**displayDetails():** Displays all details of the bus, including timings.

**2.2 BusTiming Class**

The BusTiming class represents the timings for a bus on weekdays and weekends.

**Attributes:**

**weekdays (String[]):** Array of timings on weekdays.

**weekends (String[]):** Array of timings on weekends.

**Methods:**

**displayTimings()**: Displays both weekday and weekend timings.

**2.3 BusStop Class**

The BusStop class represents details about a bus stop, including its name and location.

**Attributes:**

**stopName (String)**: The name of the bus stop.

**stopLocation (String):** The location of the bus stop.

**Methods:**

**displayStopDetails():** Displays details about the bus stop.

**2.4 BusTransportService Class**

The BusTransportService class contains the main method and serves as the entry point for the application.

**Methods:**

main(String[] args): Takes user input to create instances of Bus, BusTiming, and BusStop, and then displays their details.

**3. How to Run**

Compile all Java files using a Java compiler:

**Copy of Code:**

**package** busTransport;

**import** java.util.Scanner;

**class** Bus {

**private** String busNumber;

**private** String route;

**private** **int** capacity;

**private** **double** fare;

**private** BusTiming busTiming;

**public** Bus(String busNumber, String route, **int** capacity, **double** fare, BusTiming busTiming) {

**this**.busNumber = busNumber;

**this**.route = route;

**this**.capacity = capacity;

**this**.fare = fare;

**this**.busTiming = busTiming;

}

**public** **void** displayDetails() {

System.***out***.println("Bus Number: " + busNumber);

System.***out***.println("Route: " + route);

System.***out***.println("Capacity: " + capacity + " passengers");

System.***out***.println("Fare: $" + fare);

System.***out***.println("Bus Timings:");

busTiming.displayTimings();

}

}

**class** BusTiming {

**private** String[] weekdays;

**private** String[] weekends;

**public** BusTiming(String[] weekdays, String[] weekends) {

**this**.weekdays = weekdays;

**this**.weekends = weekends;

}

**public** **void** displayTimings() {

System.***out***.println("Weekdays Timings:");

**for** (String timing : weekdays) {

System.***out***.println(timing);

}

System.***out***.println("Weekends Timings:");

**for** (String timing : weekends) {

System.***out***.println(timing);

}

}

}

**class** BusStop {

**private** String stopName;

**private** String stopLocation;

**public** BusStop(String stopName, String stopLocation) {

**this**.stopName = stopName;

**this**.stopLocation = stopLocation;

}

**public** **void** displayStopDetails() {

System.***out***.println("Stop Name: " + stopName);

System.***out***.println("Stop Location: " + stopLocation);

}

}

**public** **class** bus\_Transport {

**public** **static** **void** main(String[] args)

{

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.println("Enter Bus Number:");

String busNumber = scanner.nextLine();

System.***out***.println("Enter Route:");

String route = scanner.nextLine();

System.***out***.println("Enter Capacity:");

**int** capacity = scanner.nextInt();

System.***out***.println("Enter Fare:");

**double** fare = scanner.nextDouble();

System.***out***.println("Enter Weekdays Bus Timings (comma-separated):");

String[] weekdaysTimings = scanner.next().split(",");

System.***out***.println("Enter Weekends Bus Timings (comma-separated):");

String[] weekendsTimings = scanner.next().split(",");

BusTiming busTiming = **new** BusTiming(weekdaysTimings, weekendsTimings);

System.***out***.println("Enter Bus Stop Details:");

System.***out***.println("Enter Stop Name:");

String stopName = scanner.next();

System.***out***.println("Enter Stop Location:");

String stopLocation = scanner.next();

BusStop busStop = **new** BusStop(stopName, stopLocation);

Bus bus = **new** Bus(busNumber, route, capacity, fare, busTiming);

System.***out***.println("\nBus Details:");

bus.displayDetails();

System.***out***.println("\nBus Stop Details:");

busStop.displayStopDetails();

scanner.close();

}

}

Run the compiled program:

**java BusTransportService**

Follow the prompts to input bus details, timings, and stop details.

**4. Example Usage**

**Enter Bus Number:**

B001

**Enter Route:**

City Express

**Enter Capacity:**

50

**Enter Fare:**

10.50

**Enter Weekdays Bus Timings (comma-separated):**

08:00,12:00,16:00

**Enter Weekends Bus Timings (comma-separated):**

10:00,14:00,18:00

**Enter Bus Stop Details:**

**Enter Stop Name:**

Central Station

**Enter Stop Location:**

Downtown

**Bus Details:**

**Bus Number:** B001

**Route:** City Express

**Capacity:** 50 passengers

**Fare:** Rs. 10.5

**Bus Timings:**

**Weekdays Timings:**

08:00

12:00

16:00

**Weekends Timings:**

10:00

14:00

18:00

**Bus Stop Details:**

**Stop Name:** Central Station

**Stop Location:** Downtown

**5. Notes**

This project is a basic representation and can be extended for more features and functionalities.

Input validation is minimal, and the project assumes correct user input for simplicity.

**6. Customization**

Feel free to customize and extend the project based on specific requirements. Additional features such as multiple stops, dynamic scheduling, and enhanced user interfaces can be implemented for a more comprehensive bus transport service simulation.