**Smart Ride Analytics System**

**PROJECT OVERVIEW:**

* **Smart Ride Analytics System is a database-driven solution for analyzing ride-booking operations.**
* **It manages users, drivers, rides, payments, vehicle\_details and feedback efficiently.**
* **The system provides insights into ride statistics, driver earnings, and payment trends.**
* **It ensures data integrity with constraints, optimizing user and driver experiences.**
* **Key features include ride tracking, revenue analysis, and feedback management.**
* **The project supports real-time queries for business insights and operational improvements.**

**FUNCTIONAL REQUIREMENTS:**

**Users Table:**

* **Store user details including name, email, and phone\_number for ride bookings.**
* **Track registration\_date to monitor user activity and retention.**

**Drivers Table:**

* **Maintain driver details with name, phone\_number, and license\_number for verification.**
* **Associate each driver with a vehicle using vehicle\_id for operational tracking.**

**Rides Table:**

* **Record ride transactions with user\_id, driver\_id, and vehicle\_id for tracking.**
* **Store ride\_status, fare, and ride\_date to monitor trip progress and revenue.**

**Payments Table:**

* **Maintain payment records linked to rides with ride\_id and amount.**
* **Track payment\_method and payment\_status for financial reporting.**

**Vehicle\_Details table:**

* **Store vehicle\_type, vehicle\_model, and vehicle\_number for identification.**
* **Ensure vehicle\_type is restricted to 'Car', 'Auto', 'Bike' or ‘Scooty’ for consistency.**

**Feedback table:**

* **Store ride-related feedback using ride\_id and rating for service quality analysis.**
* **Capture comments and feedback\_date for improvement insights.**

**Reporting and Analytics:**

* **Analyze total rides completed, revenue generation, and popular ride routes.**
* **Track driver performance through earnings and feedback ratings.**
* **Identify peak ride booking hours and demand trends.**
* **Evaluate user retention based on ride frequency and registration history.**
* **Monitor payment trends to assess cashless transaction adoption.**
* **Generate reports on ride cancellations and customer satisfaction levels.**

**Database Design:**

**Tables**

1. **Users:**

**User id (PK), Name, Email, Phone No, Registration Date and Location**

1. **Drivers:**

**Driver id (PK), Name, Vehicle type (Car, Auto, Bike & Scooty), License No, Rating (0 to 5), Status (Active/Inactive)**

1. **Rides:**

**Ride id (PK), User id (FK -> Users),**

**Driver id (FK -> Drivers), Pickup location,**

**Dropoff location, Ride Status (Completed, Cancelled, Ongoing), Ride date, Fare**

1. **Payments:**

**Payment id (PK), Ride id (FK -> Rides), Payment method (Cash, Card, Wallet), Amount, Payment date**

1. **Vehicle\_Details:**

**Vehicle id (PK), Driver id (FK -> Drivers),**

**Vehicle type (Car, Auto, Bike, Scooty), Vehicle No,**

**Model, Year**

1. **Feedback:**

**Feedback id (PK), Ride id (FK -> Rides),**

**User id (FK -> Users), Rating (1 to 5),**

**Comments, Feedback Date**

**Relationship:**

* **Each user can book multiple rides.**
* **Each driver can complete multiple rides.**
* **Each vehicle is assigned to one driver but used for multiple rides.**
* **Each ride can have only one payment record.**
* **Each ride can have one feedback entry.**