Project Design Phase

PROPOSED SOLUTION

Date	9 APRIL 2025
Team ID	SWTID1742640402
Project Name	MyRide
Maximum Marks	4 Marks

Proposed Solution

Our **Cab Booking Application** is a **full-stack, mobile-first platform** designed to bridge gaps in urban mobility by prioritizing **speed, safety, and fairness** for passengers and drivers.

Passenger Panel

- **Instant Booking**:
  - Enter pickup/destination with auto-suggest (Google Places API).
  - View fare estimates upfront (distance + time-based pricing).

- **Real-Time Tracking**:
  - Live driver location and ETA on an interactive map.
  - SOS button to share ride details with emergency contacts.

- **Payment & History**:
  - Multiple payment options (UPI, cards, cash).
  - Ride history with receipts and driver ratings.

Driver Panel

- **Ride Management**:
  - Accept/reject ride requests with passenger details.
  - In-app navigation (Google Maps Directions).

- **Earnings Dashboard**:
  - Daily/weekly profit breakdown (rides, bonuses, deductions).
  - Withdrawal integration (bank/UPI).

- **Performance Metrics**:
  - Average rating, cancellation rate, and trip completion stats.

Admin Panel

- **User/Driver Moderation**:

- o   Approve/reject driver registrations (license/vehicle verification).

- o   Ban fraudulent accounts.

- **Analytics**:

   - o   Demand heatmaps (peak hours/locations).

   - o   System health monitoring (API latency, failure rates).

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Technology Features

Layer	Technology	Purpose
Frontend	React.js (PWA), Tailwind CSS, Google Maps API	Mobile-optimized UI, offline support, real-time tracking.
Backend	Node.js, Express.js, Socket.io	RESTful APIs, real-time driver-passenger communication.
Database	MongoDB (geospatial indexes), Redis (caching)	Store user/ride data, fast proximity queries for driver matching.
Auth & Security	JWT, Bcrypt, HTTPS	Secure login, role-based access, data encryption.
DevOps	AWS EC2 (backend), Vercel (frontend), MongoDB Atlas	Scalable cloud hosting, automated deployments.