The ICT University

FINAL EXAMINATION

PRACTICAL EXAM: Ride sharing application

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MOBILE APP DEV

Paper Due Date

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User Authentication and Registration:

Allow users to create accounts and log in securely.

Ride Requesting:

Users should be able to request rides based on their current location.

Real-time Driver Tracking:

Users should be able to track the location of available drivers in real-time after requesting a ride.

Payment Processing:

Enable users to securely process payments for rides within the app.

Driver Matching Algorithm:

Develop an algorithm to efficiently match drivers with ride requests, especially during peak hours.

Secure Payment Transactions:

Implement a secure payment processing flow to protect user payment information.

Offline Functionality:

Allow users to request rides and track progress even in areas with limited or intermittent internet connectivity.

Surge Pricing:

Implement surge pricing logic and algorithms to adjust ride fares during high-demand periods.

Performance Optimization:

Identify and address performance issues to improve app responsiveness, considering factors like network latency and server response times.

Localization Support:

Provide support for multiple languages, currencies, and cultural norms to ensure a seamless user experience across different regions.

User Feedback and Ratings:

Allow users to provide feedback and ratings for drivers and overall service quality to maintain reliability and trustworthiness.

Integration with Mapping and Navigation Services:

Integrate external mapping and navigation services to provide accurate directions and estimated arrival times to users.

Testing and Deployment:

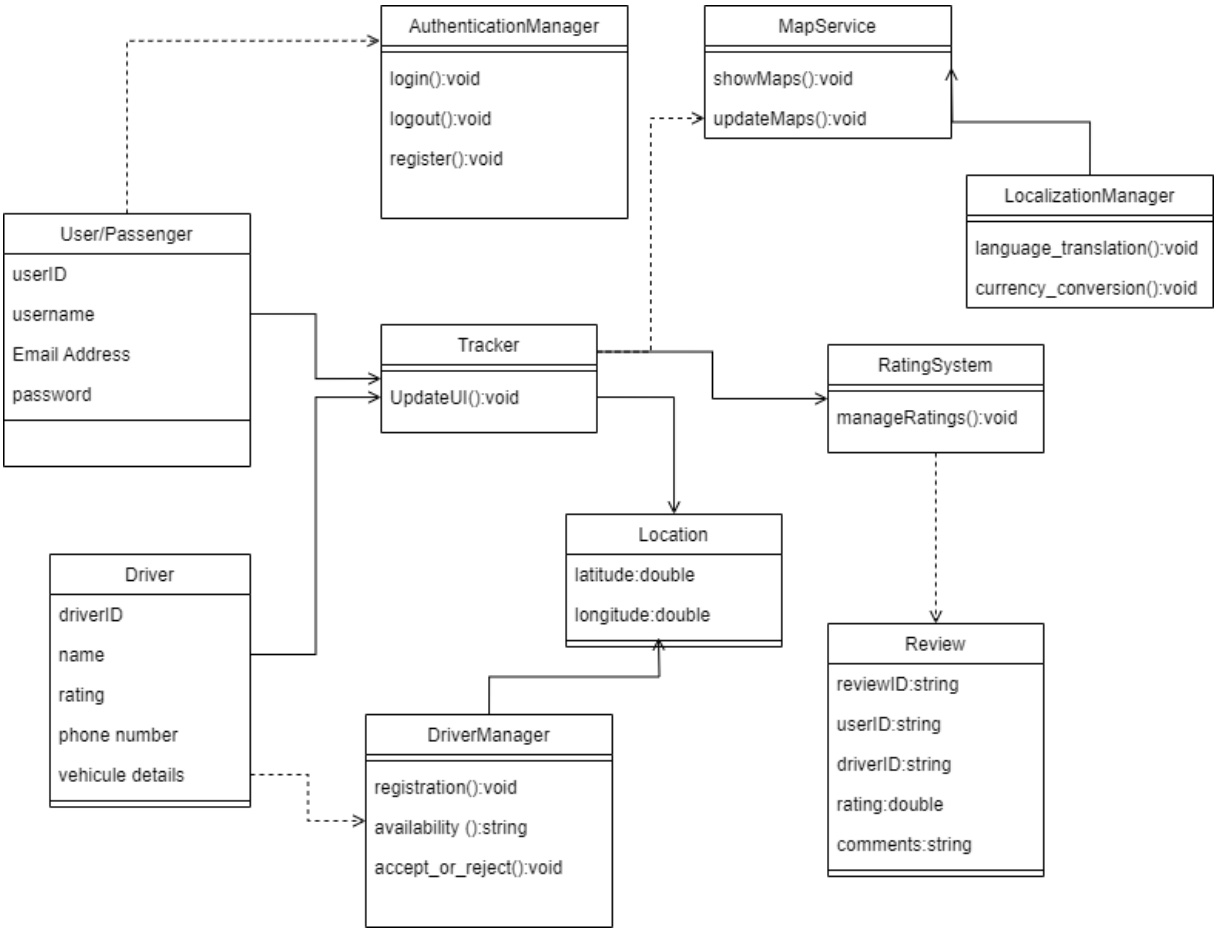
Conduct various types of testing including functional testing, performance testing, and user acceptance testing to ensure the quality and performance of the app before deployment.

1. **User Registration:**
    - **Main Features and Functionalities:**
        - Allow users to create accounts securely.
        - Collect user information such as name, email, phone number, and payment details.
        - Verify user identity through email or phone verification.
    - **Non-functional Requirements:**
        - Security: Implement secure authentication mechanisms to protect user data.
        - Scalability: Ensure the registration system can handle a large number of users without performance degradation.
2. **Ride Request:**
    - **Main Features and Functionalities:**
        - Enable users to request rides based on their current location.
        - Provide options for selecting ride preferences (e.g., car type, ride-sharing, etc.).
        - Notify users about ride status and estimated arrival time.
    - **Non-functional Requirements:**
        - Reliability: Ensure ride requests are processed accurately and promptly.
        - Availability: Maintain a high availability of the ride request system to handle user demands, especially during peak hours.
3. **Driver Management:**
    - **Main Features and Functionalities:**
        - Allow drivers to register and create profiles.
        - Enable drivers to manage their availability status.
        - Provide tools for drivers to accept or decline ride requests.
    - **Non-functional Requirements:**
        - Performance: Ensure quick response times for driver-related actions to improve user experience.

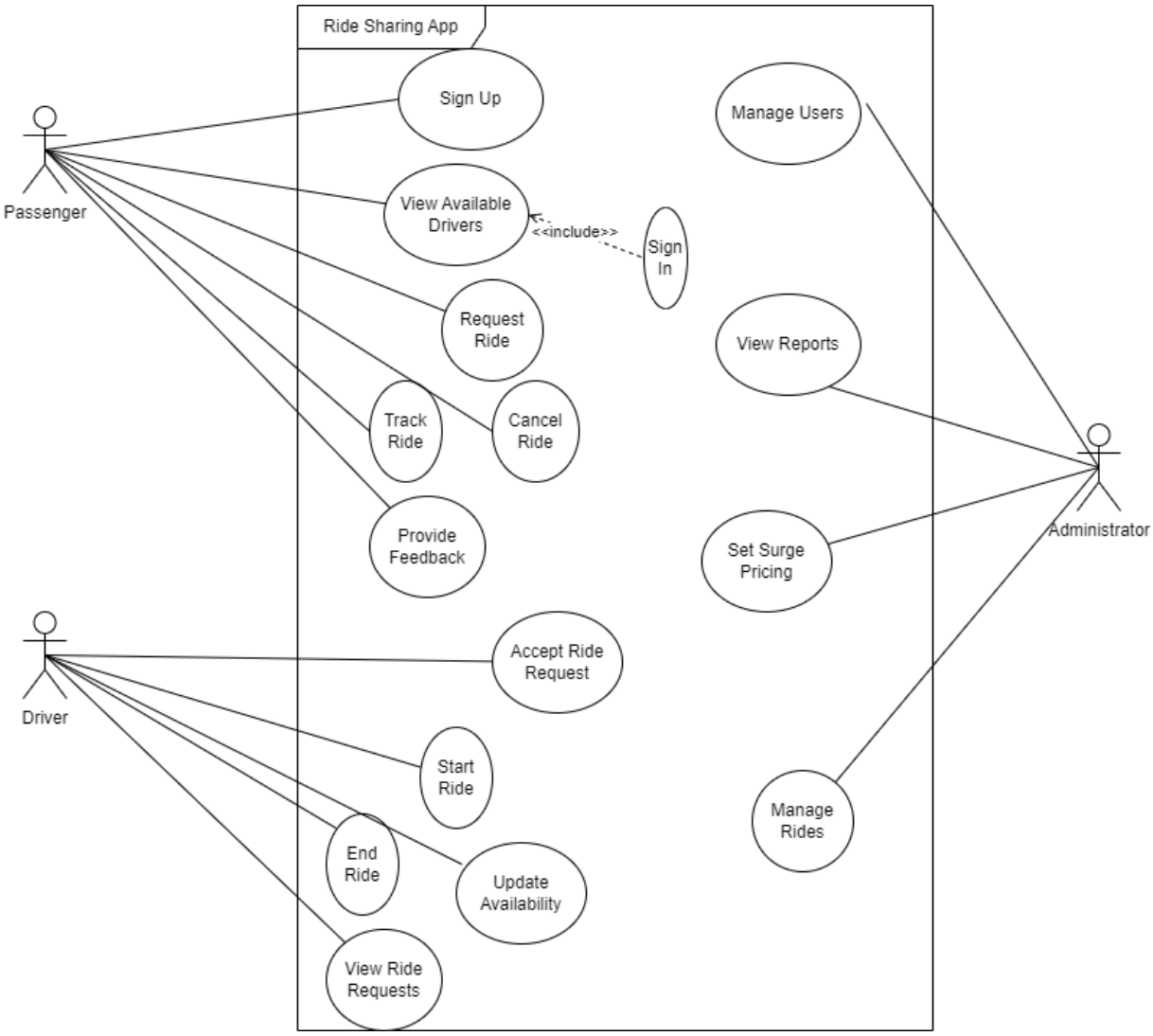
        - Data Integrity: Maintain accurate and up-to-date driver profiles and availability information.

4. **Real-time Tracking:**
    - **Main Features and Functionalities:**
        - Allow users to track the location of assigned drivers in real-time.
        - Provide updates on driver ETA (Estimated Time of Arrival) to users.
    - **Non-functional Requirements:**
        - Accuracy: Ensure the real-time tracking system provides accurate location data.
        - Responsiveness: Update user interfaces promptly to reflect changes in driver location.
5. **Payment Processing:**
    - **Main Features and Functionalities:**
        - Enable users to securely process payments for rides within the app.
        - Support multiple payment methods (e.g., credit/debit cards, mobile wallets, etc.).
        - Provide invoices and ride summaries for completed trips.
    - **Non-functional Requirements:**
        - Security: Implement robust encryption and authentication mechanisms to protect payment transactions.
        - Compliance: Adhere to relevant payment industry standards and regulations (e.g., PCI DSS).
6. **Review/Rating System:**
    - **Main Features and Functionalities:**
        - Allow users to provide feedback and ratings for drivers and overall service quality.
        - Aggregate and display driver ratings to help users make informed decisions.
    - **Non-functional Requirements:**
        - Accuracy: Ensure that user feedback and ratings accurately reflect the quality of service.
        - Fairness: Implement mechanisms to prevent abuse or manipulation of the rating system.

Class Diagram



Use Case Diagram


Ride Sharing App
Sign Up
Manage Users
Passenger
View Available Drivers
<<include>>
Sign In
Request Ride
View Reports
Track Ride
Cancel Ride
Administrator
Provide Feedback
Set Surge Pricing
Accept Ride Request
Driver
Start Ride
Manage Rides
End Ride
Update Availability
View Ride Requests