VISVESVARAYA TECHNOLOGICAL UNIVERSITY

JNANASANGAMA, BELAGAVI - 590018

Software Engineering Report

ON

Uber, Ola, Meru – Trip Booking App

Bachelor of Engineering
in
COMPUTER SCIENCE & ENGINEERING

Submitted by

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B.N.M. Institute of Technology

An Autonomous Institution under VTU

Approved by AICTE, Accredited as grade A Institution by NAAC. All eligible branches – CSE, ECE, EEE, ISE & Mech. Engg. are Accredited by NBA for academic years 2021-22 to 2024-25.
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Department of Computer Science and Engineering 2023- 24

User's Requirement Specification

User Profiles:

1. **Rider**:
- Register and create an account easily.
- View available rides from different services.
- Compare prices, vehicle options, and estimated arrival times.
2. **Driver**:
- Register and create a driver profile.
- Receive ride requests from different service providers.
- Accept or decline ride requests.

System Requirements Specification

1. Functional Requirements for **Riders**:
    - Search and Booking
    - Ride Management
2. Functional Requirements for **Drivers**:
    - Ride Requests
    - Navigation and Completion
3. **Admin Functionalities:**
    - Dashboard
    - Manage user accounts and profiles.
    - Monitor system performance and analytics.

Non-functional Requirements

1. Performance:
    - Ensure quick response times for booking and tracking rides.
    - Maintain system availability with minimal downtime.
2. Security:
    - Secure user data and transactions through encryption.
    - Implement authentication mechanisms for users and drivers.
3. Scalability:
    - Support increased user and driver loads during peak times.
4. Compatibility:
    - Ensure the app works seamlessly across various devices and operating systems.

Important Modules

1. User Authentication and Profiles:
    - Registration: Allows users to sign up and create accounts.
    - Authentication: Verifies user identities securely.
    - User Profiles: Stores user preferences, ride history, and personal details.
2. Ride Management:
    - Ride Search and Comparison: Enables users to search for available rides, compare prices, and vehicle types from various service providers.
    - Booking and Scheduling: Facilitates the booking process for users, including selecting a service, specifying a pick-up point, and scheduling rides.
    - Real-time Tracking: Tracks booked rides in real-time and provides updates on ride status and estimated arrival times.
    - Cancellations and Modifications: Allows users to cancel or modify bookings if needed.
3. Driver Management:
    - Driver Onboarding: Enables drivers to register, submit required documents, and create profiles.
    - Ride Acceptance and Navigation: Allows drivers to accept or reject ride requests and navigate efficiently to pick-up locations.
    - Ride Completion: Provides tools for drivers to complete rides and receive feedback from riders.

Important Design Elements

- Intuitive User Interface
- Responsive Design
- Engaging user experience
- Interactive Elements
- Visual Design Elements

Important ITCs/STCs/ATCs

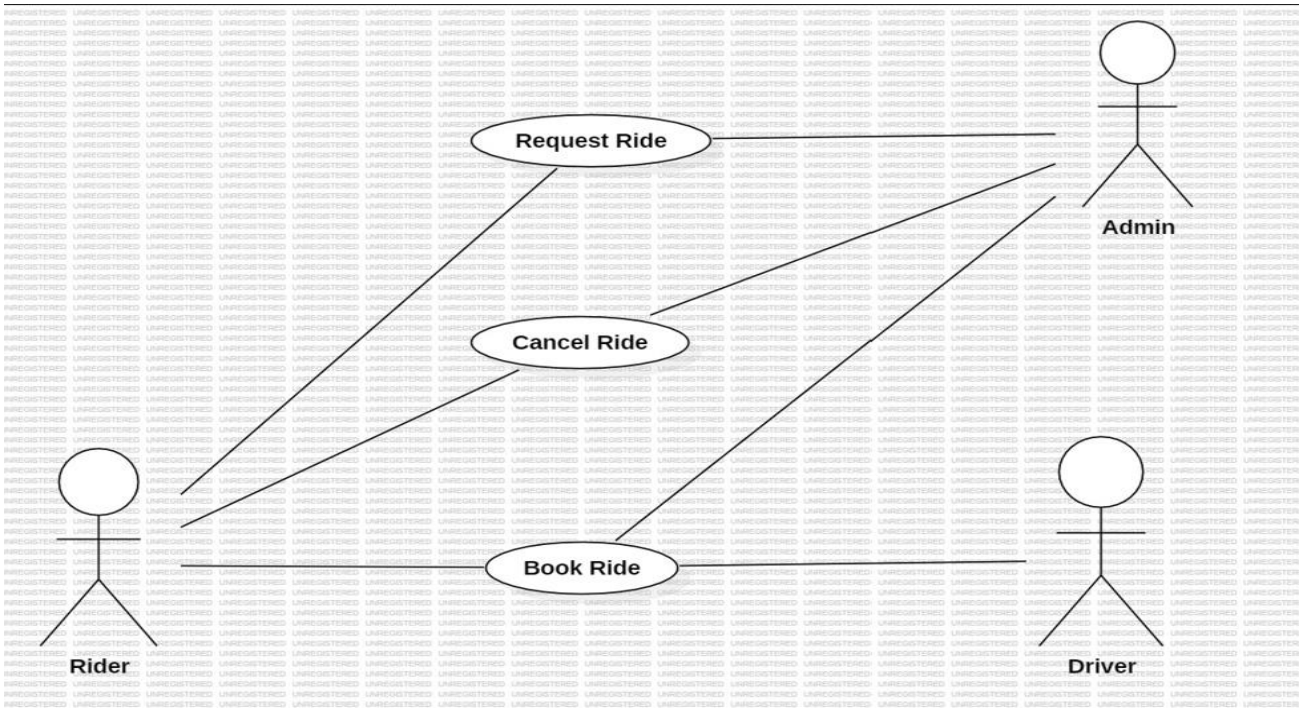
1. ITCs
    - Resilience: Ensuring the system's ability to recover swiftly and continue operating in the event of failures or disruptions, minimizing downtime.

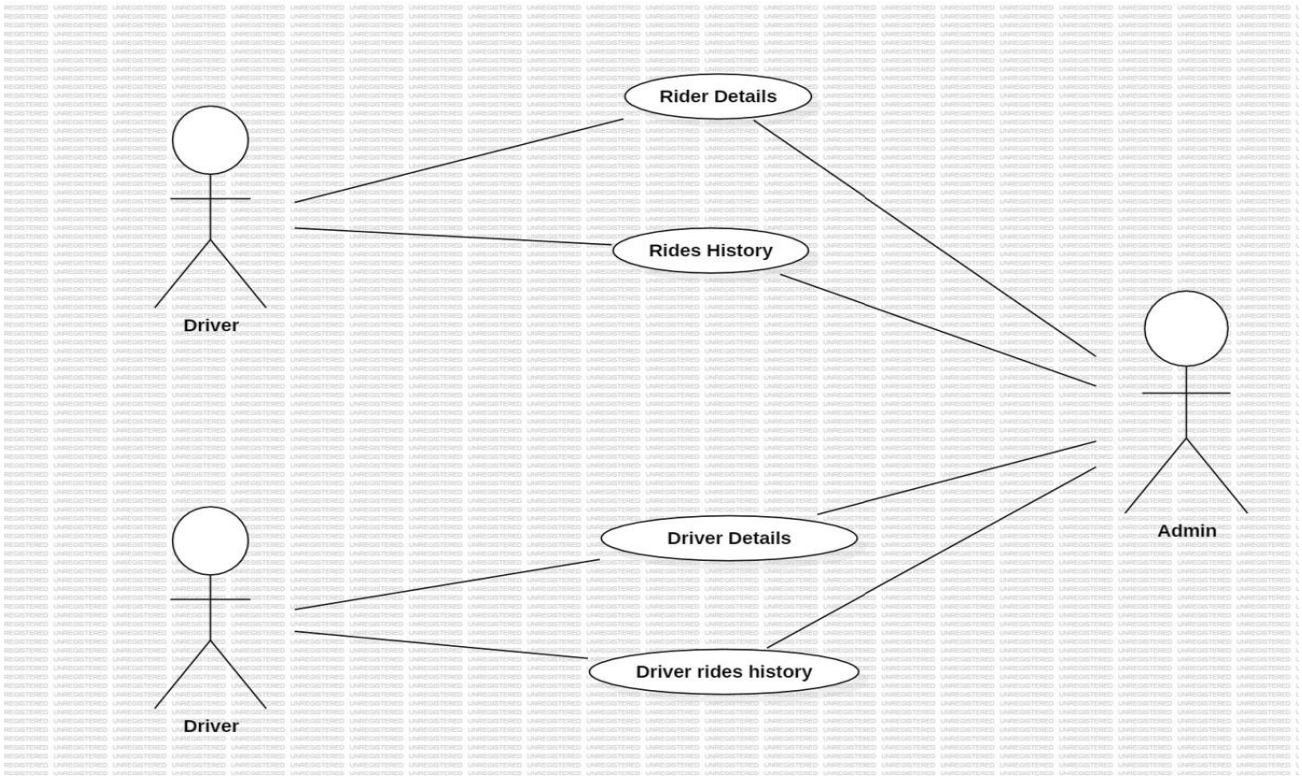
- Disaster Recovery: Implementing plans and procedures to restore system functionality after catastrophic events, safeguarding against data loss or service disruption.
- Redundancy: Incorporating duplicate or backup components within the system to maintain functionality if primary systems fail, ensuring uninterrupted service.

2. STCs
    - Testability: Designing the system to be easily and effectively tested, allowing for thorough verification and validation of functionalities.
    - Traceability: Ensuring that requirements, design elements, and testing artifacts are traceable and linked together, facilitating transparency and comprehension across the development lifecycle.
    - Certifiability: Meeting industry-specific standards and regulatory compliance to obtain necessary certifications, ensuring the system meets quality and security criteria.

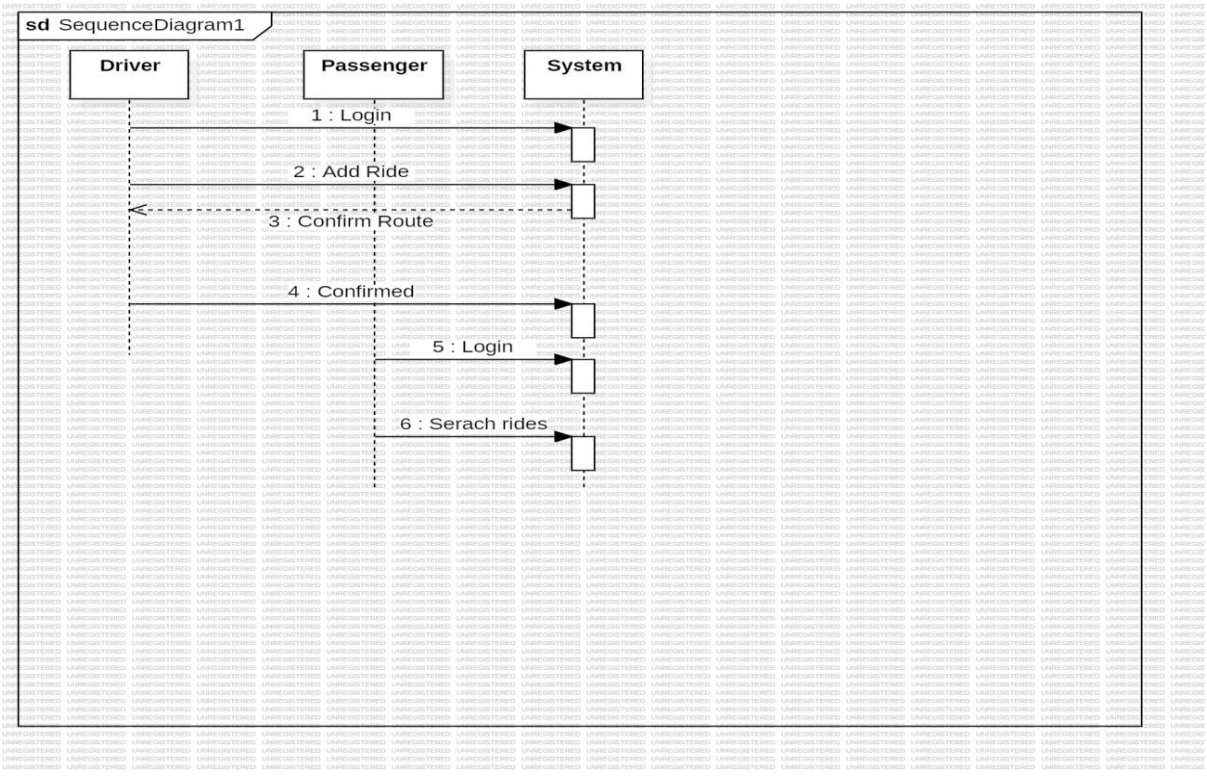
3. ATCs
    - Real-time Processing: Processing tasks within defined time constraints, especially crucial for applications requiring immediate responses, such as financial transactions or critical system alerts.
    - Latency: Minimizing latency or delay in system response times, ensuring prompt and efficient interactions with users or external systems.
    - Throughput: Maintaining an optimal system throughput to handle a specific volume of transactions or data processing within a designated timeframe without performance degradation.

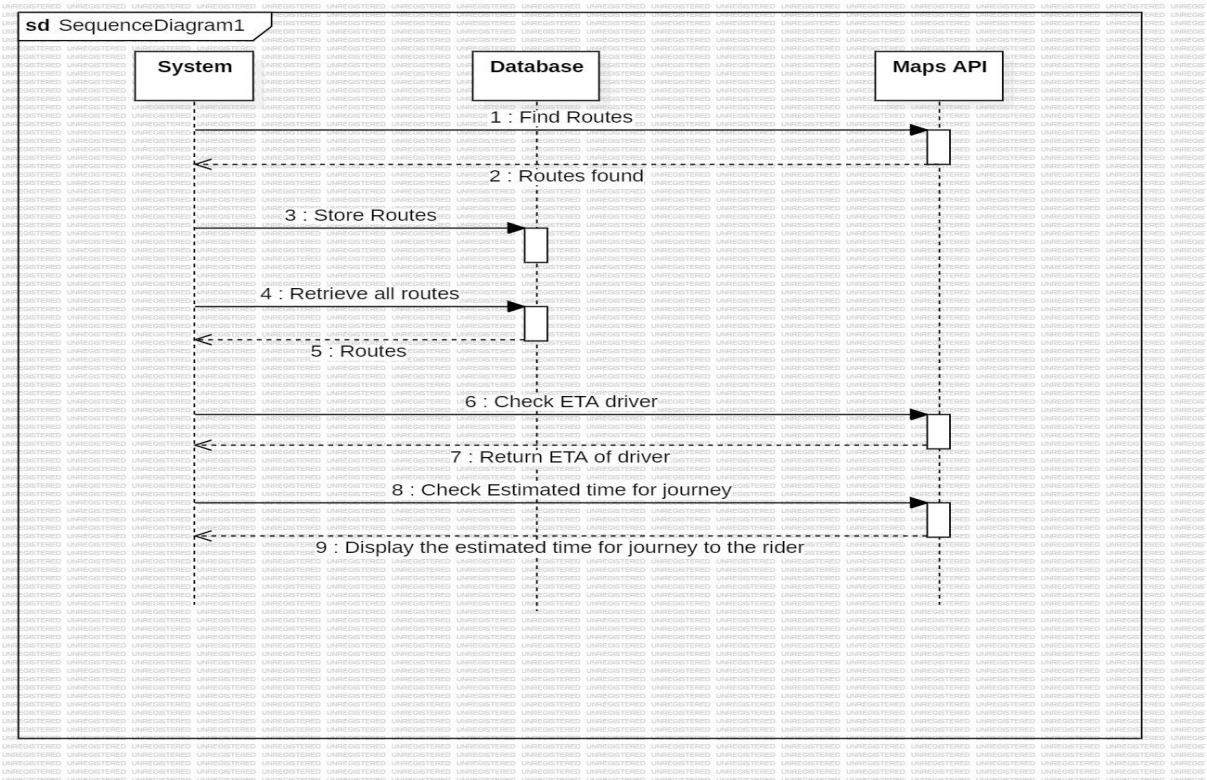
Use-Case Diagrams



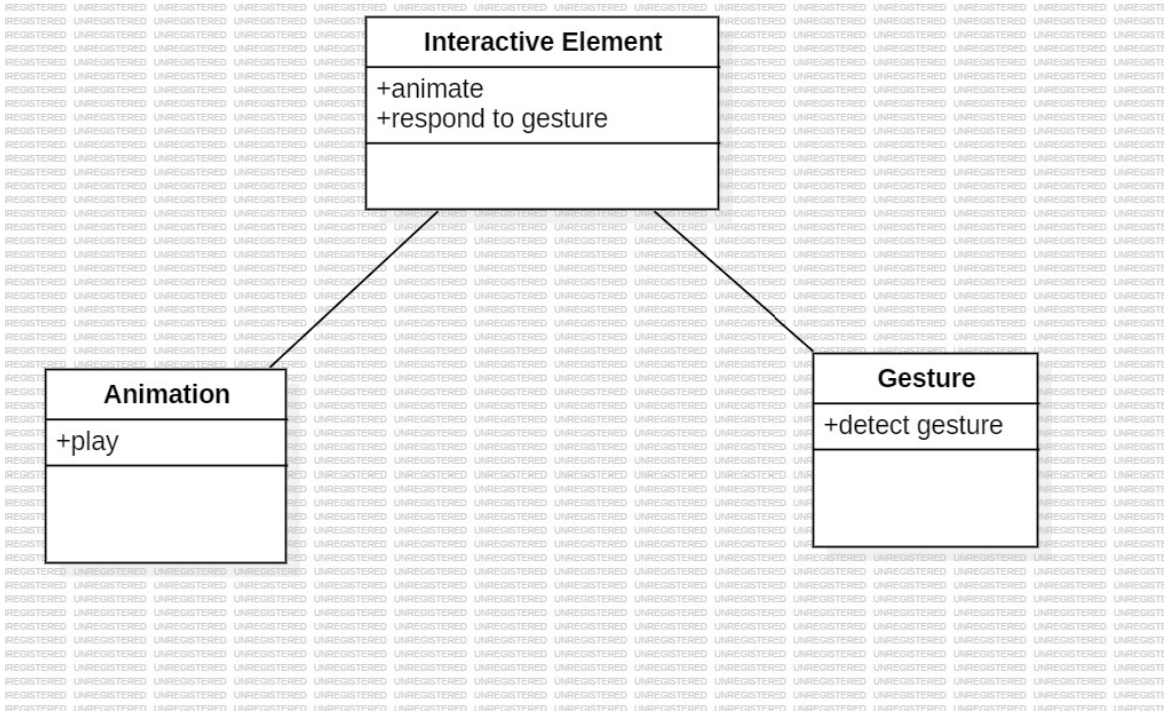


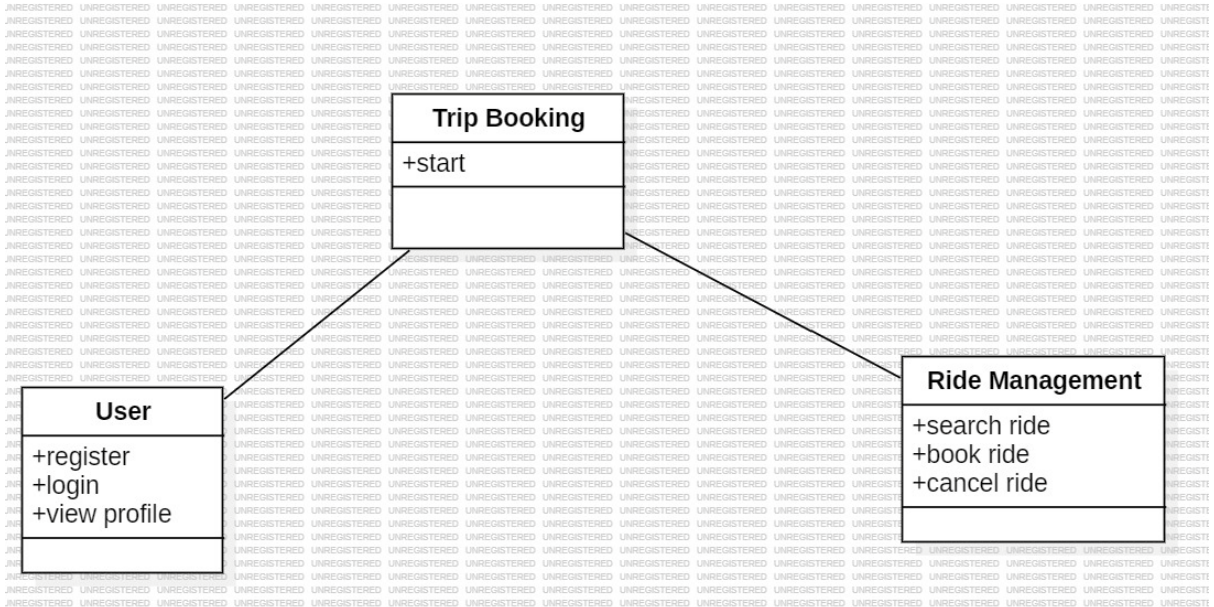
Sequence Diagrams





Class Diagrams





Deployment Diagram