CY321 Semester Project

Title: Ride-Hailing Website

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Introduction

The aim of this project is to create a simple, user-friendly ride-hailing website that enables users to easily book rides and communicate with drivers. The focus will be on key functionalities such as user authentication, ride booking, and an integrated chat system between drivers and customers. To minimize complexity and reduce security risks associated with handling sensitive financial data, payment processing will be outsourced. This project will emphasize secure software development practices, including robust authentication, data encryption, and protection against common vulnerabilities like SQL injection and cross-site scripting (XSS).

Objectives

- Develop an intuitive ride-hailing website with essential features.
- Implement secure authentication and authorization mechanisms.
- Integrate a simple chat system for driver-customer communication.
- Ensure the website is protected from common vulnerabilities.
- Adhere to secure coding practices and demonstrate compliance with security standards.

Features

The website will feature the following key components:

User Side:

- Secure registration and login system.
- Ride booking functionality (including pickup and drop-off locations).
- Ride history tracking.
- In-app chat with the driver.

Driver Side:

- Secure registration and login system.
- Option to accept or reject ride requests.
- View assigned rides.
- In-app chat with the customer.

Admin Side (Optional):

- Manage user and driver accounts.
- Monitor and oversee ride requests.

Security Requirements

To ensure a secure platform, the following measures will be implemented:

Secure Authentication:

- Use bcrypt to hash passwords.
- Implement JSON Web Tokens (JWT) for session management.

Data Encryption:

- Encrypt sensitive data (e.g., passwords) stored in the database.

Access Control:

- Implement role-based access control (e.g., riders can book rides, drivers can accept them).

Input Validation and Sanitization:

- Validate and sanitize user inputs to guard against SQL injection and XSS attacks.

Secure Communication:

- Use HTTPS to ensure secure communication between the client and server.

Chat Security:

- Ensure that chat messages are transmitted securely.
- Optionally, encrypt chat messages stored in the database.

Technology Stack

- **Frontend:** HTML, CSS, JavaScript (React.js or Vue.js for interactivity).
- **Backend:** Python (Django/Flask) or Node.js (Express.js).
- **Database:** MySQL or PostgreSQL.
- **Chat System:** WebSockets (e.g., Socket.io) or a simple REST API for messaging.

Outcome

By the end of the project, we will deliver a fully functional, secure ride-hailing website that includes:

- An intuitive user interface for both riders and drivers.
- A seamless chat system for real-time communication.
- Secure authentication and robust data protection mechanisms.
- A comprehensive report detailing the threat model, security features, and testing results.
- A live demo showcasing the website's functionality and security features.

Conclusion

This project will showcase our ability to develop secure, user-centric software with a focus on simplicity and essential features. By outsourcing payment processing, we can streamline the development process and focus on building a secure, user-friendly ride-hailing platform.