# CS 255 System Design Document Template

## UML Diagrams

### UML Use Case Diagram

*A screenshot of a computer screen

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### UML Activity Diagrams

*A screenshot of a diagram

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*A diagram of a work flow

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### UML Sequence Diagram

A diagram of a system

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### UML Class Diagram

I Included a few different screenshot so it is a little more zoomed in and it can be seen

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*A diagram of a company

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DriverPass System Class Diagram Description:

• Customer: Manages details about customers, including personal information and contact details necessary for booking and managing reservations.

• Reservation: Contains all information related to the bookings, including IDs, dates, times, and statuses to manage and track each reservation effectively.

• Driver: Holds driver information and links to the specific cars they are assigned to drive.

• Car: Lists details about the cars available for driving lessons, including model and license plate information.

• Package: Details the various packages offered, including descriptions, duration, and pricing.

• UserAccount: Manages login credentials and roles, facilitating access control within the system.

• Report: Generates and manages reports concerning reservations, usage, and performance metrics.

## Technical Requirements

Based on the system models and diagrams developed for DriverPass, the following technical requirements are crucial for the effective design and operation of the system:

**Hardware Requirements:**

Server Infrastructure: Reliable servers for hosting the web application and database to ensure smooth operation and accessibility.

Client Devices: Support for a range of client devices including desktops, laptops, tablets, and smartphones to facilitate access from various platforms. This help to reach the most people no matter what device they are on.

**Software Requirements:**

Database Management System (DBMS): A robust relational database management system like PostgreSQL or MySQL to handle complex queries and store vast amounts of reservation and user data efficiently.(We can make a recommendation to the client for the database and go with whatever choice they have, the scripting is not to different so It should not affect time or scope no matter what database we end up using)

Web Server Software: Reliable web server software such as Apache or Nginx to handle incoming HTTP requests from clients.(I would personally recommend Apache, it has a bigger community, it is more flexible and will not have to restart every time restart the server every time we change something.) This will be an important, very important part of keeping this project up and running with minimal downtime.

**Tools and Technologies:**

Development Frameworks: Use of modern development frameworks like React for the frontend to provide a responsive user interface, and Node.js or ASP.NET for the backend to manage server-side logic.( We can consider or recommend Java if we need more scalability or enterprise using Spring boot, but we can have a more rapid development time using React and Node.js)

Payment Gateway Integration: Secure integration with payment gateways to handle transactions and ensure data security during payments.

APIs: RESTful API services for seamless interaction between the frontend, backend, and external services like payment processors or third-party booking systems.

Infrastructure Requirements:

Cloud Services: Utilization of cloud platforms such as AWS or Azure for scalable hosting, storage, and additional services like load balancing, which aids in managing increased traffic and data processing demands.

Security Measures: Implementation of comprehensive security protocols including SSL/TLS for secure data transmission, regular security audits, and adherence to data protection regulations to protect sensitive customer information.

These requirements are designed to ensure that the DriverPass system is robust, secure, and capable of handling the needs of users efficiently while providing a reliable and user-friendly interface for managing driving reservations and training sessions.