# CS 255 System Design Document Template

This template lays out all the different sections that you need to complete for Project Two. Each section has guidance to prompt your thinking. You will need to continually reference the interview transcript as you work to make sure that you are addressing your client’s needs. There is no required length for the final document. Instead the goal is to complete each section based on what your client’s needs are. Remove this note when you are finished, and replace all bracketed text with the relevant information.

## UML Diagrams

### UML Use Case Diagram

*A diagram of a company

AI-generated content may be incorrect.*

### UML Activity Diagrams

A diagram of a company

AI-generated content may be incorrect.

A diagram of a company

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### UML Sequence Diagram

A diagram of a student

AI-generated content may be incorrect.

### UML Class Diagram

A diagram of a computer

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## Technical Requirements

The DriverPass system will be a web-based application that students, instructors, and staff can access from any modern device. It will make it easier to manage driving lessons, take practice tests, and keep everything secure in one place.

**Hardware**

* The system will run on regular computers, laptops, tablets, and phones that have internet access and support a modern web browser such as Chrome, Edge, or Safari.
* The main server will be hosted through a cloud provider like AWS or Azure with enough CPU, RAM, and storage to handle daily users and store lesson data, payments, and test results.
* The database will also be hosted in the cloud so that data is backed up regularly and can be accessed securely by the system.

**Software**

* The web application will run on a server using either Linux or Windows Server.
* It will use common web technologies such as HTML, CSS, and JavaScript for the user interface, and a back-end language such as Java, Python, or C# for the system logic.
* The system will use a relational database like MySQL or PostgreSQL to store student accounts, reservations, test results, and payment information.
* SSL encryption will be used for secure logins and data transfers, and passwords will be stored using hashing to keep user data safe.

**Tools and Development**

* Development can be done using Visual Studio Code or Eclipse, with GitHub for version control and collaboration.
* A framework such as Spring Boot (for Java) or ASP.NET Core (for C#) can be used to handle the server-side logic.
* For the front end, React or Angular can be used to make the site more interactive and responsive.
* Testing tools like JUnit and Selenium will be used to make sure everything runs smoothly before deployment.
* Lucidchart will continue to be used for UML modeling and documentation.

**Infrastructure**

* The system will be hosted on a cloud platform that supports scaling, so it can handle more users as DriverPass grows.
* Automatic daily backups will protect against data loss and make recovery easy if needed.
* The login system will use secure authentication and role-based permissions so that students, instructors, admins, and IT staff only have access to what they need.
* The system will also connect to the DMV through an API so that lesson materials and test questions always stay up to date.