# 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 screenshot of a computer

AI-generated content may be incorrect.

### UML Activity Diagrams

A diagram of a process

AI-generated content may be incorrect.A diagram of a flowchart

AI-generated content may be incorrect.

### UML Sequence Diagram

A diagram of a process

AI-generated content may be incorrect.

### UML Class Diagram

A diagram of a class

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## Technical Requirements

Hardware Requirements

* Cloud hosted server infrastructure, e.g. AWS, Azure, or Google Cloud.
* Servers must provide scalable web hosting and database services.
* End users must own a web-enabled device (desktop computer, tablet, or smartphone).

Software Requirements

* The application will be web based and usable through modern web browsers (Chrome, Firefox, Safari, and Edge).
* The backend web application will be created using a scalable web framework, e.g. Node.js, Django, or ASP.NET.
* A relational cloud database, e.g. Amazon RDS or Azure SQL, will store user, lesson, test, and appointment data.
* Email services, e.g. SendGrid or Amazon SES, for automating notifications and confirmations.

Development Tools and Infrastructure

* Version control system, e.g. GitHub, for managing code base and deployments.
* Lucidchart or similar CASE tools will be used to design and manage UML diagrams.
* Continuous integration tools will be used so application updates can be securely and efficiently tested and deployed.
* HTTPS must be enabled for all client-server communications to ensure encryption in transit.

Infrastructure & Security

* User authentication will use secure email/password login and employ password hashing and brute-force protection.
* Role-based access control will be implemented for different users: Admin, IT Officer, Secretary, and Student.
* System must log user activity including changes to appointments and accounts with timestamps.
* Updates will be planned to keep pace with changes in DMV requirements and to address security vulnerability patches.
* Application should be responsive and compatible for use on desktop and mobile devices.