# 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 process

Description automatically generated

### UML Activity Diagrams

*A diagram of a flowchart

Description automatically generated*

### UML Sequence Diagram

*A diagram of a system

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### UML Class Diagram

*A diagram of a computer

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## Technical Requirements

For our system to successfully meet the design specifications and ensure robust functionality, a comprehensive setup encompassing several technical facets is necessary. Firstly, a robust database system is essential to efficiently manage and store data related to user details, reservations, and lessons. This database will serve as the backbone of our platform, ensuring that data integrity and accessibility are maintained at all times.

In addition to the database, a user-friendly interface is crucial. It should be intuitive and cater to various user roles such as administrators, instructors, and students, allowing them to manage reservations, schedule lessons, and update personal information seamlessly. This interface should be designed to provide a smooth navigation experience, minimizing complexity while maximizing usability.

Server infrastructure also plays a pivotal role in the smooth operation of our system. It needs to be capable of handling simultaneous requests from multiple users without performance degradation, ensuring that system interactions such as lesson booking and reservation management are processed in real-time. The infrastructure must be scalable to accommodate growing user numbers and data volume as the system expands.

Moreover, an effective notification system is required to keep all stakeholders informed. This system should automatically send updates and confirmation messages regarding lesson schedules, reservation changes, and other relevant interactions. This will enhance communication and ensure that all parties are promptly informed of any significant updates or changes.

Lastly, a robust authentication system is indispensable to safeguard user information and prevent unauthorized access. This system should support secure login processes, encrypt user data, and ensure that privacy standards are met at all times. Together, these components will form a cohesive technical framework that supports our client's needs, ensuring that the system is not only operational but also secure, efficient, and user-friendly.