# CS 255 System Design Document Template

## UML Diagrams

### UML Use Case Diagram

A diagram of a software company

Description automatically generated

### UML Activity Diagrams

A diagram of a process

Description automatically generated

### UML Sequence Diagram

*A diagram of a project

Description automatically generated*

### UML Class Diagram

## Technical Requirements

A diagram of a computer

Description automatically generated

The Route Optimization System needs a solid mix of hardware, software, and infrastructure to run smoothly. For hardware, it will be hosted on cloud servers that are reliable and scalable, which means the system can handle many requests without slowing down. Users can access the system on desktops, laptops, or tablets as long as they have internet access.

On the software side, the system will run on Linux or Windows servers, with programming languages like Python, Java, or Node.js handling the backend. Tools like Django or Flask will help build the system, while frontend frameworks like React or Angular will make the user interface easy to use across different devices. Data will be managed using databases like MySQL or MongoDB, ensuring all user information and results are stored securely.

For infrastructure, cloud platforms like AWS, Azure, or Google Cloud will be used to host the system. These platforms also offer features like load balancing, which keeps the system fast even during busy times. Security will include SSL encryption to protect data and role-based access control to make sure users only see what they’re allowed to. Regular backups to secure cloud storage will keep the system’s data safe.