# CS 255 System Design Document Template

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## UML Diagrams

### UML Use Case Diagram

A diagram of a company

Description automatically generated

### UML Activity Diagrams

* Account Login/Registration Activity Diagram

A diagram of a flowchart

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* Schedule 1st Appointment, Cancel Appointment, Reschedule Appointment Activity Diagram

A diagram of a software project

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### UML Sequence Diagram

* Login/Register New Account Sequence Diagram

A diagram of a diagram

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### UML Class Diagram

A screenshot of a computer

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## Technical Requirements

1. Hardware Requirements:
   * Web servers to host the DriverPass application
   * Database servers to store user, course, and appointment data
   * Client devices (computers, tablets, smartphones) for users to access the system
2. Software Requirements:
   * Web application framework (e.g., Django, Ruby on Rails, or ASP.NET Core)
   * Database management system (e.g., PostgreSQL, MySQL, or SQL Server)
   * Web server software (e.g., Apache or Nginx)
   * SSL/TLS certificates for secure communication
   * Development environments and IDEs for coding
3. Programming Languages:
   * Backend: A server-side language like Python, Java, or C#
   * Frontend: HTML, CSS, JavaScript, and potentially a frontend framework like React or Angular
4. Cloud Infrastructure:
   * Cloud hosting service (e.g., AWS, Google Cloud, or Azure) for scalability and reliability
   * Load balancers for distributing traffic
   * Content Delivery Network (CDN) for efficient content delivery
5. Security Tools:
   * Authentication and authorization system
   * Encryption tools for sensitive data (e.g., passwords, personal information)
   * Firewall and intrusion detection/prevention systems
6. Integration Requirements:
   * API for DMV connection to receive updates on rules and policies
   * Payment gateway integration for package purchases
7. Development and Testing Tools:
   * Version control system (e.g., Git)
   * Continuous Integration/Continuous Deployment (CI/CD) pipeline
   * Automated testing frameworks
   * Performance testing tools
8. Backup and Recovery:
   * Regular backup systems
   * Disaster recovery plan and tools
9. Monitoring and Logging:
   * Application performance monitoring tools
   * Log management system
10. Mobile Compatibility:
    * Responsive web design or native mobile app development tools
11. Accessibility Tools:
    * Software to ensure compliance with accessibility standards (e.g., WCAG)
12. Reporting Tools:
    * Business intelligence and reporting software for generating admin reports
13. Communication Infrastructure:
    * Email server or email service integration for notifications
14. Data Storage and Management:
    * Adequate storage capacity for course content, user data, and system logs
    * Database optimization tools

These technical requirements ensure that the DriverPass system can be developed, deployed, and maintained effectively, providing a secure, scalable, and user-friendly platform for driving education and appointment management.