# DriverPass System Design Document

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# UML Diagrams

## UML Use Case Diagram

The system was broken down into smaller subsystems to enhance clarity for the use case diagrams. These diagrams outline how users such as students, instructors, and administrators interact with the system, providing a clear picture of the different functionalities available for each role.

## UML Activity Diagrams

The use cases chosen for the activity diagrams are:

1. User logging in to the system.

2. User proceeding through the reservation workflow.

## UML Sequence Diagram

The sequence diagram represents the process of a user attempting to log in. This includes:

- User providing credentials.

- System validating the credentials.

- Successful access or error notification.

## UML Class Diagram

The following classes are required for the DriverPass system:

- Abstract Class: User  
 - Derived Classes: Student, Instructor

- Vehicle

- Reservation

- Abstract Class: Instruction  
 - Derived Classes: Test, Lesson

# Technical Requirements

The technical requirements for a web-based LMS include:

- \*\*Infrastructure:\*\*  
 - Linux-based web server using IaaS (e.g., AWS, Google Cloud).  
 - Scalable architecture employing Docker and Kubernetes.

- \*\*API Design:\*\*  
 - RESTful APIs for interoperability.

- \*\*Encryption:\*\*  
 - Hybrid encryption approach: RSA-encrypted AES-public keys.  
 - TLS 1.2 or higher for all router traffic.

- \*\*Standards Compliance:\*\*  
 - SCORM standards for learning modules.  
 - Progressive Web App (PWA) standards for compatibility.

- \*\*Testing Compatibility:\*\*  
 - iPhone 11 Pro iOS 14.6.  
 - Samsung Android S10.  
 - Chrome 102.0.X.

- \*\*Performance:\*\*  
 - Uptime KPI of no less than 99.5%.

- \*\*Export Options:\*\*  
 - Reports available as CSV files.

# System Limitations and Assumptions

## Assumptions

- Users will have a valid email account at all times.

- Users will access the system through web-capable devices.

## Limitations

- The system will not be fully ADA-compliant for visually impaired users.

- The system will only be deployable on web servers and will not support serverless architectures.

# Conclusion

This design document combines both object-oriented and process-oriented approaches to meet DriverPass’s needs. The system’s robust architecture, user-friendly interfaces, and compliance with industry standards position it for success. I’m happy to address any questions or discuss further details.