**System Components and Design**

**Purpose**

The objective of this project is to develop an innovative driver training platform for DriverPass. DriverPass is focused on reducing the high failure rate of students taking the DMV driving test by offering interactive online practice exams and structured on-the-road training programs. This system will provide an efficient way to access study materials, book appointments, and monitor progress.

**System Background**

DriverPass has identified a significant gap in driver education, where over 65% of students fail their driving tests due to ineffective preparation methods. Instead of solely memorizing past exam questions, students need hands-on learning experiences. The proposed system will feature a cloud-based application that enables students to take practice exams, schedule in-person driving lessons, track progress, and receive feedback from certified instructors. Additionally, the system will incorporate data management, automated scheduling, and role-based access control to streamline operations.

**Objectives and Goals**

* Enable students to create accounts, log in securely, and manage their profiles.
* Provide students with authentic DMV-style practice exams.
* Allow students to book on-the-road driving sessions and choose lesson plans.
* Enable instructors to track appointments and student progress.
* Offer administrative users comprehensive reporting and analytics tools.
* Ensure the system remains secure, adaptable, and capable of handling growth.

**Requirements**

**Nonfunctional Requirements**

**Performance Requirements**

* The system must be cloud-hosted and accessible through web browsers.
* The response time for all actions should be under 2 seconds.
* The system must accommodate at least 500 simultaneous users.
* Regular updates and optimizations will be rolled out quarterly.

**Platform Constraints**

* The platform must be compatible with Windows, macOS, Linux, iOS, and Android.
* The backend infrastructure should be built using a relational database (e.g., MySQL, PostgreSQL).
* The system will be deployed on AWS, Azure, or Google Cloud.

**Accuracy and Precision**

* The system will distinguish user roles (students, instructors, and administrators).
* User input should be case-sensitive for passwords but case-insensitive for usernames and emails.
* Detailed system logs should capture user activities for tracking and analysis.

**Adaptability**

* User permissions should be modifiable without requiring system reconfiguration.
* The system should support future enhancements with minimal downtime.
* IT administrators should have full control over configurations and monitoring.

**Security**

* Users must log in through a secure authentication process.
* Data security measures include TLS/SSL encryption for transmissions and AES encryption for stored data.
* Implement automated account lockout after multiple failed login attempts.
* Account recovery must be facilitated through email verification.

**Functional Requirements**

* The system shall support user registration and secure authentication mechanisms.
* The system shall deliver practice driving exams with instant feedback.
* The system shall allow students to schedule driving lessons with available instructors.
* Instructors will be able to track student progress and manage their schedules.
* The system will generate detailed performance reports for management oversight.
* Administrators will be able to create, modify, and deactivate user accounts.
* The system will issue email reminders for upcoming appointments.

**User Interface**

* The system will be designed as a web-based application, accessible via desktops, tablets, and mobile devices.
* Students will have a dashboard showcasing test scores, training appointments, and progress reports.
* Instructors will have tools to manage lesson schedules and student evaluations.
* Administrative users will have access to data analytics, reports, and user management tools.
* The interface must be intuitive, visually appealing, and responsive.

**Assumptions**

* Students must have internet access and basic digital literacy.
* Instructors will be available for scheduled in-person training sessions.
* The system will primarily operate in English, with potential for future multilingual support.

**Limitations**

* The system will not feature real-time driving simulation technologies.
* Instructor scheduling will be handled manually rather than automated.
* Advanced AI-based training features may be limited due to budget constraints.

### Gantt Chart

