DEPARTMENT OF COMPUTER SCIENCE

Project Title:

Road Ready

Supervisor:

Dr. Mohammad Taye

Group Members:

Ayah Eliyan – 202120014

Bushra Obiedat – 202210744

Dua`a Arrasheed – 202120601

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Project Submission

1. Supervisor:

Dr. Mohammad Taye.

2. Project Title:

Road Ready (Driving Schools Hub System).

3. Goals & Objectives:

Goals:

- Develop a platform that includes driving schools in the country.
- students will be able to finish all the registration process and the payment from home.
- provide the students to track their progress.
- schools will be able to manage their instructors and students efficiently.

Objectives:

- Implement role-based user registration and authentication for students, instructors, and school admins.
- Create a user-friendly interface for students to select driving schools and track progress.
- Develop a backend system that supports CRUD operations for driving schools, instructors, and students.
- Enable instructors to update students' lesson progress and feedback
- Provide Theoretical Exam Training
- Support Aggregation of Driving Schools

4. Brief Description of the project:

Road Ready is a centralized platform for all the driving schools in the country where the user got to choose their school and the instructor after viewing their ratings, this platform allows student also to see their progress under an assigned instructor (how many lessons they have taken, instructor comments on that lessons, how many lessons left, if they passed the exams or not).this platform also will provide schools the ability to manage instructors, students, payments online. The hub aim to simplify and enhance the journey of getting a driving license and makes it enjoyable.

5. Project Requirements (Hardware & Software):

Hardware Requirements:

- CPU: Intel i5 or above.
- RAM: around 8 GB.
- Storage: 256 GB SSD or higher.

Software Requirements:

- Software: intelliJ / vs code
- programming languages: HTML / CSS / JS / Java / SQL
- framework: spring boot
- libraries: React / Bootstrap

6. Company or Organization:

- The project is specifically designed to cater to driving schools. These schools will use the platform to manage their operations more effectively, attract more students, and enhance their overall service offerings.

7. Prerequisite:

Courses:

- Courses on Web Development (backend and frontend).
- Knowledge of Databases.
- Software Engineering principles.

Skills:

- Use the framework properties to simplify the project coding.
- Managing the main functionalities of the website.
- Understanding role-based access control and user authentication.
- Manage the database.

8. Project Specialization (Computer science):

The project falls under Web Development.

9. Expected Outcomes:

- A fully functioning driving school platform where students can register, choose a school, and track their progress.
- Instructors can manage student lessons and provide feedback.
- Admins can manage school profiles, instructors, and student progress reports.
- The platform will streamline communication between students, instructors, and schools.
- A scalable platform that driving schools can use to attract more students and optimize administrative processes.

10. Time Schedule:

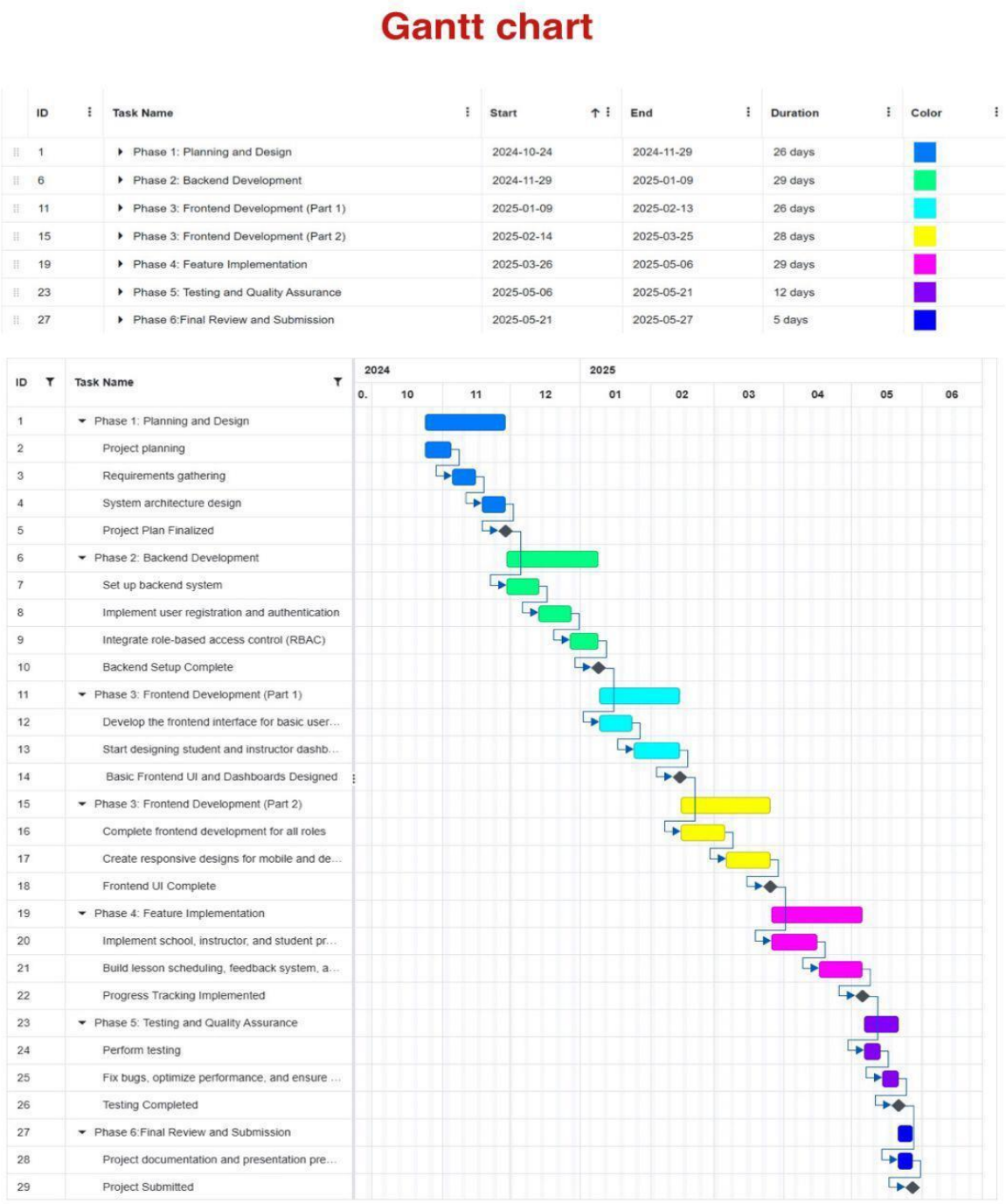

Figure 0.1 Time plan

CHAPTER 1 INTRODUCTION

1.1 Introduction

Our project aims to make a comprehensive platform that connects all driving schools in the country. Where it helps schools to handle all the applications , payments and manage instructors .On the other hand, trainees will be able to view all the possible options for schools and get to know more about the different types of the license that we have on our website, besides the progress tracking and the theoretical exam training session that will be available for trainees once they are registered.

This chapter provides an in-depth overview of the project's key aspects, including its background, objectives, limitations, and feasibility. It sets the foundation for understanding the project's scope and the proposed solution.

1.2 Background

With the increasing demand for obtaining a driving license throughout the years, and considering technological evolution nowadays, we saw the need for a centralized online platform that addresses the issues related to the entire driving license process and facilitates and modernizes this experience for all involved parties, whether trainees or driving schools. We also noticed that, in Jordan, there is currently no such platform or app that simplifies or enhances the process of obtaining a driving license. This project aims to fill this gap by integrating digital solutions into driving education and making the journey more efficient and accessible for everyone.

1.3 Problem Statement

This project aims to address challenges associated with driving education and the licensing process. The main challenges include the need for on-site interactions when paying fees for school or lessons. Additionally, trainees currently lack a platform to manage their driving education, making it difficult to track progress, communicate effectively with instructors, focus on weaknesses, and spotting areas that need improvement. From our own experience, as a group, we noticed these gaps throughout the driving journey- from training to the theoretical exam to the practical lessons- and felt the need for a platform that could centralize and streamline the entire process. Driving schools also struggle with efficient trainees and instructors' management, which affects the overall learning experience, and our project offers an ideal solution to solve these issues and enhance the learning experience. Which could lead to achieving better results than the usual traditional way.

1.4 Limitation

- User Adoption:

  Resistance to adopting a new digital system from students, instructors, or schools accustomed to traditional methods might impact the platform's success.

- Gathering accurate data from driving schools and students for integration into the platform may be challenging, especially if schools are hesitant to adopt digital solutions.

1.4 Project Objectives

The Road Ready platform simplifies the driving school experience by enabling students to search for and compare schools, view instructors, and complete registration online, eliminating the need for in-person visits and saving time. It provides lesson progress tracking, allowing students to monitor their learning journey while instructors assess performance and offer feedback on areas for improvement. Driving schools will benefit from streamlined management through a centralized dashboard for monitoring student progress and handling payments efficiently. Additionally, secure and user-friendly payment gateways reduce reliance on cash transactions, ensuring transparency and safeguarding the rights of all parties involved.

1.6 Project Solution

The solution is a web-based platform that acts as a central hub for driving schools. Key features include user registration, school selection, progress tracking and a theory exam training module. Role-based access control, data security and appropriate access levels for students, instructors and administrators will ensure.

1.7 Scope of the Project (Project Scope Covered – Project Scope Not Covered):

The scope of the "Road Ready" project includes several key features aimed at enhancing the driving school experience for both schools and trainees. The platform will aggregate driving schools nationwide, allowing trainees to explore and compare schools and their features. It will include detailed instructor listings with profiles, ratings, and reviews, enabling trainees to make informed decisions. Trainees will also be able to track their progress in both theoretical and practical lessons, communicate directly with instructors for scheduling and feedback, and manage their payments by viewing amounts paid and outstanding balances. Additionally, the platform will provide theoretical test preparation materials such as quizzes and mock exams, along with tools for scheduling driving lessons. Dedicated user accounts will be provided for schools, instructors,

and trainees to ensure personalized experience. However, the project does not cover issuing official driving licenses, scheduling practical or theoretical exams with government authorities. It will not provide tools for instructor training or advanced administrative features like payroll management for schools.

1.8 Project Feasibility:

The "Road Ready" platform is a well-designed solution that addresses the key challenges faced by driving schools and trainees, offering significant benefits from both economic and operational perspectives. The platform reduces administrative burdens for driving schools by automating tasks such as student progress tracking, lesson management, and payment processing. This allows schools to focus more on delivering quality education while also benefiting from increased visibility and revenue potential, as the platform helps them attract more trainees by showcasing their unique features and instructors with detailed ratings. For trainees, the platform simplifies their learning journey by providing tools to track their progress in both theoretical and practical lessons. It provides all the contact information of instructors and trainers so they can communicate directly with each other for questions or feedback. Additionally, trainees can manage their payments effortlessly, with clear visibility of the amounts paid and remaining balances. The platform also supports trainees in preparing for their official exams by offering theoretical test materials that simulate real-world scenarios, helping them build confidence and improve their chances of success. By combining these features into a user-friendly and efficient system, "Road Ready" serves as a comprehensive solution that enhances the learning experience for trainees while streamlining operations for driving schools.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to examine a range of existing platforms related to driver education systems, and to lay the foundation for the development of Road Ready. This chapter explores the current state of technology in this area and highlights the importance of reviewing existing systems to identify gaps and opportunities for innovation. By understanding the strengths and limitations of available solutions, this review provides critical insights for designing a transformative platform that effectively addresses current challenges.

2.2 Review of Existing System

In this section, we will look into four existing systems and analyze them to understand their features, strengths, and weaknesses. By doing this, we aim to identify the differences between these systems and ours, giving us a clearer view of what we will be working on. This analysis will also help us take advantage of the strengths of these systems to improve our platform.

System1:Aceable

Aceable is an online platform that provides self-paced driving courses for theoretical driver education. It focuses on delivering engaging and interactive learning experiences through mobile-friendly content.

Features:

- Online theoretical driving courses with quizzes and videos.
- State-approved courses for obtaining driving certificates.
- Mobile app for flexible access.
- Includes progress tracking for course completion.

Strengths:

- Highly interactive and engaging course material.
- Fully mobile-optimized, allowing users to learn anytime, anywhere.

- Offers state-specific driving education tailored to local requirements.
- Provides quizzes and tests for theoretical exam preparation.

Weaknesses:

- No features for practical driving lesson management.
- Does not include instructor assignment or communication tools.
- Lacks aggregation of multiple driving schools.

System2:MyDrivingAcademy

MyDrivingAcademy is a driving school based in Sweden that combines theoretical and practical training. The platform allows students to book lessons, track progress, and prepare for theoretical exams.

Features:

- Interactive theoretical lessons and mock exams tailored to Swedish driving standards.
- Practical driving lesson booking and scheduling.
- Tracks students' progress for both theoretical and practical lessons.

Strengths:

- Combines theoretical and practical training in one system.
- Offers mock exams to help students prepare for the licensing test.
- Mobile-friendly and easy-to-use interface for booking and tracking lessons.

Weaknesses:

- Limited to a single driving school in Sweden.
- Does not aggregate multiple schools into a centralized platform.

System 3: Drive

Drive is a government-supported initiative in New Zealand designed to help young people become confident, skilled, and fully licensed drivers. The platform provides resources and guidance for all stages of the licensing process.

Features:

- Comprehensive resources for learner, restricted, and full license stages.
- Interactive quizzes and videos to aid in theoretical understanding.
- Tips and advice for practical driving tests.

Strengths:

- Covers the entire driver licensing journey.
- Provides free, government-supported resources tailored to New Zealand's driving standards.
- User-friendly interface with engaging multimedia content.

Weaknesses:

- Focused solely on guidance and resources; lacks practical booking or progress tracking features.
- Does not integrate with driving schools or instructors for hands-on training.
- Limited interactivity compared to fully integrated driving school platforms.

System 4:DriversEd

DriversEd is a well-established platform providing online courses for learning driving theory and preparing students for licensing exams. Its key features include:

Strengths:

- Comprehensive theoretical exam preparation with quizzes, videos, and practice tests.
- Nationwide coverage of driving laws and regulations, making it adaptable to different regions.
- Offers driving practice schedules and connections with certified instructors for practical lessons.

- Includes mobile apps for easier access to learning materials.

Weaknesses:

- Primarily focuses on theoretical training and does not emphasize progress tracking for practical lessons.
- Limited interaction and management tools for instructors, reducing the personalized experience for students.
- Does not provide advanced scheduling tools for driving tests or lessons.

Road Ready:

Road Ready is a proposed platform designed to address both theoretical and practical needs of driving students while optimizing school operations. Its unique features include:

Strengths:

- Aggregates multiple driving schools, allowing students to explore and select schools based on location and features.
- Enables students to track their progress in lessons.
- Offers instructor listings with ratings, making it easier for students to choose instructors that meet their preferences.
- Provides tools for scheduling lessons and tracking payments, simplifying administrative tasks for both students and schools.
- Includes theoretical test materials to help students prepare for licensing exams.

Weaknesses:

- Currently in the development phase and lacks the user base or operational track record of competitors.
- May require significant effort to onboard multiple driving schools and build a comprehensive database of instructors.

1. Comparison between Available Systems

After long research, we came up with four systems similar to our website and compared them based on the following key features: Nationwide School Aggregation, Student Progress Tracking, Instructor Management, Theoretical Exam Training, and Scheduling. These features were chosen as they are essential to our website's functionality. By analyzing real-life examples, we can better understand how to enhance these features in our platform.

TB1 Table to compare between available

System name Features	1. Aceable	2. My Driving Academy	3.Drive	4.DriversEd	5.RoadReady
National Driving School Aggregation	Focuses only on online courses, it does not include schools.	Only covers one driving school, It does not aggregate multiple schools on a national scale.	Does not offer aggregation of driving schools; focuses on preparing individuals for license tests and driving skills through apps and resources.	Does not aggregate driving schools on a national scale but offers individual online courses and limited local services.	Aggregates driving schools nationwide, showcasing their features and listing instructors with individual ratings.
Student Progress Tracking	Tracks progress for theoretical lessons with quizzes and feedback.	Tracks progress for both theoretical lessons and practical driving lessons on the platform.	Offers individual progress tracking through the Drive Go app,	Allows tracking of student progress through theoretical	Enables students to track their progress in both theoretical and practical

			which uses GPS to track skills and provides achievements for goals.	quizzes and limited practical lessons.	lessons in an integrated manner.
Instructor Management	Basic. Primarily focused on online course delivery, with no features for managing in-person instructors.	Offers instructor information and practical lesson booking but lacks advanced management features.	Lacks specific tools for managing instructors; focuses on general guidance and preparation for tests	Provides instructor information but lacks comprehensive management tools or direct lesson booking.	Provides advanced instructor management, including direct communication between instructors and students, as well as the ability for instructors to upload notes for their students
Theoretical Exam Training	Offers quizzes and mock exams for licensing requirements.	Offers online training for the driving theory and practice tests	Provides comprehensive resources for theory exam preparation, including quizzes, practice tests, and road code	Offers comprehensive study materials such as quizzes, summaries, and practice tests for theoretical	Includes advanced theoretical practice tests and study materials to prepare students for official exams.

			summaries.	exam preparation.	
Scheduling	Not included. Aceable does not manage practical lesson scheduling because it focuses more on online learning.	Allow students to book their practical driving lessons through the platform	Does not provide lesson scheduling; focuses on general test preparation and learning plans through its app.	Allows booking of some lesson-related appointments but does not integrate a fully-featured scheduling system.	Allows students to schedule their driving lessons with their instructor but does not include scheduling for test appointments.

CHAPTER 3 METHODOLOGY AND WORK PLAN

3.1 Introduction

For this chapter, we're diving into the methodology and work plan that will guide our project from start to finish. This section will explain how we plan to approach the development of our platform, "Road Ready," step by step. Our work plan will also cover how we'll gather all the information we need for the project, which tools and technologies we've chosen (and why), and how we'll ensure everything runs smoothly. By the end of this chapter, anyone reading it will have a clear picture of how we're working as a team to turn our vision into reality.

3.2 System development methodologies (Waterfall development model)

The Waterfall development model was selected for the Road Ready project due to its structured, sequential approach. This methodology ensures that each phase is meticulously planned and reviewed before moving forward, minimizing risk and ensuring systematic execution. Its emphasis on clarity and documentation makes it ideal for achieving key project objectives, such as role-based enrollment, lesson tracking, and payment processing, while fostering seamless collaboration among stakeholders. The development process progresses through well-defined phases: requirements analysis, system design, implementation, testing, deployment, and maintenance assuring a smooth, organized path to successfully meet project goals.

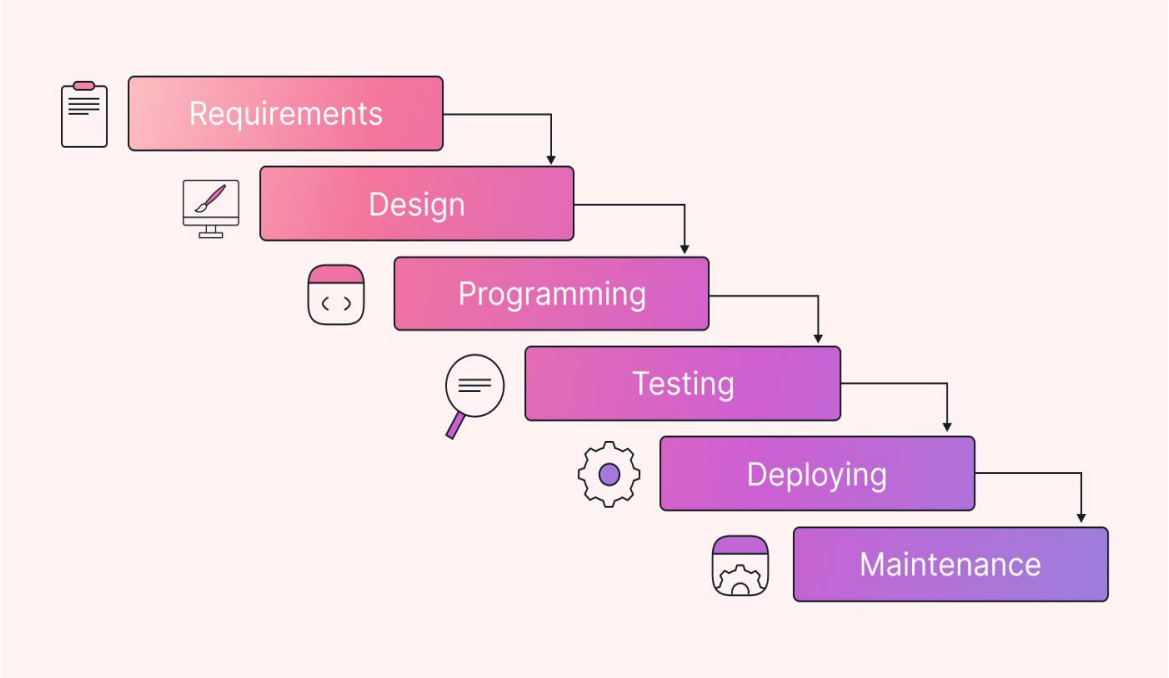

Figure 3.1 waterfall phases

The Road Ready project is progressing through the following phases:

1. **Requirements Analysis**

   In this initial phase, the project team will focus on gathering detailed input from stakeholders, defining system requirements, and finalizing comprehensive documentation. The goal is to outline the project's scope and objectives clearly, ensuring that all aspects, such as role-based registration, lesson tracking, and payment processing, are well understood. The finalized requirements documentation will provide the foundation for the next phases.

2. **System Design**

   This phase involves creating key components such as database design, system architecture, and user interface designs. The team will also work on developing the system workflow and creating prototypes, ensuring that the solution is aligned with user needs and expectations. Feedback will be gathered to improve the design and ensure that functionality and usability requirements are met.

3. Implementation

With the design in place, our team will begin developing the core functionality of the system. Tasks will include setting up the development environment, building the user registration module, developing lesson tracking features, and integrating the payment system. Rigorous unit testing will be conducted throughout this phase to ensure that each module runs smoothly.

4.Testing

This phase ensures the system meets all requirements and works without errors. Testing verifies functionality, usability, and performance.

What we will do:

- Test each feature (e.g., registering users, tracking progress, scheduling lessons) to ensure it works correctly.
- Perform usability testing to ensure the platform is easy to navigate.
- Address bugs or issues identified during testing.

5.Deployment

This phase involves making the system available to users. It includes installing the system on a server and training stakeholders.

What we will do:

- Deploy the platform to a local server for demonstration purposes.
- Provide training materials or a user guide to help users navigate the platform.
- Gather feedback from stakeholders post-deployment to address any issues.

6.Maintenance

This phase focuses on updating and improving the system after deployment. It includes fixing bugs, adding new features, and responding to user feedback.

What we will do:

- Monitor the system to identify and fix any issues reported by users.
- Add features based on user suggestions or requirements that arise later.
- Regularly update the system to ensure compatibility and security.

3.3 Requirement Gathering Technique

To ensure the success of the "Road Ready" platform, gathering requirements was a critical step. We employed the following techniques to collect, document, and analyze the needs of users and stakeholders:

Survey

- **Description**:
  We conducted a survey targeting key stakeholders, including students, driving instructors, and school administrators. The survey consisted of structured questions designed to identify the features users prioritize, their current challenges, and their overall perception of the need for such a platform in Jordan.
- **Execution**:
  The survey was distributed online through Google Forms, enabling us to reach a diverse group of participants across Jordan. We received 59 responses, providing valuable insights into the perspectives of different stakeholders. The survey included multiple-choice, Likert scale, and open-ended questions to collect both quantitative and qualitative data.

Analysis:

- **Respondent Demographics:**

  The majority of respondents (82%) were current or former students. This focus on students is particularly beneficial since the platform primarily aims to simplify the learning journey for driving license education.

- **Familiarity with Driving School Platforms:**

  Approximately 73% of respondents indicated they were unfamiliar with platforms like "Road Ready." This underscores the importance of the survey in understanding how to increase user engagement with such tools.

- **Preferred Features:**

  The most favored features were:

  - Online payment for all fees.
  - Progress tracking for lessons.
  - Scheduling driving lessons with instructors.

- **Challenges and Observations:**

  The survey highlighted the current challenges stakeholders face, such as difficulty in managing lesson schedules, tracking progress, and making payments.These insights allowed us to align the planned features of "Road Ready" with user needs, showing that the platform could potentially address 90% of these issues effectively.

- **Conclusion:**

  The results revealed a strong need for a platform like "Road Ready" among the respondents. The feedback validated the relevance of the planned features and highlighted opportunities to enhance user engagement and satisfaction.

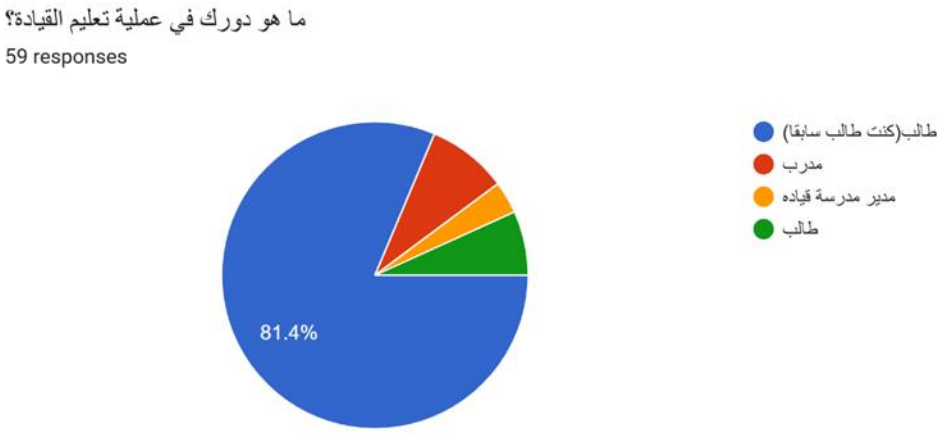

Figure 3.2 Survey results

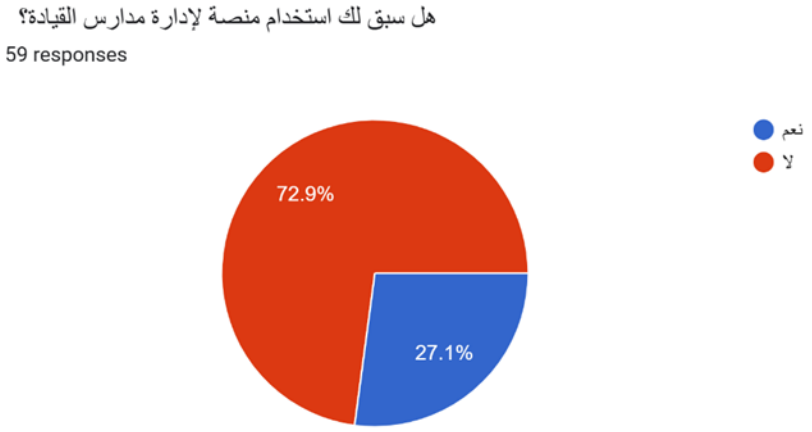

Figure 3.3 Survey results

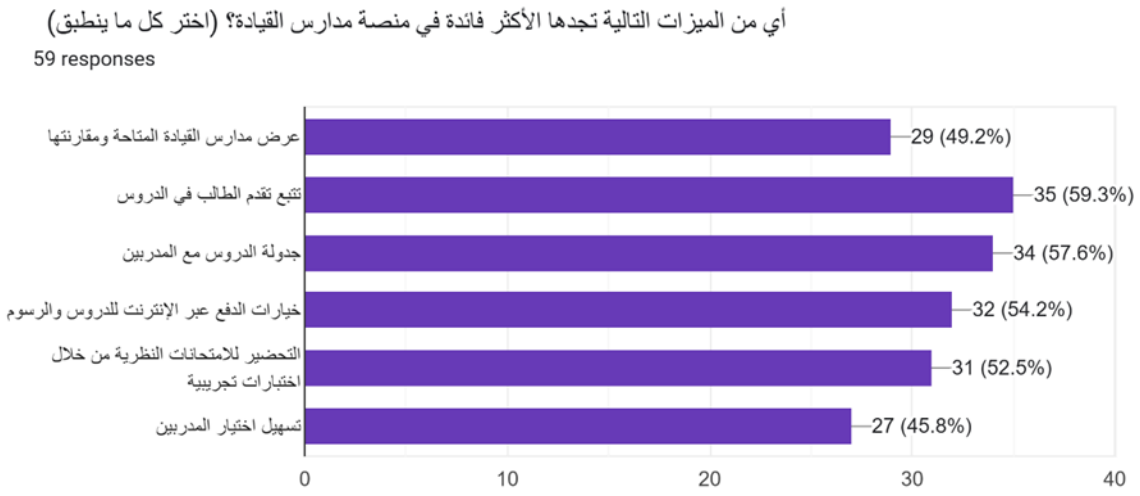

Figure 3.4 Survey results

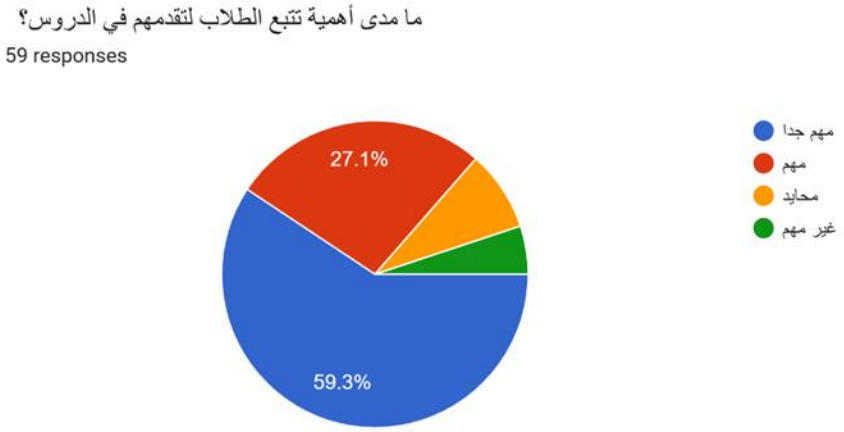

Figure 3.5 Survey results

Figure 3.6 Survey results

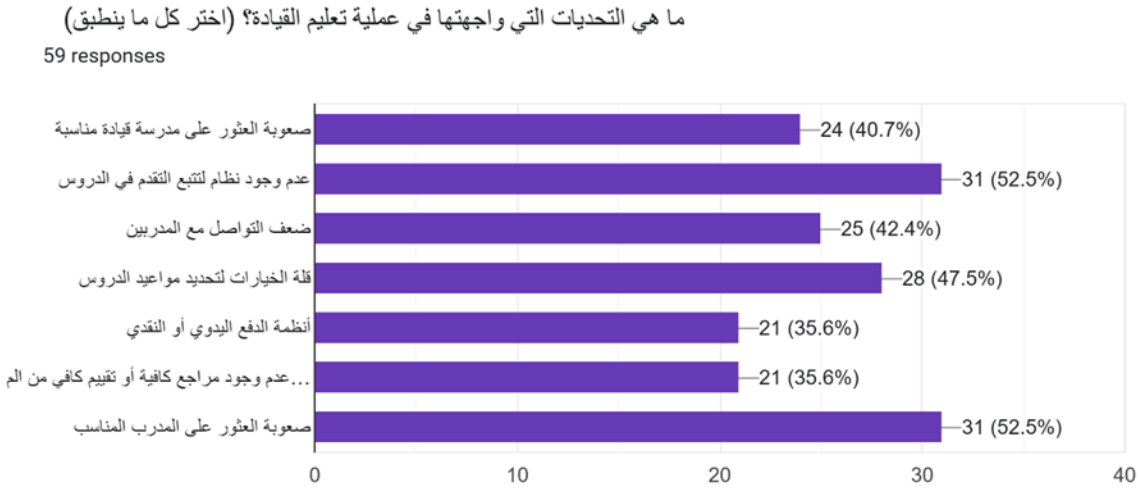

Figure 3.7 Survey results

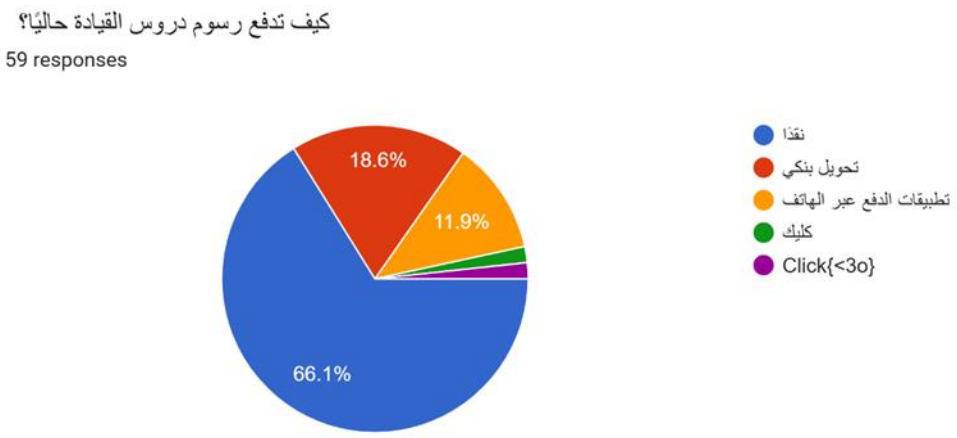

Figure 3.8 Survey results

Figure 3.9 Survey results

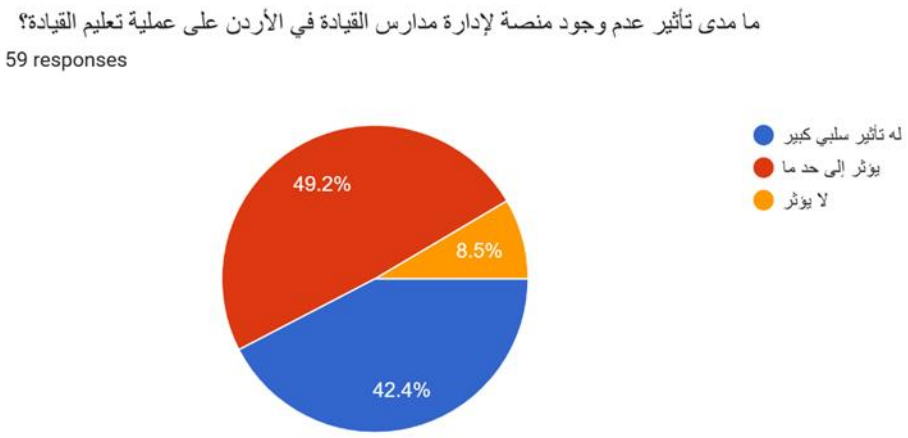

Figure 3.10 Survey results

3.4 Project Plan Gantt Chart

ID	Task Name	Start	End	Duration	Progress %	Dependency	Resources	Color
1	Requirements Analysis	2024-12-09	2025-01-07	22 days	0			
2	Gather stakeholder input	2024-12-09	2024-12-26	14 days	0			
3	Define system requirements	2024-12-27	2024-12-30	2 days	0			
4	Finalize requirements documentation	2024-12-30	2025-01-07	7 days	0			
5	System Design	2025-01-08	2025-01-27	14 days	0			
6	Design class diagram	2025-01-08	2025-01-10	3 days	0			
7	Design database	2025-01-09	2025-01-13	3 days	0			
8	Design user interfaces	2025-01-14	2025-01-27	10 days	0			
9	Implementation	2025-01-27	2025-03-21	40 days	0			
10	Set Up Development Environment	2025-01-27	2025-02-03	6 days	0			
11	Develop Role-Based User Registration Module	2025-02-04	2025-02-18	11 days	0			
12	Develop Lesson Tracking Features	2025-02-19	2025-02-28	8 days	0			
13	Integrate Payment System	2025-02-28	2025-03-11	8 days	0			
14	Develop Theoretical Exam Module	2025-03-12	2025-03-18	5 days	0			
16	Final Preparations for Testing Phase	2025-03-18	2025-03-21	4 days	0			
17	Testing	2025-03-24	2025-04-14	16 days	0			
18	Conduct Unit Testing	2025-03-24	2025-03-31	6 days	0			
19	Conduct Integration Testing	2025-04-01	2025-04-07	5 days	0			
20	Bug Fixing and Final Adjustments	2025-04-08	2025-04-14	5 days	0			
21	Deployment	2025-04-17	2025-05-06	14 days	0			
22	Final Testing and Review	2025-04-17	2025-05-06	14 days	0			
23	Maintenance	2025-05-06	2025-05-21	12 days	0			

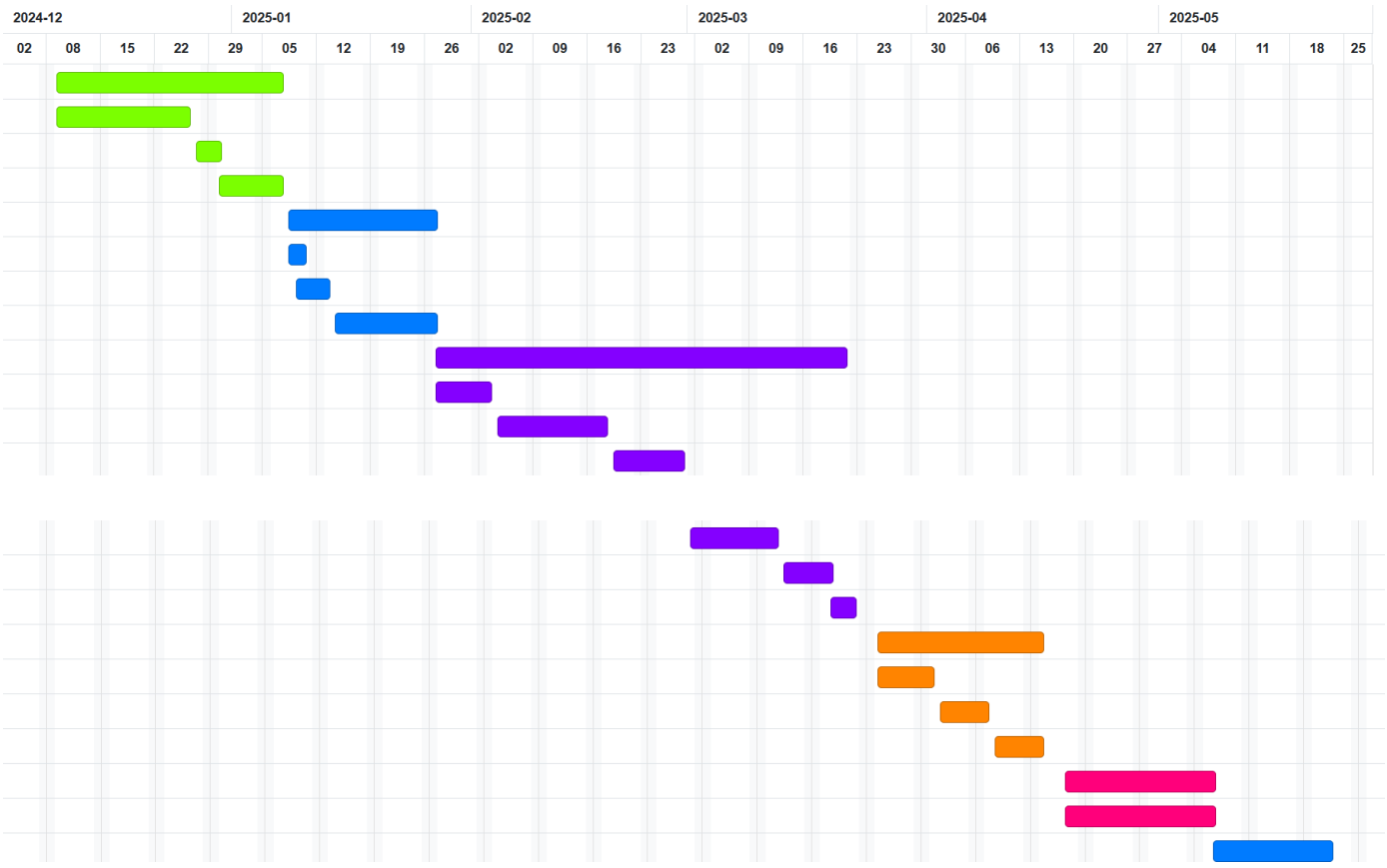

Figure 3.11 Project Plan

3.5 Development Tools

1. Programming Languages

- **Java**

  We selected Java as our main programming language because it's powerful, secure, and perfect for backend development. It will handle the complex logic of the platform, like user account management, payment processing, and tracking lesson progress. Java's compatibility with Spring Boot makes it an efficient choice for our project.

- **JavaScript**

  JavaScript will bring interactivity to our platform. It enables real-time notifications, dynamic updates, and user-friendly features like form validation. By using JavaScript, we can ensure an engaging and responsive user experience.

2. Frameworks

- **Spring Boot**

  We're using Spring Boot because it simplifies backend development. It reduces repetitive coding tasks and helps us focus on building core features like APIs for connecting the backend with the frontend. It's reliable, fast, and aligns well with Java.

- **React**

  On the frontend, React is our go-to framework for building a responsive and interactive user interface. Its reusable components, like dashboards and forms, make development faster and ensure a smooth experience for users.

3. Databases

- **Firebase**

  Firebase will handle real-time synchronization and file storage. It's ideal for situations like instant feedback from instructors or sharing study materials with students. Firebase also ensures secure handling of uploade dfiles.

4. Web Technologies

- **HTML**

  We'll use HTML to structure the content of our web pages. It's the foundation of our platform, allowing us to organize everything from registration forms to dashboards in a clear and accessible way.

- **CSS**

  CSS will give the platform a polished and professional look. It will help us apply styling, like colors, fonts, and layouts, to create a user-friendly interface. Using frameworks like Bootstrap will ensure the design is modern and responsive.

5. Hosting Platform

- **Render**

  Render will be our hosting platform because it simplifies deployment and scaling. It offers an easy way to host our backend, frontend, and database in one place. With its automated deployments and reliability, we can focus on development without worrying about infrastructure.

6. Version Control

- **Git**

  We'll use Git for version control to keep track of our codebase changes. This tool is essential for collaborative development, allowing team members to work on different features without overwriting each other's work. Git will also ensure we can revert to previous versions of the project if needed.

7. Development Environments

- **VSCode**

  For frontend development and general editing, we'll use VS Code. It's highly customizable and has a wide range of extensions for debugging. This makes it a great tool for developing features like the user interface.

- **IntelliJIDEA**

  IntelliJ IDEA is our IDE of choice for backend development in Java. It provides powerful tools for code navigation, debugging, and integration with Spring Boot. Its built-in features, like auto-completion and code analysis, will help us write clean and efficient code faster.

By combining these tools, frameworks, and technologies, we'll create a robust and scalable platform. The backend (Java and Spring Boot) will manage the core operations, while Firebase will handle data storage. On the frontend, HTML, CSS, JavaScript, and React will ensure a smooth and interactive user experience. Git will streamline collaboration and version management, Render will provide a reliable environment for hosting and deployment, and tools like VS Code and IntelliJ IDEA will enhance our development process.

CHAPTER 4 PROJECT DESIGN AND SPECIFICATION

4.1 Introduction

This chapter focuses on the design and specification aspects of the "Road Ready" platform. It outlines the functional and non-functional requirements that define the system's behavior and qualities. Additionally, it presents a class diagram to illustrate the structure of the system, highlighting how different components interact. These design elements are critical as they form the foundation for development and ensure the system meets user needs effectively.

4.2 System Specification (Functional Requirements and Non-Functional Requirements)

Functional Requirements

1. User Registration and Login

We will allow users to register and log in based on their roles—whether they are students, instructors, or admins. Each user will provide their unique email address and relevant details, ensuring secure access with encrypted passwords. If someone forgets their password, they can easily reset it through email verification.

2. School and Instructor Selection

Students will have the ability to explore various driving schools in their area. Each school will display essential information such as location, contact details, and available instructors. Instructors will be listed along with their ratings, reviews, and areas of expertise, making it easier for students to select the best fit for their needs. The platform also allows students to filter and choose instructors based on availability, ratings, and preferred languages.

3. Student Progress Tracking

Our platform will provide a clear and detailed view of a student's progress. Students can see their completed lessons, remaining lessons, and receive performance feedback from their instructors. After every session, instructors will update the progress, which will be instantly reflected on the student's dashboard, helping them stay on track.

4. Scheduling and Lesson Booking

Students can view available lesson slots for their preferred instructors and book sessions that match their schedules. The system ensures no double bookings for instructors or test slots. Once a booking is confirmed, students will receive notifications via email to keep them informed about their upcoming lessons.

5. Payment Management

Students can track all their payments through the platform. Their dashboard will display payment history, including what has been paid, any outstanding amounts, and the dates of each transaction. The system will also send notifications to remind students of pending payments or confirm when payments are successfully processed.

6. Instructor Note Uploads

Instructors will have the ability to upload notes for their students. These notes will be organized and accessible through the students' dashboards, making it easy for them to refer to important resources provided by their instructors.

7. Role-Based Dashboard

Our system will have a personalized dashboard for every type of user. Students will have access to their lesson progress, upcoming sessions, payment status, and any shared resources. Instructors will manage their students' progress, upload notes, and view lesson schedules. Meanwhile, admins will oversee user accounts, generate reports, and handle administrative tasks for the entire platform. Additionally, school users will have their own specialized dashboard to manage the operations of their respective schools, including assigning instructors, monitoring school performance, and overseeing student enrollments, ensuring everything runs smoothly on a school level.

8. Notification System

To ensure everyone stays informed, the platform will send out automated notifications. These include reminders for upcoming lessons, alerts for payment due dates, confirmations of successful payments, and updates on lesson schedules or test slots. Notifications will be delivered through email and in-app alerts to keep users updated in real time.

9. Reporting and Analytics

Admins will have access to comprehensive reports on various aspects of the platform. They can generate insights on student progress, instructor performance, and financial records. Additionally, the system will provide visual trends, such as lesson completion rates and payment collection over time, to help admins make informed decisions.

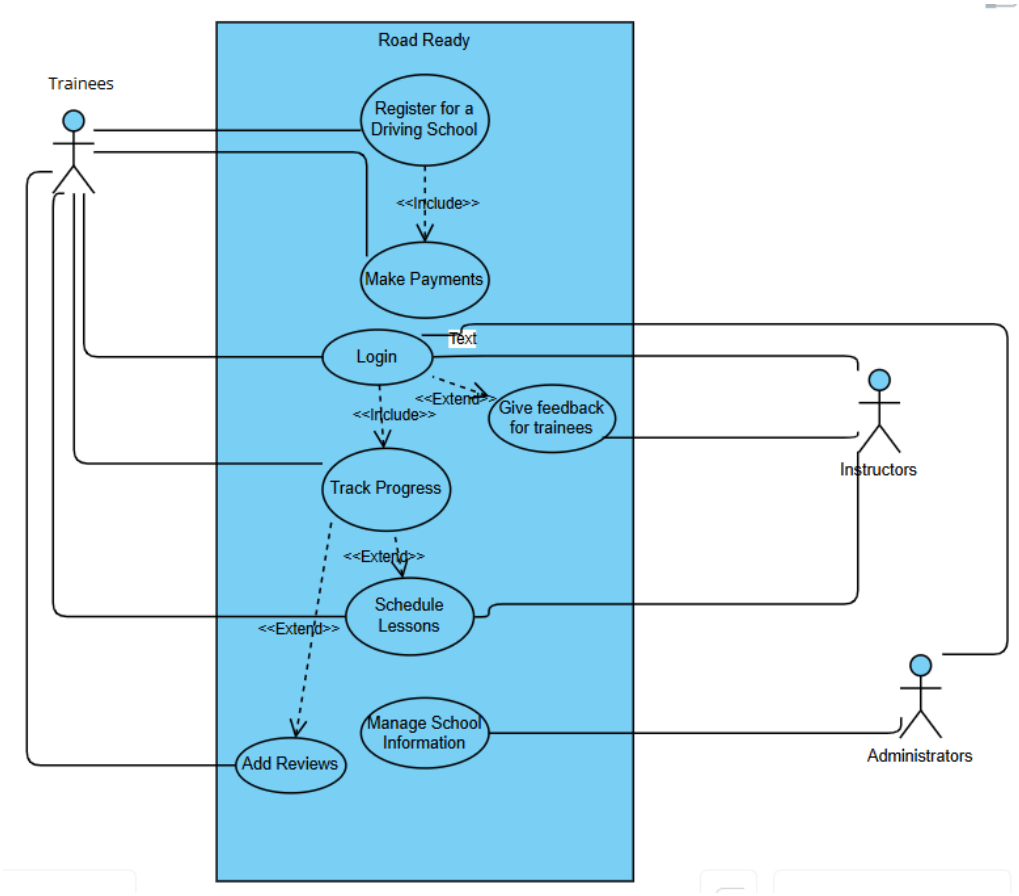

Figure 4.1 Class Diagram

Non-Functional Requirements

Although this project is intended for academic purposes and will not be deployed, these non-functional requirements outline the desired system qualities as if it were a production-ready platform. They serve to demonstrate best practices and the system's potential scalability, reliability, and usability.

1. **Usability:**
    - The platform should have an intuitive interface, requiring no more than three clicks to access major features like progress tracking, school selection, or lesson scheduling.
    - All interface elements should be designed with accessibility in mind.
    - Support for both Arabic and English languages to cater to diverse user demographics in Jordan.

2. **Reliability**
    - Critical features, such as lesson scheduling and payment processing, must function without failure during peak usage hours.
    - Automatic backups should occur daily to prevent data loss.

4.3 Class Diagram

The Road Ready system is structured around several key classes that represent its core functionalities. The foundation begins with the User class, which can assume various roles such as Student, Instructor, or School. Each user interacts with different aspects of the system based on their specific role.

Below is the class diagram that outlines the structure and relationships between these classes :

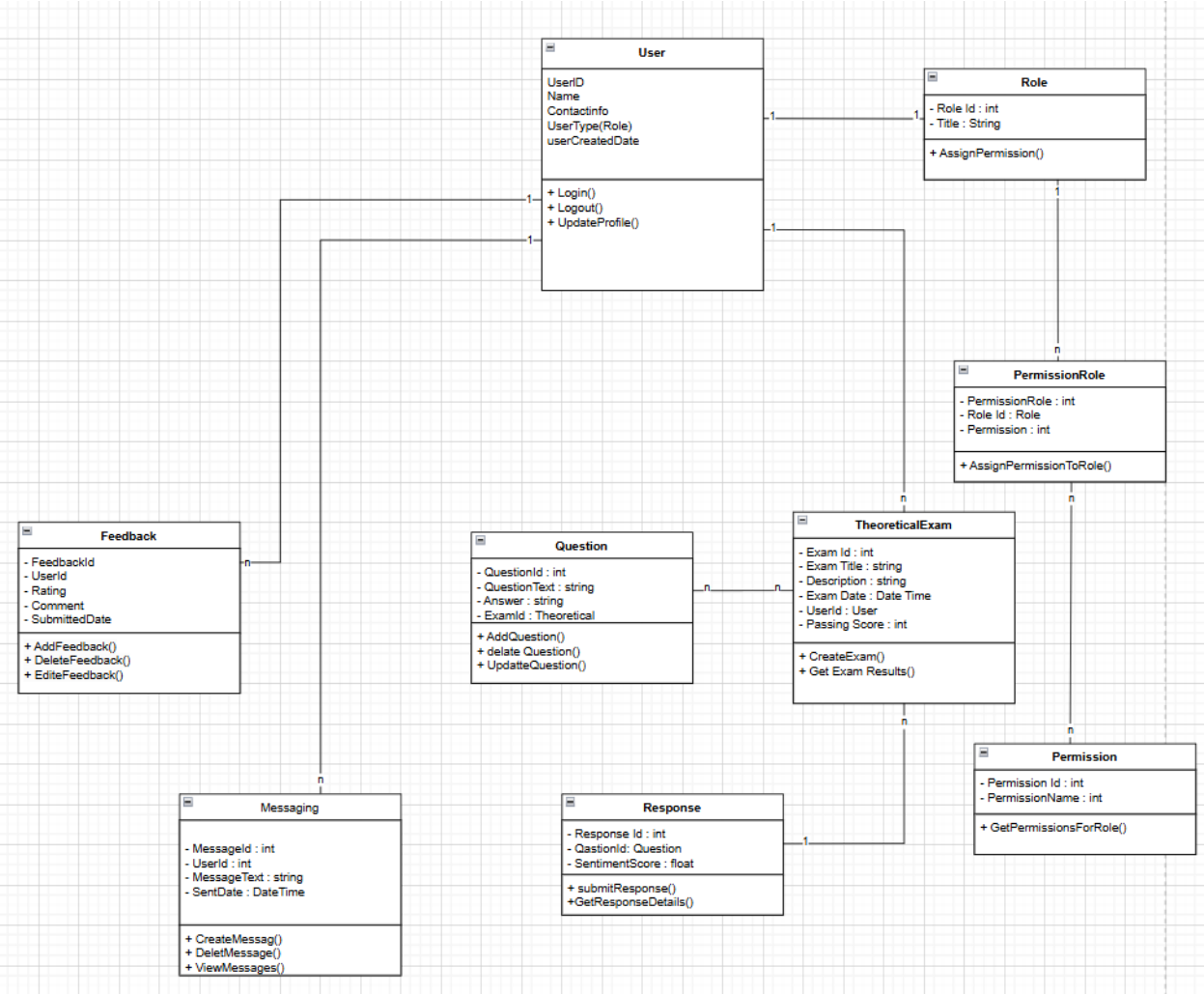

Figure 4.2 Class Diagram

Relationship:

1. **User-Role:**

   Each user is associated with a single role via a role ID. This identifies the specific role of the user within the system, such as student, instructor, or driving school, which determines their access and permissions.

2. **Role-Permission:**

   Roles are associated with a set of permissions through an intermediate entity called a PermissionRole. Each role can be associated with multiple permissions, which define the operations that users with that role are allowed to perform.

3. **PermissionRole:**

   This entity associates roles with their respective permissions, allowing for fine-grained control over the operations that users in a role can perform. It defines the specific permissions assigned to each role and allows the system to enforce these permissions.

4. **Permission:**

   Permissions can be associated with multiple roles via a PermissionRole. Each permission defines the operations that users can perform based on their assigned role.

5. **TheoryExam:**

   - Question: Theory Exam contain a set of questions that form the content of the test. This ensures that each test contains relevant and structured questions.
   - Response: This relationship helps students view their test results. Responses provide the correct answers.

6. **Messaging:**

   Users can send and receive messages within the system.

7. **Feedback:**

   Users can provide feedback about their experiences with the school or instructor. This feedback is valuable to prospective students, as it helps them make a decision.

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Supervisor Signature:

Date: