FINAL PROJECT

OCTOBER 2024 SEMESTER

Digilearn

Online Course

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This report is prepared to fulfill the requirement of CPP401
Final Project

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OCTOBER 2024 SEMESTER

DISCLAIMER

CPP401 – FINAL PROJECT

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Throughout the project's development, the writer has acquired a wealth of knowledge that promises to be instrumental in the future trajectory of their career in the technology domain. The commitment to extend assistance to others embarking on similar projects remains unwavering, reflecting a dedication to knowledge dissemination and collective advancement in the realm of technology.

ABSTRACT

The DigiLearn project introduces a solution to guide and support beginner web developers in their educational journey through the vast landscape of new technologies. This project envisions a user-centric platform designed to bridge the gap between confusion and clarity for novices, offering an intuitive and efficient system for learning technology. With free tutorials and a range of supportive features, DigiLearn aims to provide a structured learning path, facilitate request-based lesson additions, and enhance user engagement.Focusing on user-friendly design and personalized learning experiences, DigiLearn empowers beginners with tools to navigate their learning, gain insights from categorized lessons, and track their progress. Key functionalities include admin capabilities for managing lessons, responding to student requests, and monitoring platform activity, alongside user features for exploring recommended lessons, requesting new content, and managing personal learning paths.By employing an iterative development methodology, DigiLearn’s implementation aligns with the evolving needs of beginner web developers and the project's individual context. The platform's impact lies in its potential to revolutionize the learning experience for novices, making technology education accessible, organized, and engaging.

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CHAPTER 1
INTRODUCTION

The evolution of technology has brought many changes to education, proving beneficial in various ways. Learning web development has become more accessible with these changes. However, many beginners still struggle to find a starting point due to the overwhelming amount of available resources. This is where DigiLearn steps in. This platform aims to guide those who want to learn web development technology, providing a user-centric solution designed to bridge the gap between confusion and clarity for beginners.

DigiLearn offers free tutorials and a range of supportive features, making the learning path for novice developers straightforward and structured. The platform's initiative to solve this problem stems from understanding the challenges faced by beginner web developers, dedicating itself to helping them navigate the vast landscape of web development.

1.1. Problem Statement

Most beginner web developers do not know where to start learning. The overwhelming amount of available resources can be confusing and unstructured, leading to a lack of clear learning paths. Traditional learning methods and disorganized resources can hinder the learning process, making it difficult for novices to gain the necessary skills efficiently.

1.2. Objective

The primary objective of DigiLearn is to create a comprehensive and easy-to-use platform that guides beginner web developers through their learning journey. By providing free, high-quality tutorials and various supportive features, DigiLearn aims to:

- Simplify the learning path for novice developers.
- Offer structured and organized educational content.
- Enhance user engagement and interaction.
- Provide tools for administrators to manage lessons and student requests effectively.

1.3. System Scope

DigiLearn is designed to support both administrators and users:

- **Admin Functions**: Administrators can register new admin accounts, manage lessons (add, view details, edit, delete), monitor other admin activities, and respond to student requests.
- **User Experience**: Users can explore recommended lessons based on their interests,

request new lessons, and receive notifications regarding the status of their requests. The platform categorizes lessons for easy navigation, allows users to add lessons to their personal learning page ("My Learning"), and enables commenting on ongoing lessons.

The platform focuses on user-friendly design and personalized learning experiences, empowering beginners to navigate their educational journey effectively.

1.4. Target User

The main target users of DigiLearn are beginner web developers who need a structured and clear learning path to start their journey in web development. Additionally, the platform caters to administrators responsible for managing and organizing educational content, ensuring a smooth and efficient learning experience for users.

1.5. Significance of the Project

By providing a comprehensive and easy-to-use platform, DigiLearn aims to facilitate a seamless and engaging learning experience for aspiring web developers. This project not only enhances the learning process but also supports the broader goal of making technology education more approachable and efficient. Through this project, we aim to provide a comprehensive solution that not only enhances the learning experience for beginner web developers but also supports the broader goal of making technology education more approachable and efficient. By equipping learners with the necessary tools and resources, DigiLearn l fosters an environment where aspiring web developers can thrive and achieve their educational goals.

1.6. Implementation Methodology

DigiLearn’s implementation follows an iterative development methodology, aligning with the evolving needs of beginner web developers and the project's individual context. The platform’s impact lies in its potential to revolutionize the learning experience for novices, making technology education accessible, organized, and engaging.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

The foundation of any innovative project lies in the assimilation and critique of existing knowledge, paving the way for the evolution of new paradigms. This existing system review serves as the cornerstone upon which the comprehensive evaluation and comparison of the DigiLearn project with its predecessors will be built. Discussing the factors that have propelled the creation of this new project, this section navigates the historical trajectory of theories and systems prevalent in the research landscape.

Over the years, the evolution of technology has significantly influenced the educational landscape, making learning web development more accessible than ever before. The proliferation of online tutorials, coding bootcamps, and interactive platforms has democratized access to web development education. However, despite the abundance of resources, beginners often struggle to find a clear starting point due to the overwhelming amount of available information. The plethora of choices can lead to confusion and frustration, causing many to abandon their learning journey prematurely.

DigiLearn aims to address this issue by providing a structured, user-centric platform specifically designed for novice web developers. By offering a guided learning path, tailored content, and interactive exercises, DigiLearn ensures that beginners receive a cohesive and comprehensive introduction to web development. This section will delve into the review of similar existing systems, providing a critical analysis of their strengths and weaknesses. By examining the successes and shortcomings of these systems, we can position DigiLearn in the context of current educational tools, highlighting its unique value proposition and the innovative solutions it brings to the table.

In this review, we will explore various platforms that have made significant contributions to web development education. These include established names like Codecademy, FreeCodeCamp, and Udemy, among others. Each of these platforms has its approach to teaching web development, with unique features and methodologies. We will analyze how these platforms cater to beginners, the types of content they offer, the interactivity of their exercises, and their overall effectiveness in fostering a deep understanding of web development concepts.

Codecademy, for instance, is known for its interactive learning approach where learners can write code directly in the browser and receive immediate feedback. Its step-by-step tutorials and quizzes make it easy for beginners to follow along, but it may lack depth in more advanced topics. FreeCodeCamp offers a comprehensive curriculum with a strong emphasis on real-world projects and a supportive

community. However, the self-paced nature of the platform can sometimes be overwhelming for those who need more structured guidance. Udemy, on the other hand, provides a vast array of courses created by different instructors, offering flexibility and a wide range of learning styles, but the quality of courses can vary significantly.

Personalization in education has become increasingly important as learners seek tailored experiences that cater to their individual needs and learning paces. DigiLearn incorporates adaptive learning technologies to provide customized content and feedback, ensuring that each learner can progress at their own pace and focus on areas where they need the most improvement. Additionally, DigiLearn emphasizes project-based learning, allowing users to work on real-world projects that not only reinforce their learning but also help them build a portfolio of work that can be showcased to potential employers.

Through a comprehensive review and comparison of existing systems, we aim to establish a clear framework for evaluating DigiLearn's impact and effectiveness. This analysis will not only highlight the innovative aspects of DigiLearn but also provide insights into how it can continuously evolve to meet the changing needs of learners in the dynamic field of web development. By learning from the strengths and weaknesses of current platforms, DigiLearn aspires to set a new standard in web development education, offering a holistic, engaging, and effective learning experience for beginners.

2.2. Review on the Existing System

2.2.1. Codecademy

Codecademy is a well-known platform that offers interactive coding lessons in various programming languages, including web development. Since its launch in 2011, Codecademy has been instrumental in providing accessible and engaging coding education. The platform is designed to cater to learners of all skill levels, from complete beginners to more advanced programmers, offering a wide range of courses that cover fundamental concepts as well as specialized topics.

One of the standout features of Codecademy is its interactive learning environment. Unlike traditional learning methods that rely heavily on passive reading or video tutorials, Codecademy emphasizes a hands-on approach where learners can write and test code directly within their browser. This immediate feedback loop helps reinforce learning and allows users to apply concepts as they learn them. The platform's interactive exercises are designed to be engaging and bite-sized, making it easier for learners to grasp complex topics without feeling overwhelmed.

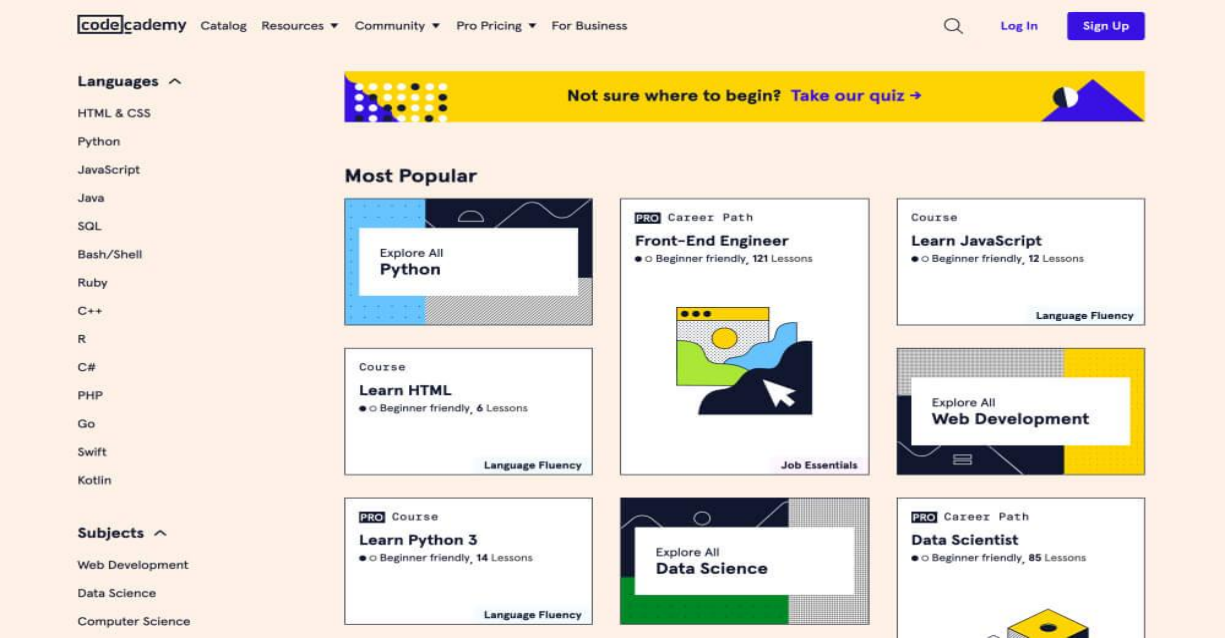

Figure 2.1 CodeAcademy Materials Status Interface

Benefits:

- **Interactive Learning:** Codecademy's interactive lessons allow users to practice coding directly in their browsers, making the learning process engaging and practical.
- **Comprehensive Curriculum:** The platform offers a wide range of courses that cover different aspects of web development, from basic HTML and CSS to advanced JavaScript frameworks.
- **Community Support:** Codecademy provides forums and discussion boards where learners can seek help and interact with peers.

Limitations:

- **Cost:** While Codecademy offers free content, many advanced features and courses require a paid subscription, which might be a barrier for some users.
- **Pacing Issues:** Some users may find the self-paced nature of the courses challenging, as it requires significant self-discipline and motivation.
- **Limited Depth:** The platform focuses on breadth rather than depth, which might not be sufficient for learners seeking in-depth knowledge of specific topics.

2.2.2. FreeCodeCamp

FreeCodeCamp is a nonprofit organization that offers a free, extensive curriculum for learning web development and other programming skills. Launched in 2014, it has become a popular resource for self-taught developers, providing a structured learning path that covers a wide range of topics from basic HTML and CSS to advanced JavaScript, data visualization, and back-end development. FreeCodeCamp's mission is to make learning accessible to everyone, regardless of their financial situation, by providing high-quality education for free.

One of the key features of FreeCodeCamp is its emphasis on hands-on learning. The platform offers thousands of coding challenges, projects, and interactive lessons that allow learners to apply what they have learned in practical scenarios. This project-based approach helps users build a robust portfolio of real-world projects, which can be invaluable when seeking employment in the tech industry.

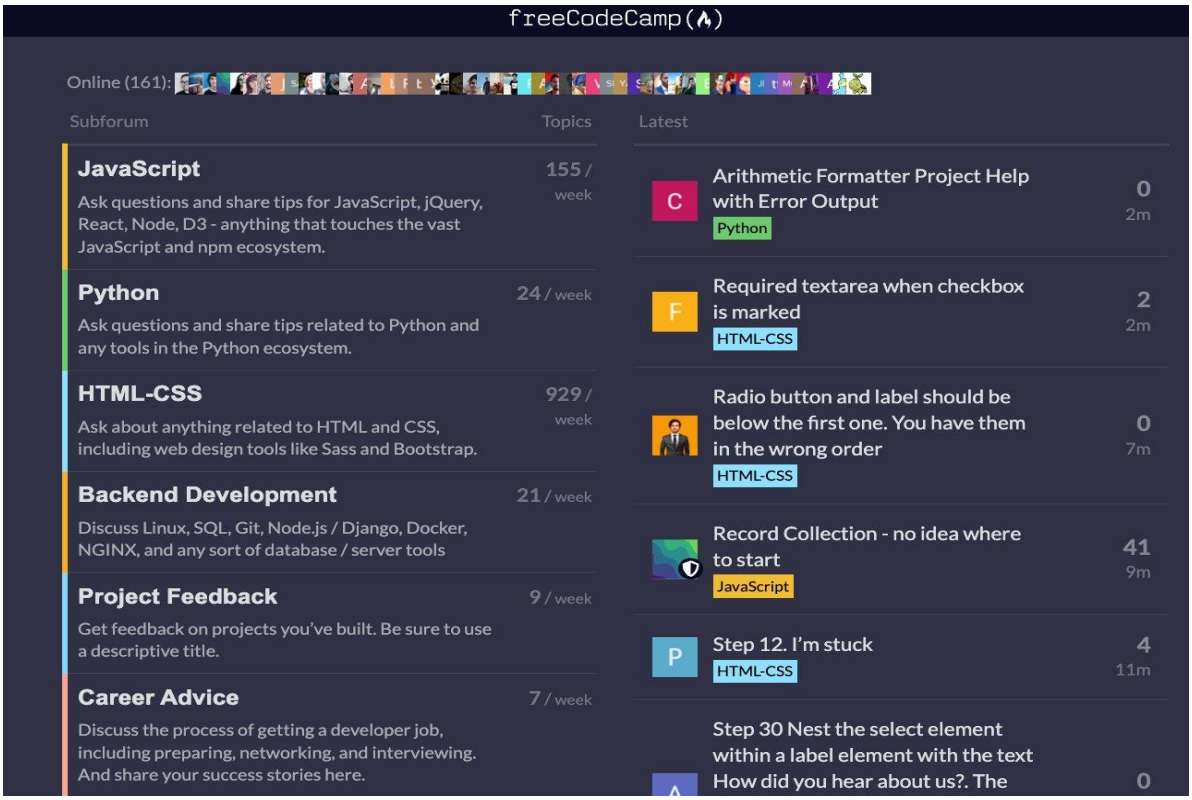

Figure 2.2 Freecodecamp Materials Interface

Benefits:

- **Free Access:** All content on freeCodeCamp is freely accessible, making it an excellent resource for learners with limited financial resources.
- **Project-Based Learning:** The platform emphasizes building real projects, which helps learners apply their knowledge in practical scenarios.
- **Community and Support:** freeCodeCamp has a large, active community that provides support through forums, local meetups, and online chat groups.

Limitations:

- **Self-Directed Learning:** The lack of structured guidance can be overwhelming for beginners who may struggle with staying motivated and following the curriculum.
- **Limited Interactivity:** While freeCodeCamp offers coding challenges and projects, it lacks the interactive coding environment provided by some other platforms.
- **Resource Overload:** The extensive curriculum might be daunting for beginners, making it difficult for them to identify where to start and how to proceed.

2.2.3. Comparison with DigiLearn

Comparison Point	CodeAcademy	FreeCodeCamp	Digilearn
Free Acces	Partial	Yes	Yes
Interactive Video Learning	Limited	Limited	Unlimited
Structured Learning Path	Yes	No	Yes
Community Support	Yes	Yes	No
Project Based Learning	Limited	Yes	No
Administrator Tools	No	No	Yes
User Engagement Features	No	No	Yes

DigiLearn aims to address the limitations of existing platforms by providing a comprehensive, structured, and interactive video learning environment specifically designed for beginner web developers. The platform's key features include:

- **Free Tutorials:** Offering free, high-quality video tutorials to make learning accessible for everyone.
- **Structured and Organized Content:** Providing a clear and structured learning path to guide beginners through their web development journey.
- **Interactive Video Learning:** Incorporating interactive coding exercises to enhance user engagement and practical learning.
- **User and Administrator Tools:** Facilitating user engagement with features like lesson recommendations, request handling, and comment sections, along with tools for administrators to manage content and user requests effectively.

2.3. Analysis Existing System

The analysis of existing systems such as Codecademy and freeCodeCamp reveals valuable insights into the strengths and weaknesses of current web development learning platforms. DigiLearn aims to build on these insights, offering a user-centric, structured, and interactive solution to support beginners in their web development journey. By addressing the common challenges faced by novice developers and incorporating features that enhance the learning experience, DigiLearn positions itself as a valuable resource in the educational landscape.

CHAPTER 3

SYSTEM ANALYSIS

3.1 System Development Process

3.1.1 Project Planning Oversight

To develop the DigiLearn project, a structured approach using the Scrum development methodology will be implemented. Scrum is an agile project management and development framework that emphasizes collaboration, flexibility, and incremental progress through iterative cycles known as "sprints." Each sprint focuses on a specific set of tasks and is typically time-boxed to ensure timely completion and regular assessment.

The project timeline will follow a Gantt Chart as illustrated in Chapter 1, Figure 1.1. The initial week will be dedicated to reviewing the system design to understand the core concepts and identify areas for improvement. The second week will involve researching various aspects including front-end technologies (HTML, CSS, Bootstrap, and JavaScript), PHP Laravel for back-end development, and Figma for design. This research aims to refine the system's usability, effectiveness, and overall quality.

The subsequent two weeks will be spent designing the user interface using Figma. Figma is chosen for its familiarity, effectiveness, and integration capabilities. It allows for efficient design and easy integration with the front-end development. The designs created in Figma will be translated into HTML, CSS, and JavaScript code. Additionally, the Laravel framework will be used for back-end development, ensuring robust and scalable application management.

Following the interface design, database design will begin. The database design, data manipulation features, and data analysis features will overlap in their development. Data manipulation and analysis features will be developed over an estimated four-week sprint using PyCharm Community Edition. This will involve integrating Python libraries such as Pandas for data analysis and Matplotlib for data visualization, alongside MySQL for database management.

The next sprint, focusing on the development of employee features, will last for two weeks. Features such as employee attendance tracking and task progression will be developed during this phase. The final sprint will be dedicated to system implementation, assembly, testing, bug fixes, and maintenance.

By adopting Scrum methodology, the development process ensures iterative progress, regular reviews, and adaptability to changing requirements, leading to a well-crafted and functional DigiLearn system.

3.1.2 System Requirement Analysis

A. Analysis of User Input

The analysis of user input will be based on insights gathered from existing systems and user feedback. Research on HRM systems and literature will provide valuable insights into the pain points experienced by users. Web reviews and scholarly sources will help in understanding challenges and potential improvements, which will inform the development of DigiLearn.

B. Concept Brief

DigiLearn aims to revolutionize web development education by bridging the gap between traditional learning methods and modern technology. The system will utilize HTML, CSS, Bootstrap, and JavaScript for front-end development, with PHP Laravel for the back-end. Figma will be used for designing an intuitive user interface. DigiLearn will focus on providing structured learning paths, interactive exercises, and adaptive learning technologies to enhance the educational experience for beginners in web development.

C. System Requirements Analysis

- **User Authentication and Roles:** The system will provide secure user authentication with distinct roles for administrators and learners, ensuring appropriate access levels and data security.
- **Course and Lesson Management:** Administrators will manage courses and lessons, including adding, updating, and deleting content.
- **User Interface:** The front-end will be designed using HTML, CSS, Bootstrap, and JavaScript for a responsive and user-friendly experience.
- **Back-End Development:** The system will be built using PHP Laravel for robust server-side management and integration with the database.
- **Database Design:** MySQL will be used for managing and storing data, including user information, courses, lessons, and interactions.
- **Interactive Features:** The platform will incorporate interactive elements to engage users and provide a personalized learning experience.
- **Design and Integration:** Figma will be used for designing the user interface, which will be integrated with the front-end code and back-end functionality.

3.2 System Modeling

3.2.1 Process Modeling

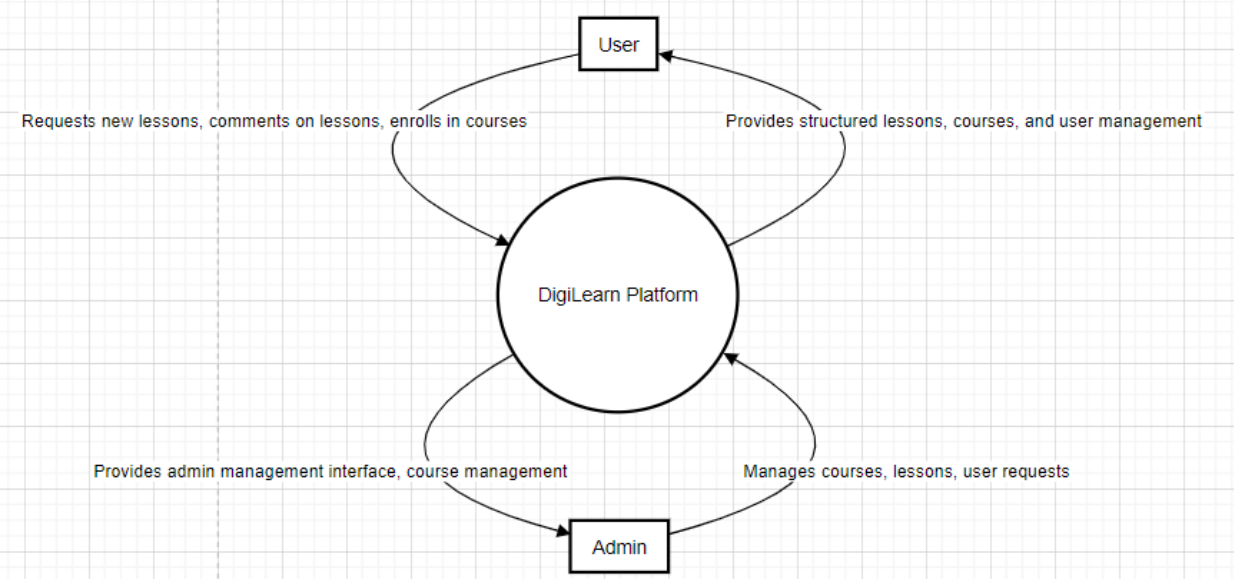

Figure 3.1 DigiLearn Context Diagram / DFD Level 0

This diagram shows the interaction between the system and the users, which include administrators and beginners.

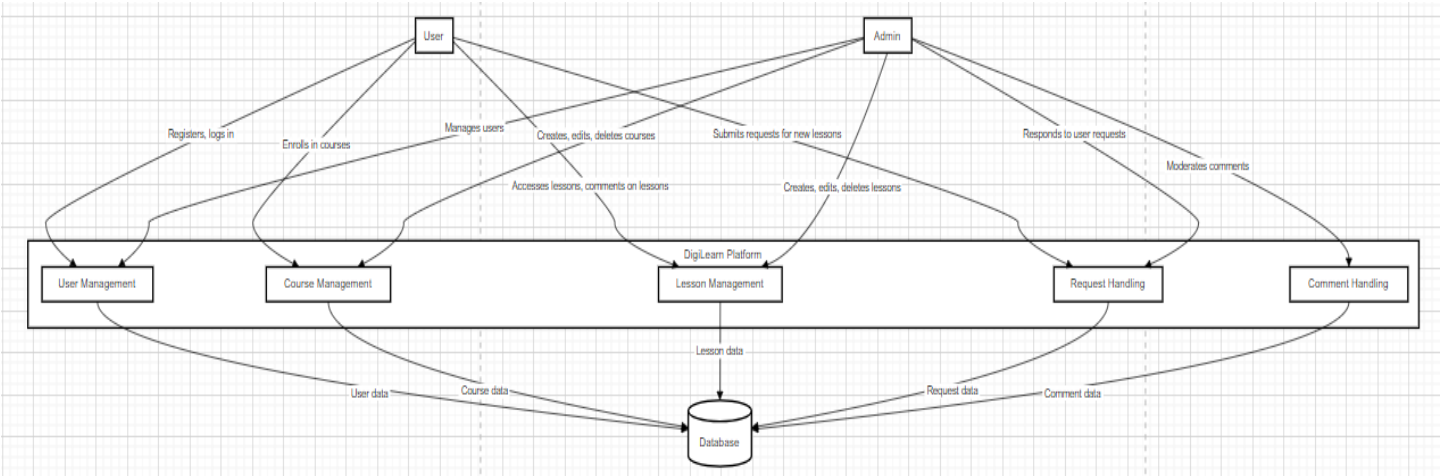

Figure 3.2 DigiLearn DFD Level 1 Diagram

3.2.2. Logical Modeling

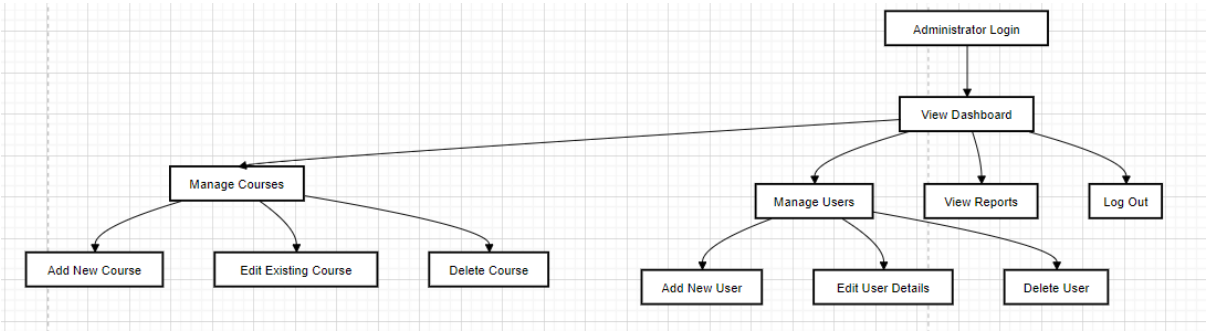

Figure 3. 3 Administrator User Flowchart

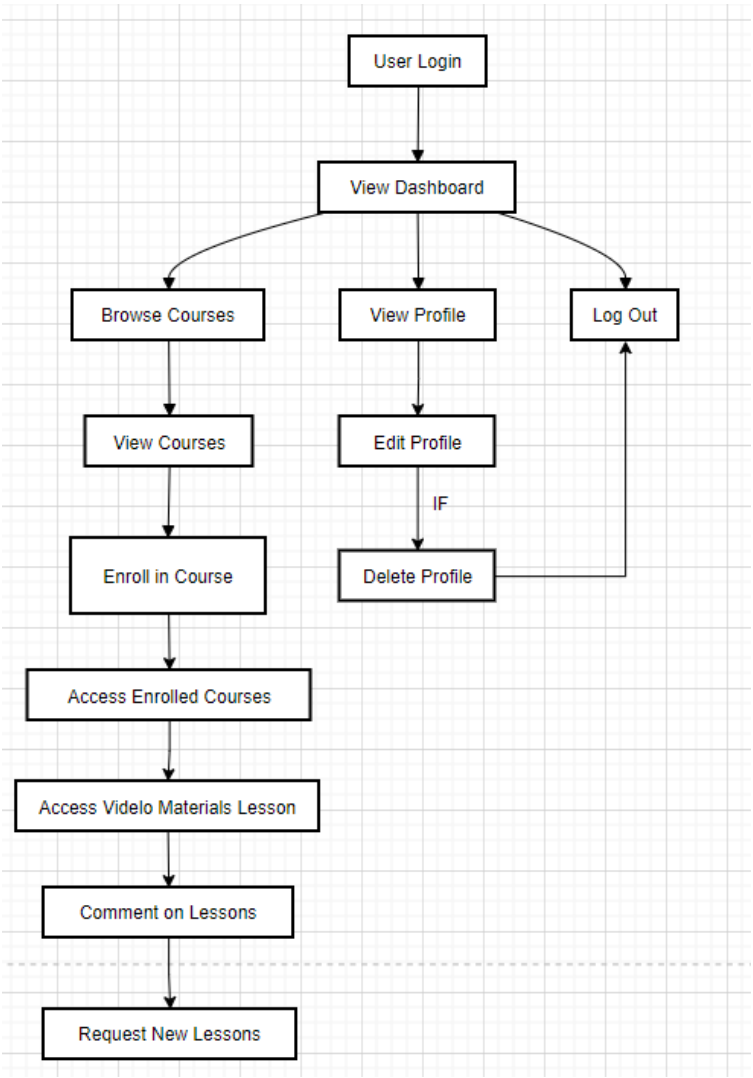

Figure 3.4 Beginner User Flowchart

3.2.3. Data Modeling

The following is the Entity Relationship Diagram of DigiLearn:

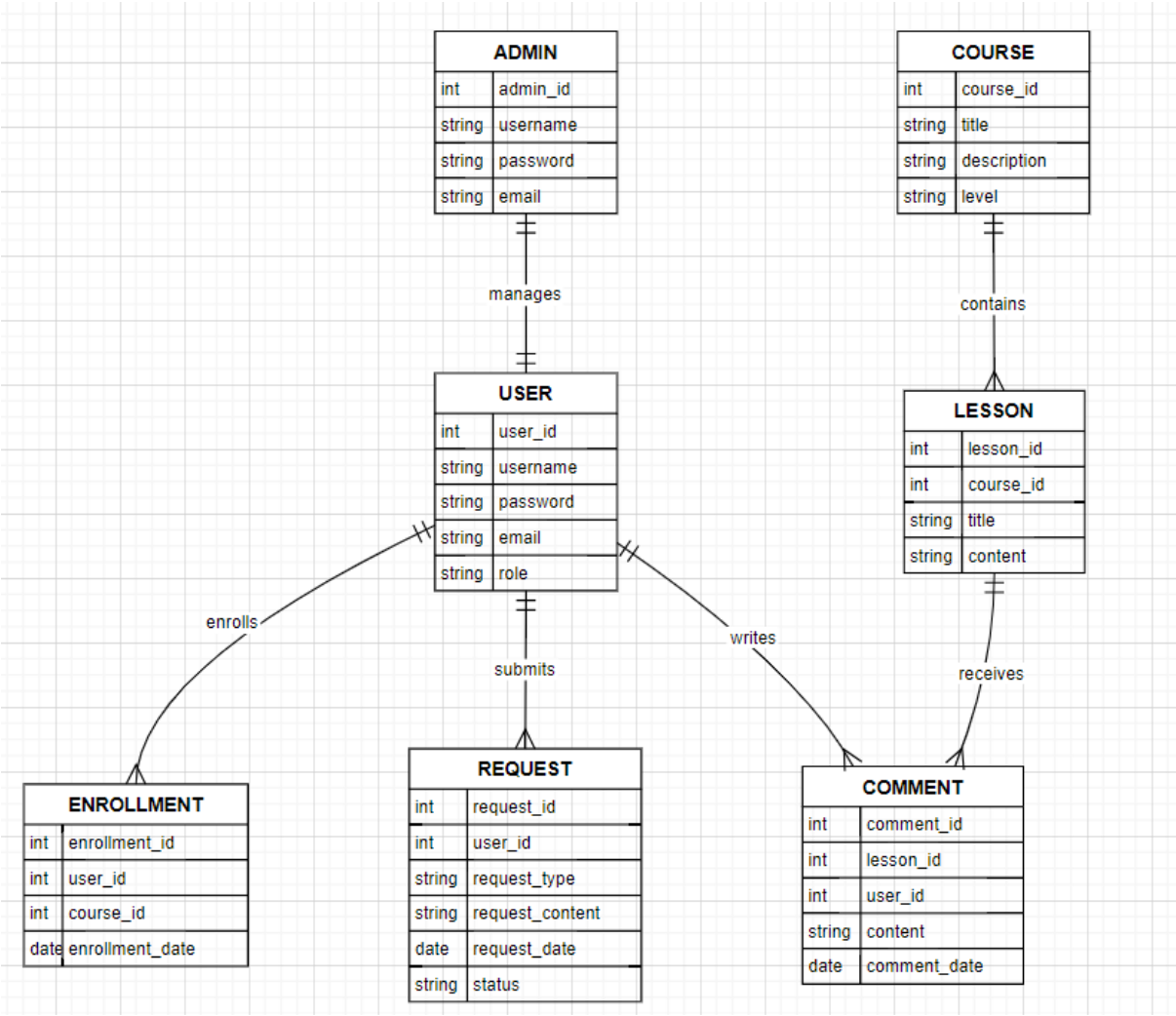

Figure 3.5 DigiLearn ERD

CHAPTER 4

SYSTEM DESIGN

4.1. Design Forms and Report

4.1.1 Student Side

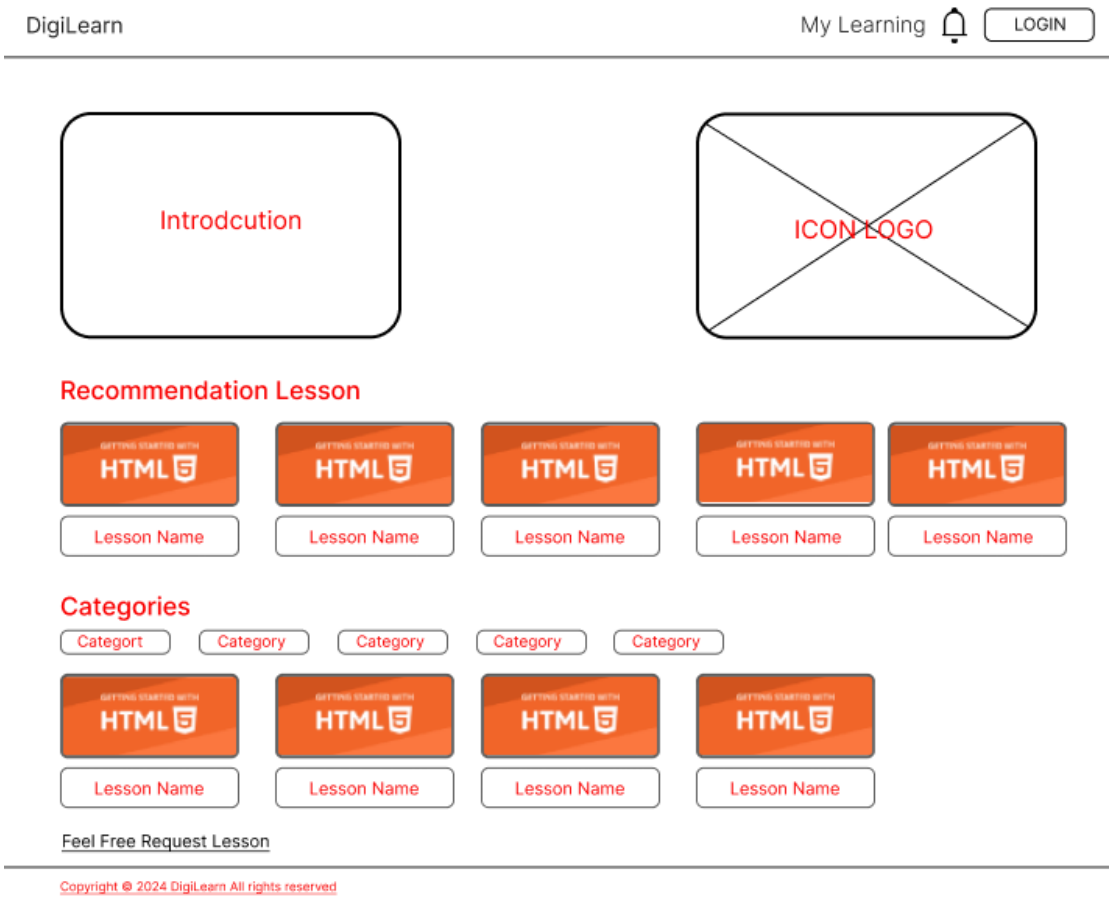

Figure 4. 1Homepage Before Log In

Figure 4.1 This is the home page of our platform. As you can see, there are two sections that you can access without needing to create an account. These sections provide introductory content designed to familiarize you with what the platform has to offer. In addition to this, the 'Recommended' section is curated with the best lessons tailored to your interests and skill level, ensuring that you receive the most relevant content to enhance your learning journey. Navigating through the lessons is made easy, as they are organized into distinct categories, allowing you to effortlessly find the specific lessons you are interested in. Whether you're looking to explore new topics or deepen your understanding of familiar ones, this organized structure helps you efficiently locate the video materials that align with your learning objectives.

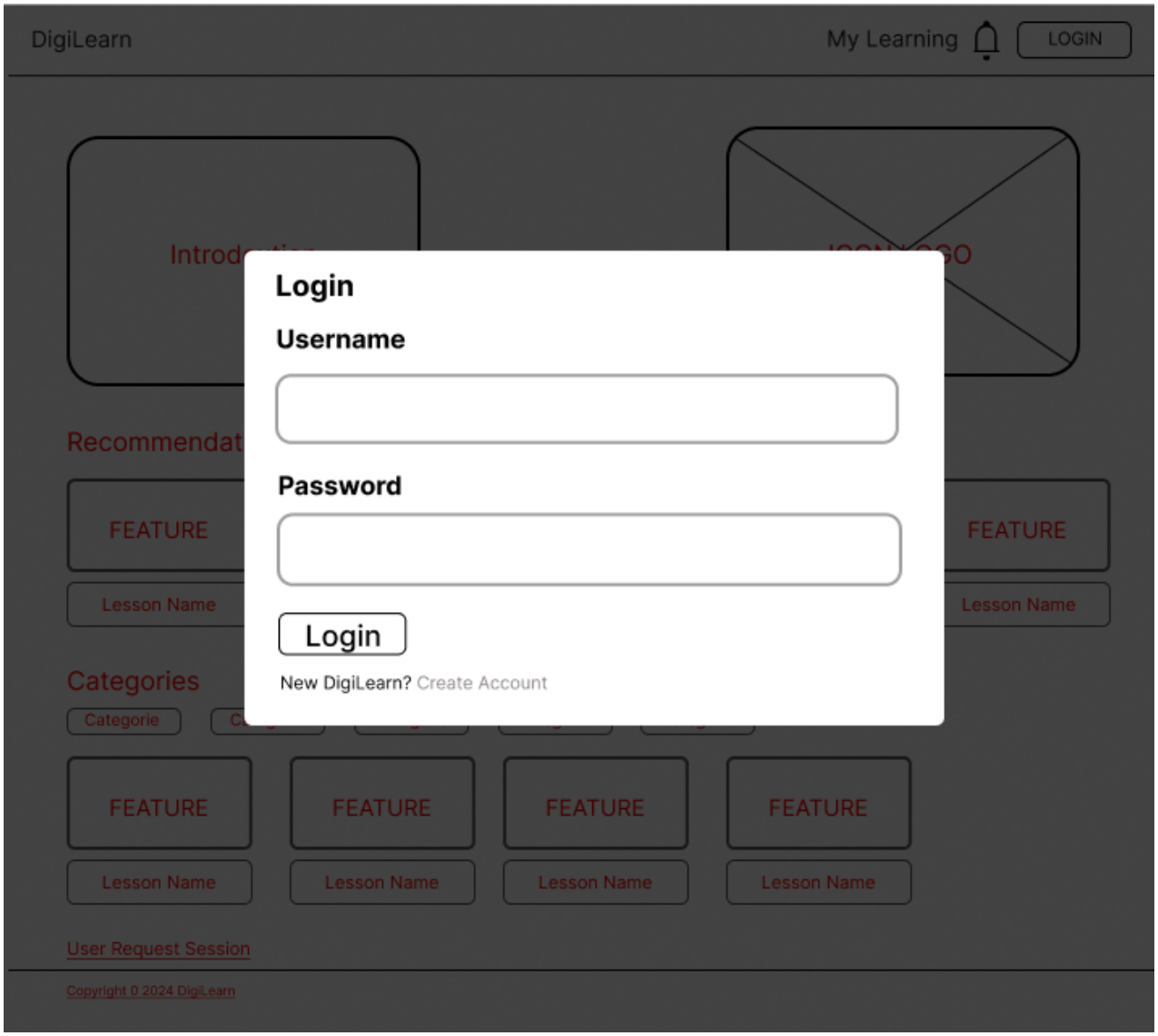

Figure 4 .2 DigiLearn Login Page

Figure 4.2 illustrates the additional privileges available to users who have created an account on the platform. Once registered, users gain access to a variety of exclusive features designed to enhance their learning experience. These privileges include the ability to request specific tutorials that cater to their unique learning needs, add lessons directly to their personalized class, and actively engage with the content by commenting on lessons. This interaction fosters a more dynamic and tailored learning environment. For those who have not yet created an account, registering is a simple process that unlocks these valuable tools, allowing users to fully leverage the platform's offerings and customize their learning journey."

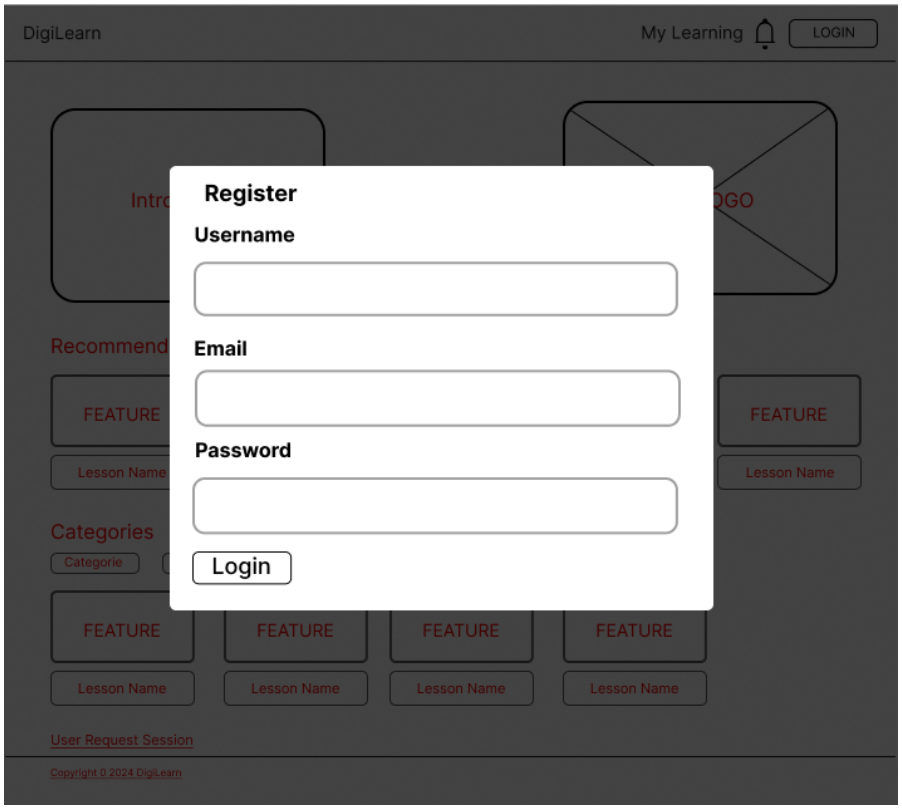

Figure 4.3 DigiLearn Register Page

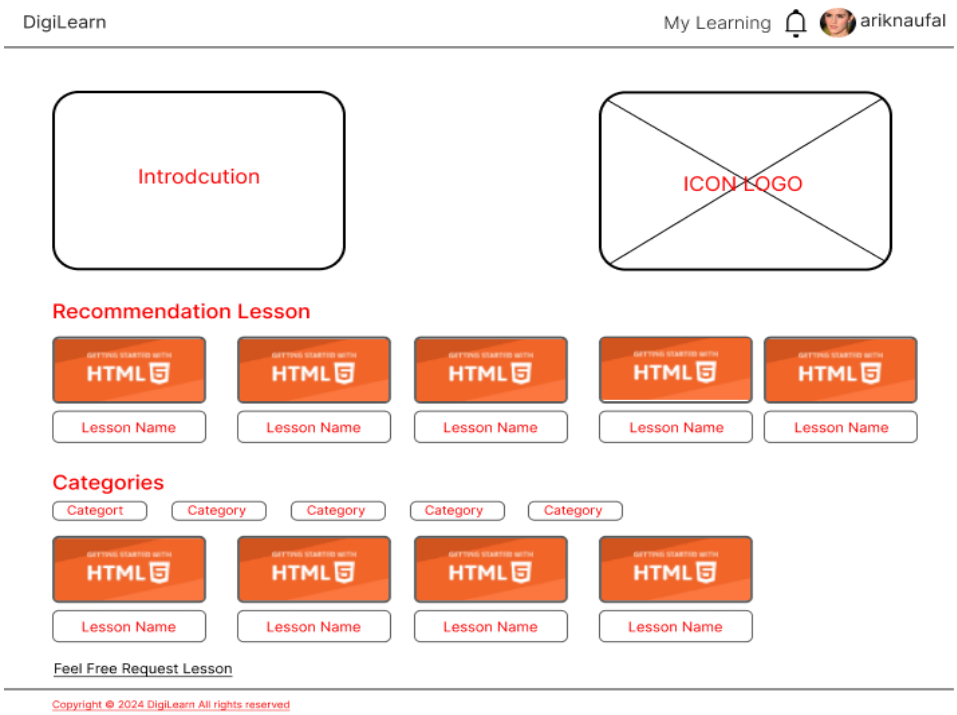

Figure 4.4 Digilearn Homepage After Login Page

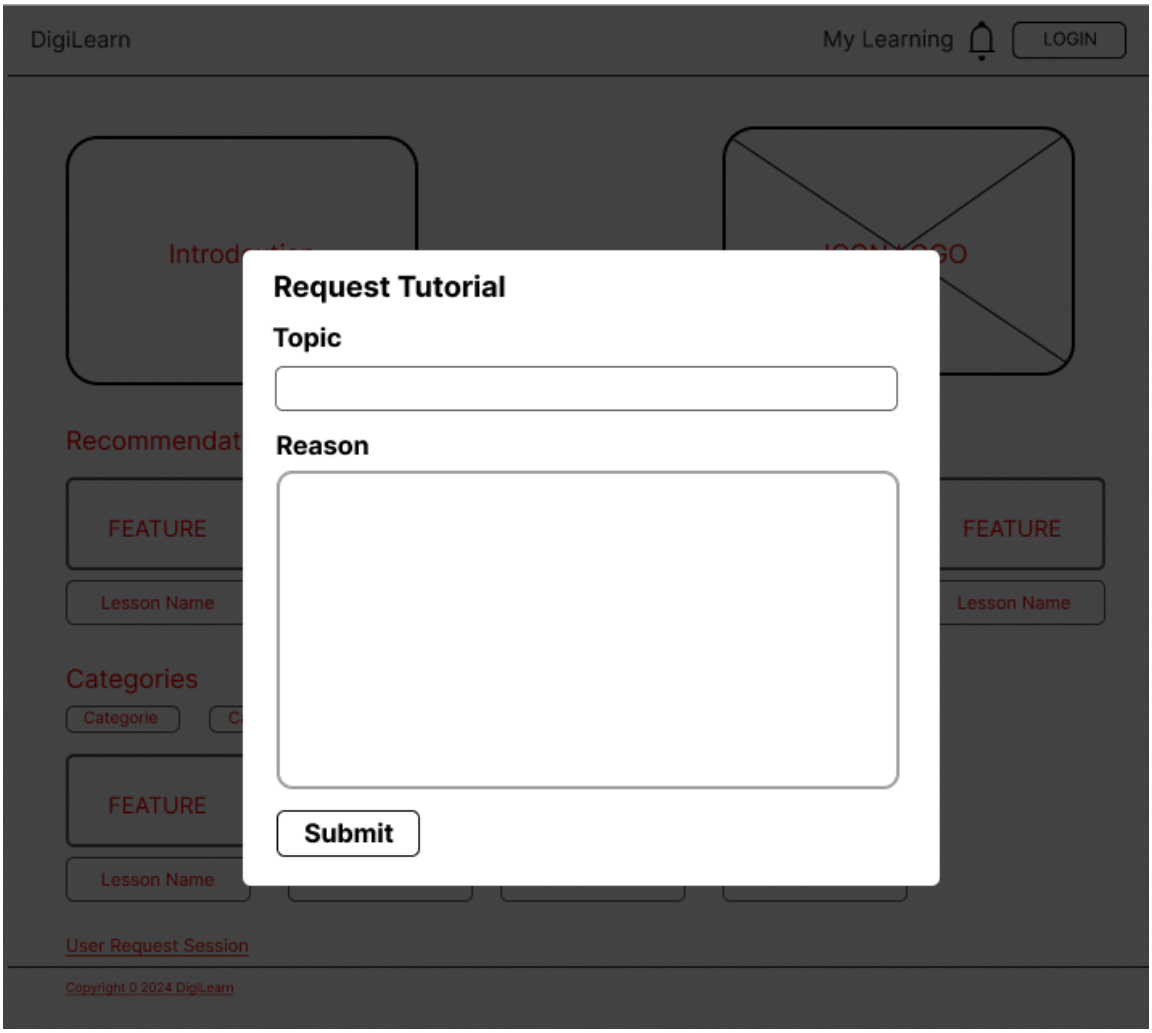

Figure 4.5 DigiLearn Request Tutorial Page

Figure 4.5 You can navigate to the footer section of the website, where you'll find a prominently displayed button labeled 'User Request Session.' This feature is designed to make the process of requesting new content as seamless as possible. When you click on this button, a 'Request Tutorial' pop-up will appear, allowing you to quickly and easily submit your request. This pop-up form is straightforward, enabling you to specify the type of tutorial you're interested in, along with any additional details or preferences you might have. This functionality not only empowers users to influence the content that gets developed but also ensures that the learning resources provided are closely aligned with the needs and interests of the user community.

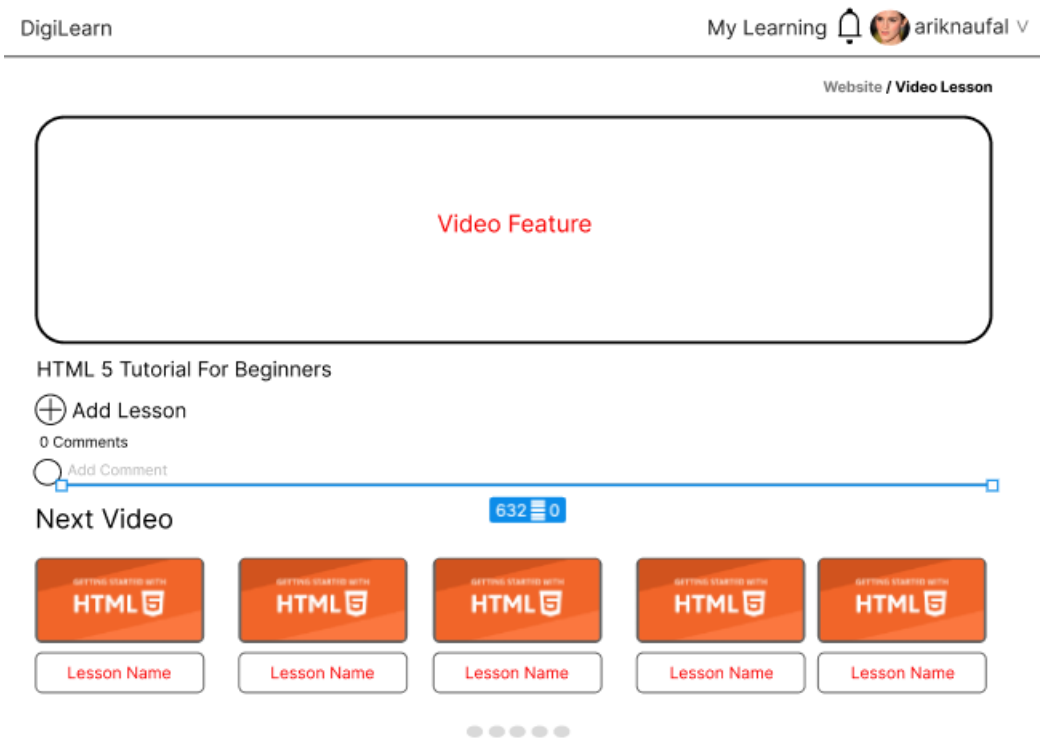

Figure 4.6 DigiLearn Video Lesson Page

Figure 4.6 This video lesson page "On the 'Video Lesson' page, you'll find several interactive features designed to enhance your learning experience. There's an 'Add Lesson' button that allows you to easily contribute new content or suggest additional materials. You also have the option to leave comments on individual lessons, facilitating discussion and enabling you to share insights or ask questions directly within the lesson context. Additionally, the 'Next Video' section is intelligently curated, displaying lessons that are categorized according to the subject matter you're currently exploring. This helps to maintain a cohesive learning journey by guiding you seamlessly from one relevant lesson to the next, ensuring that your study sessions are both organized and efficient."

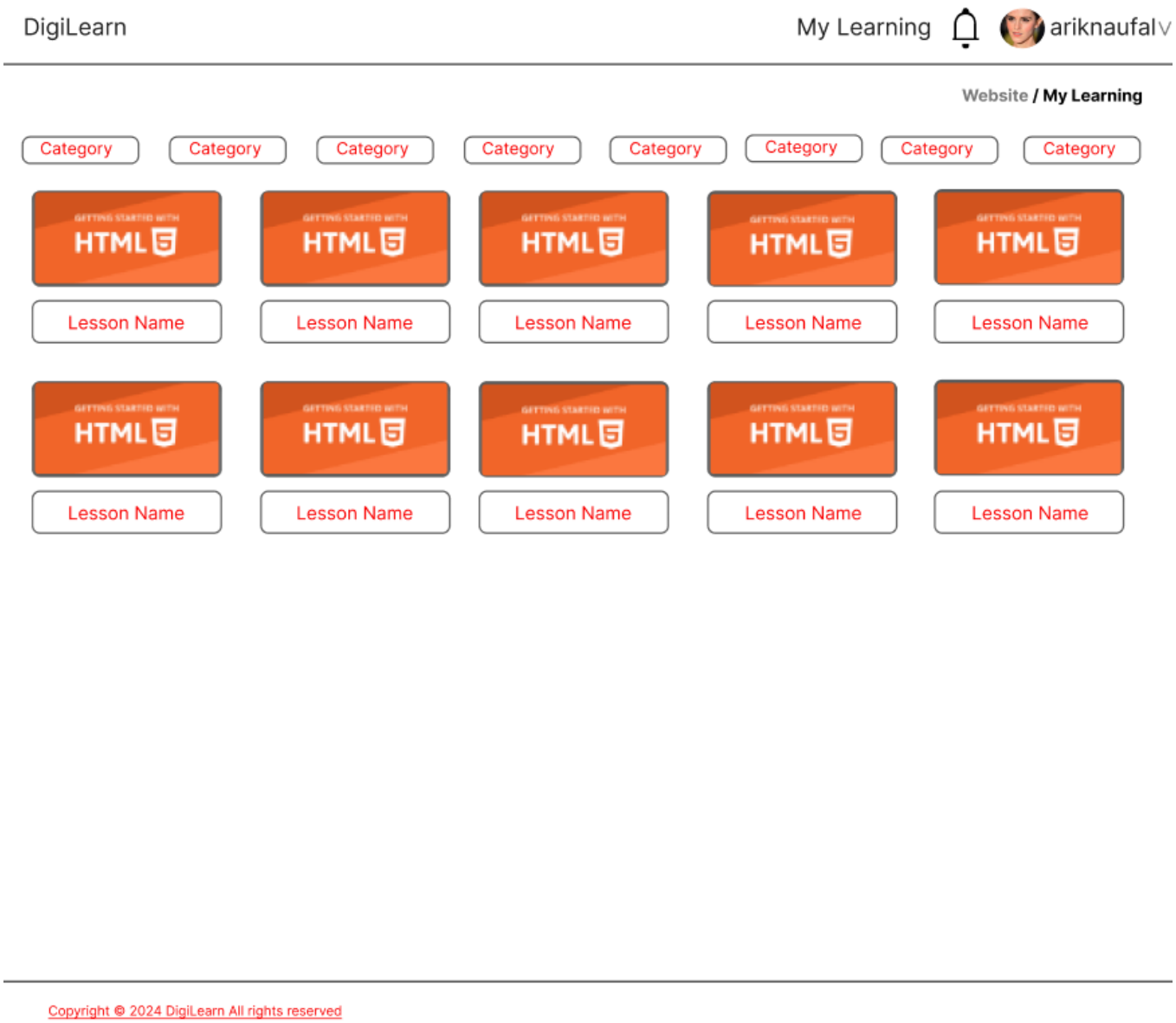

Figure 4.7 DigiLearn MyLearning Page

Figure 4.7 This Mylearning Page"On the ‘My Learning’ page, you'll find a personalized collection of lessons that you've added by clicking the ‘Add Lesson’ button. This page serves as your customized learning hub, where all the lessons you've selected are conveniently organized in one place. Each lesson is easily accessible, allowing you to track your progress and revisit content as needed. This feature ensures that you can focus on the material most relevant to your goals, creating a tailored learning experience that evolves as you continue to add more lessons and advance through the content."

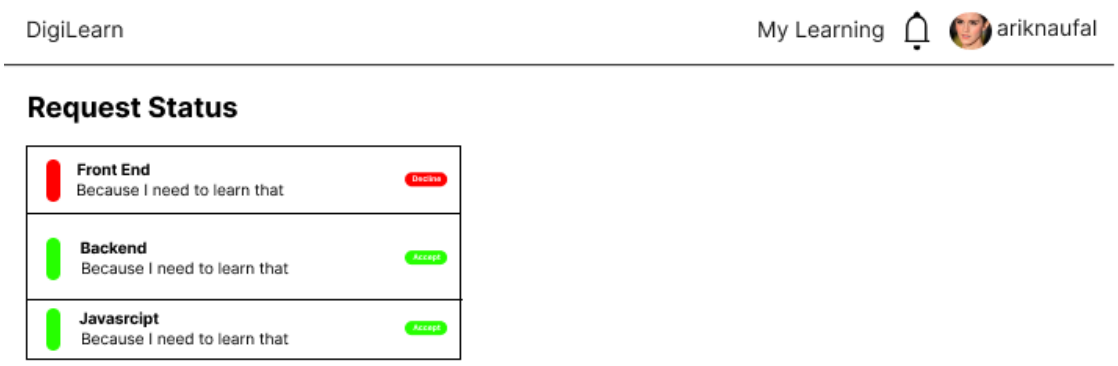

Figure 4.8 DigiLearn Request Status Page

Figure 4.8 You can easily monitor the progress of any tutorial requests you've submitted. This page provides a comprehensive overview of all your requests, displaying real-time updates on their current status—whether they are pending approval, in development, or have been completed. The clear and organized layout ensures that you can quickly track the status of each request, helping you stay informed about when new content that you've requested will be available. This feature empowers you to actively participate in shaping the learning material offered on the platform, enhancing your overall learning experience."

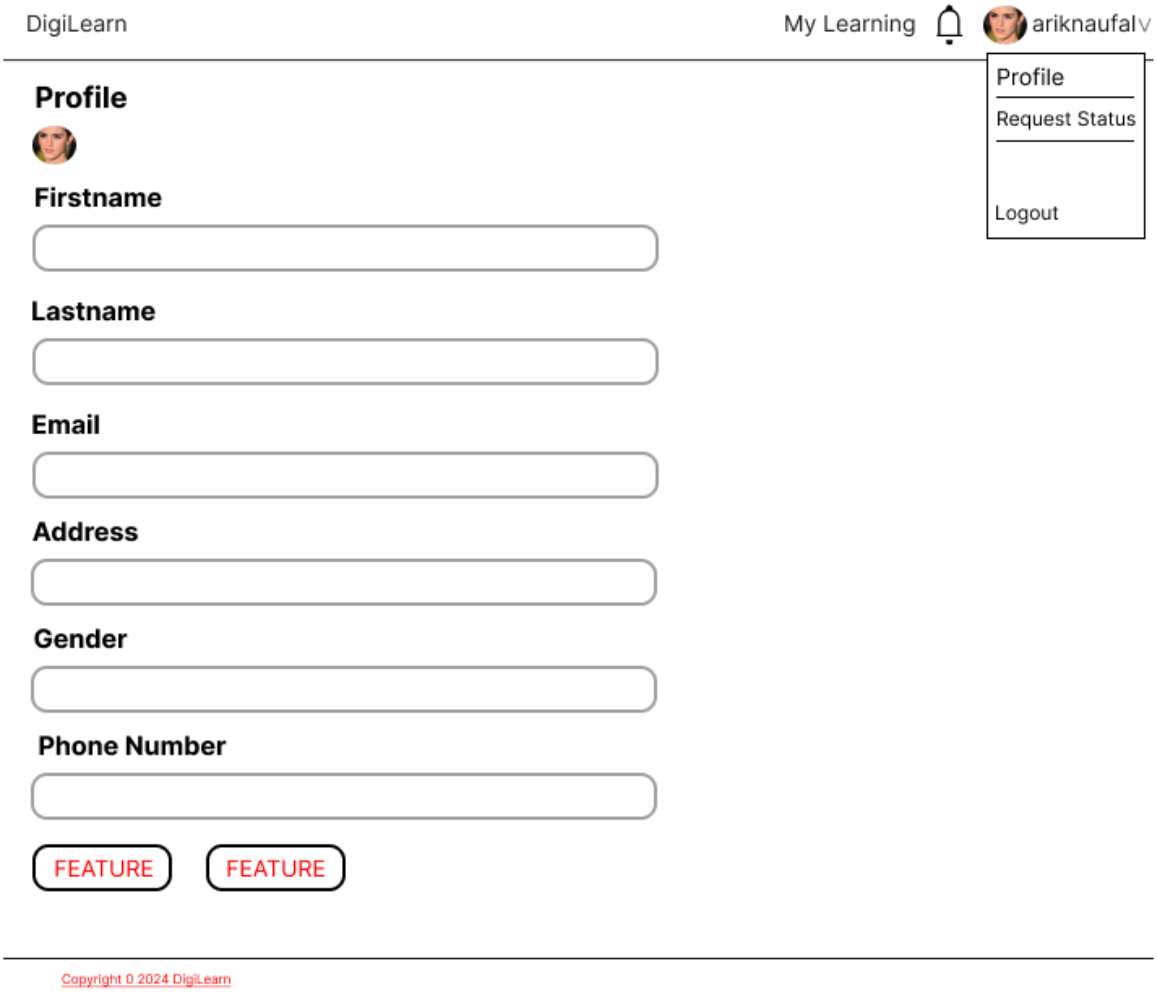

Figure 4.9 DigiLearn Profile Page

Figure 4.9 If you need to update your account information, the ‘Update Profile’ page is the place to go. On this page, you can easily modify your personal details, such as your username, email address, password, and other relevant information. The interface is designed to be user-friendly, guiding you through the process of making changes smoothly and securely. Whether you need to change your contact information, update your profile picture, or adjust your preferences, the ‘Update Profile’ page provides a straightforward way to keep your account information up-to-date and accurate, ensuring that your profile reflects your current needs and preferences."

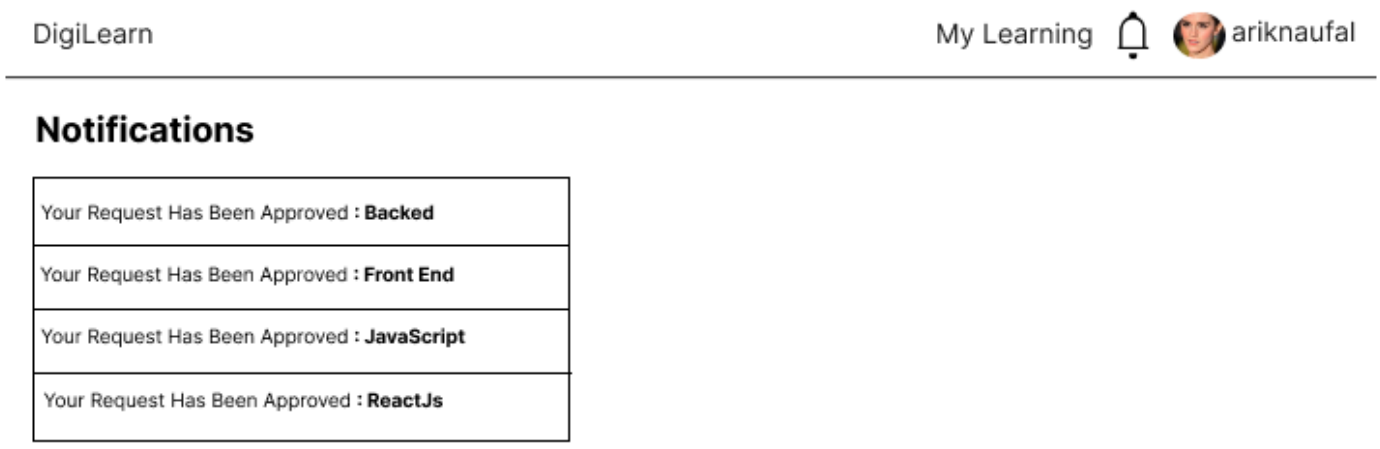

Figure 4.10 Administrator Notifications Page

4.1.2 Administrator Side

Admin-side This is a admin page. there are dashboard and 5 sections menu to setting Digilearn Website. There is dashboard for count each sections menu :

Figure 4.11 User Dashboard DigiLearn

Figure 4.11 Show statistic all of data master section website of DigiLearn, including detailed analytics on user interactions, data processing times, and overall performance data website of DigiLearn.

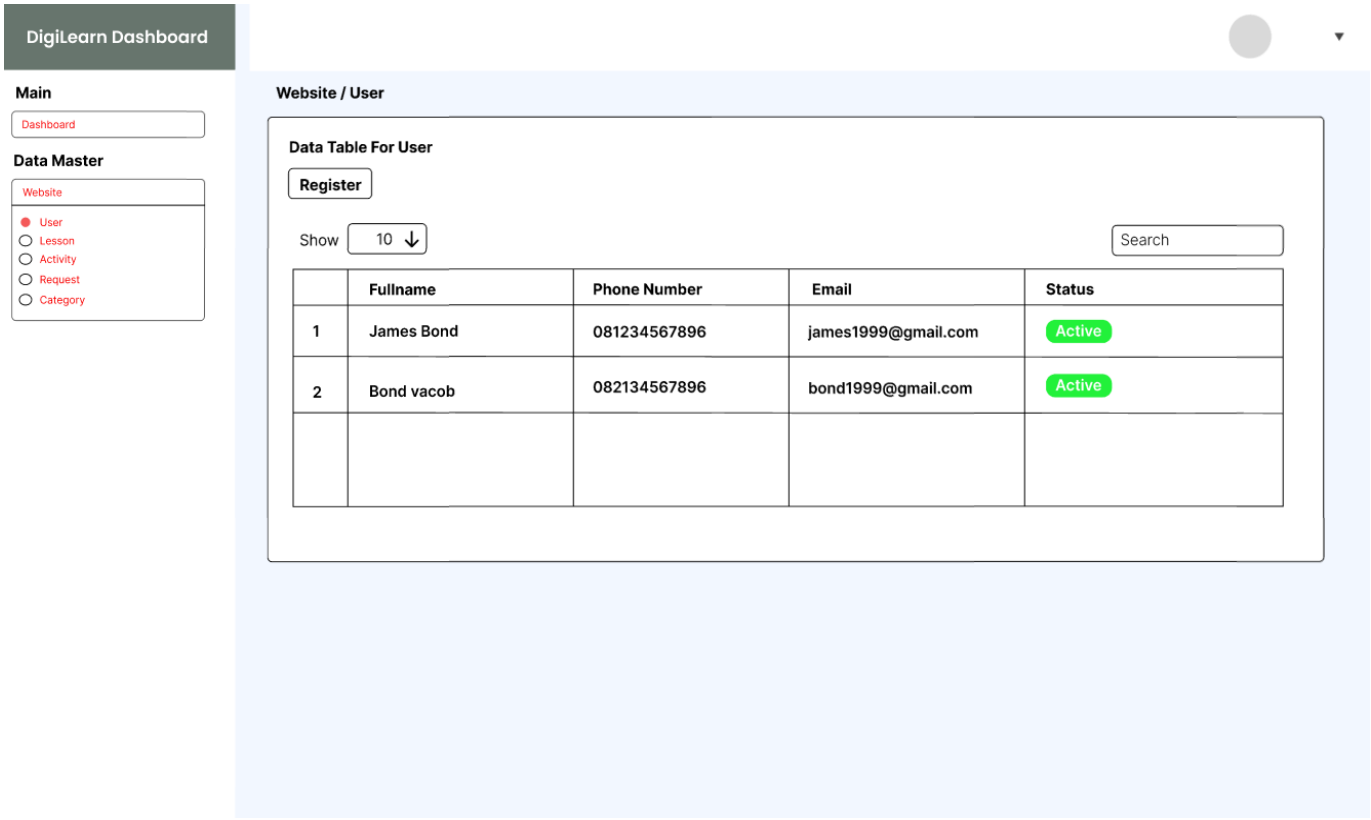

Figure 4.12 DigiLearn Administrator User Section Page

Figure 4.12 Menu User for the admin session allows administrators to register new accounts for any additional admins who need access, and also provides the functionality to display a data table containing all existing user accounts

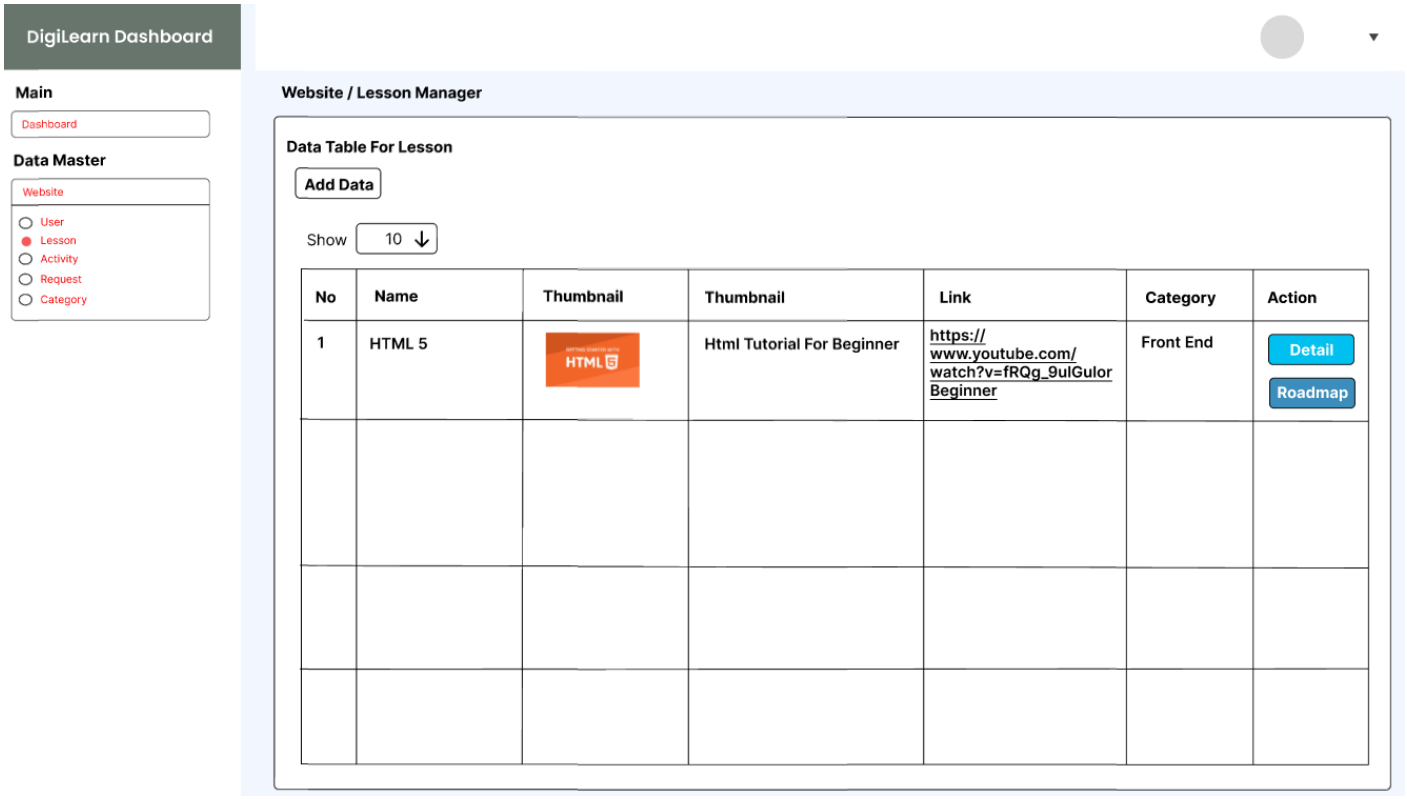

Figure 4.13 DigiLearn Administrator Lesson Manager Page

Figure 4.13 Menu Lesson for add lesson, detail-lesson, edit-lesson, delete-lesson, delete-category, show the data table for lesson and roadmap to display this lesson in which category.

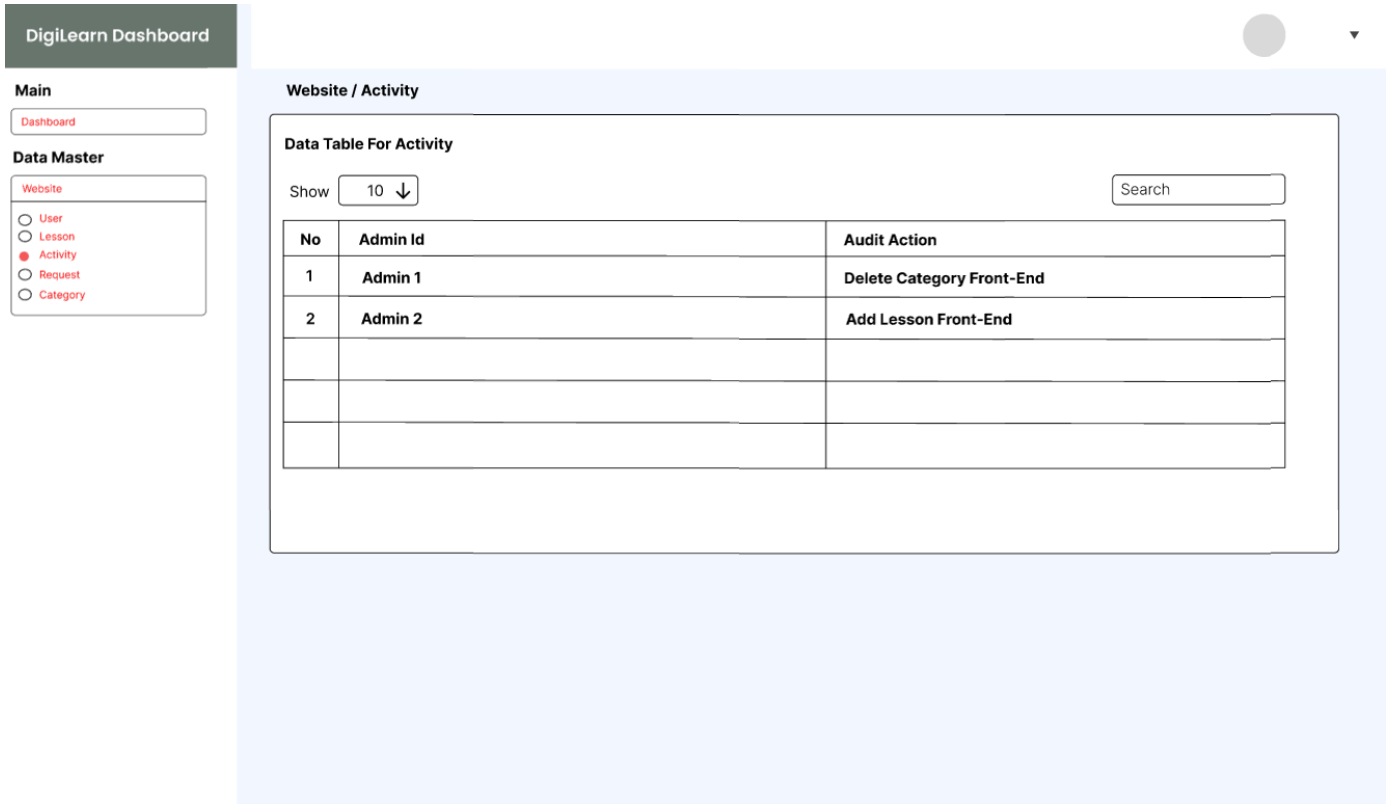

Figure 4.14 DigiLearn Administrator Activity Page

Figure 4.14 Menu Activity is only for show the data table for Activity admin. If admin insert/update category and insert/update/delete lesson it will show in data table for activity.

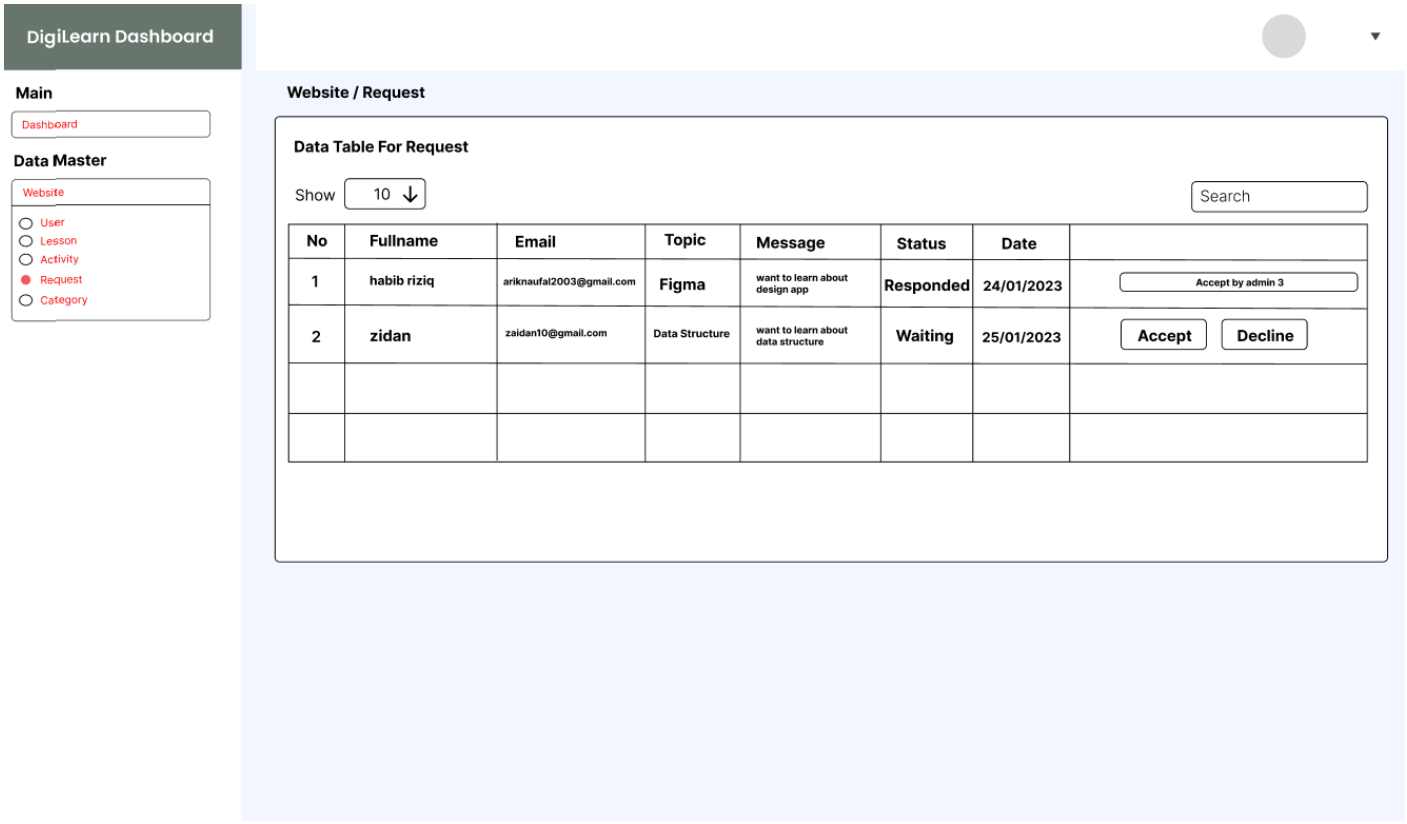

Figure 4.15 DigiLearn Administrator Request Page

Figure 4.15 Menu Request for Accept/Decline request lesson from student and also show data table for request.

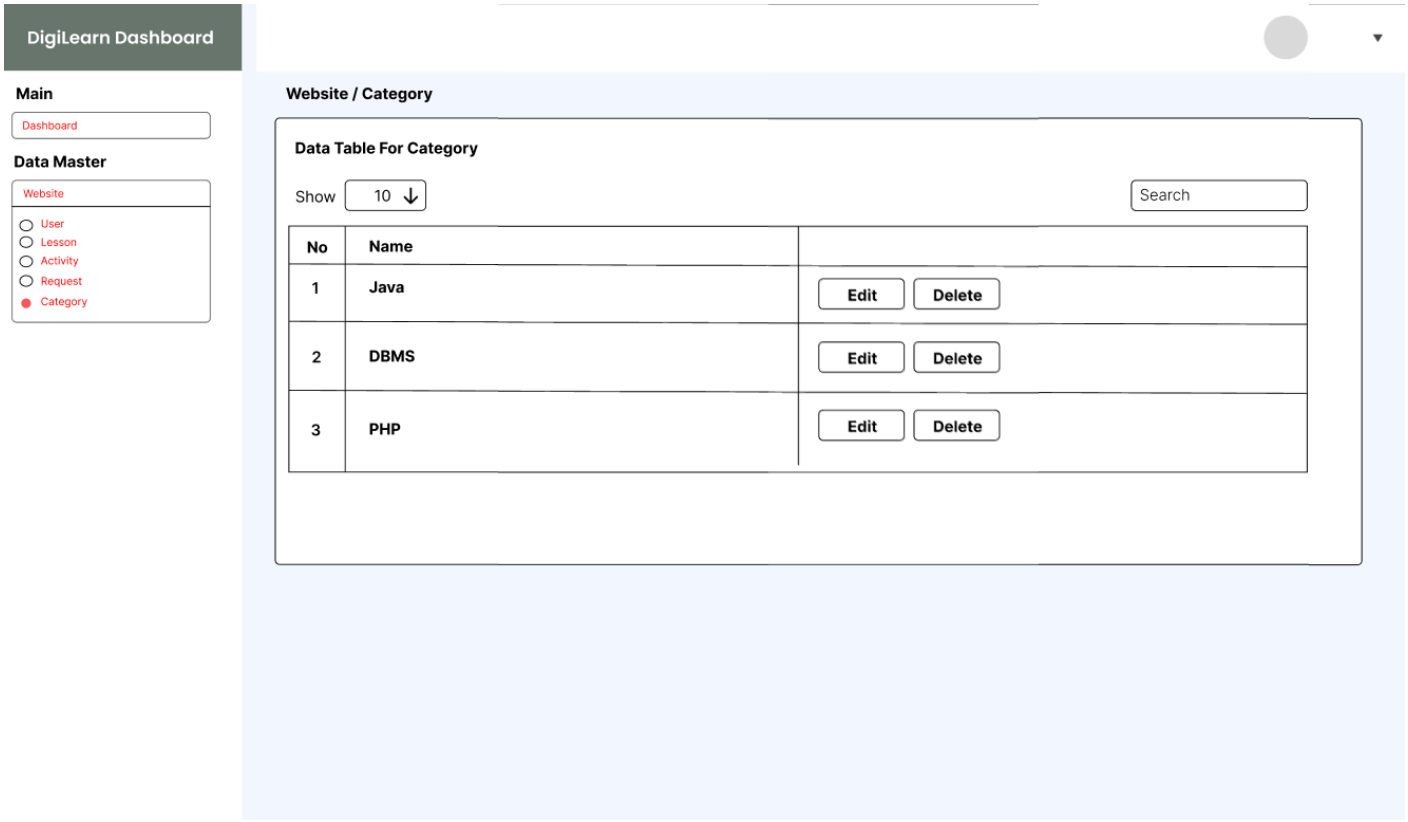

Figure 4.16 DigiLearn Administrator Category Page

Figure 4.16 This page show that admin can add, edit and delete category.

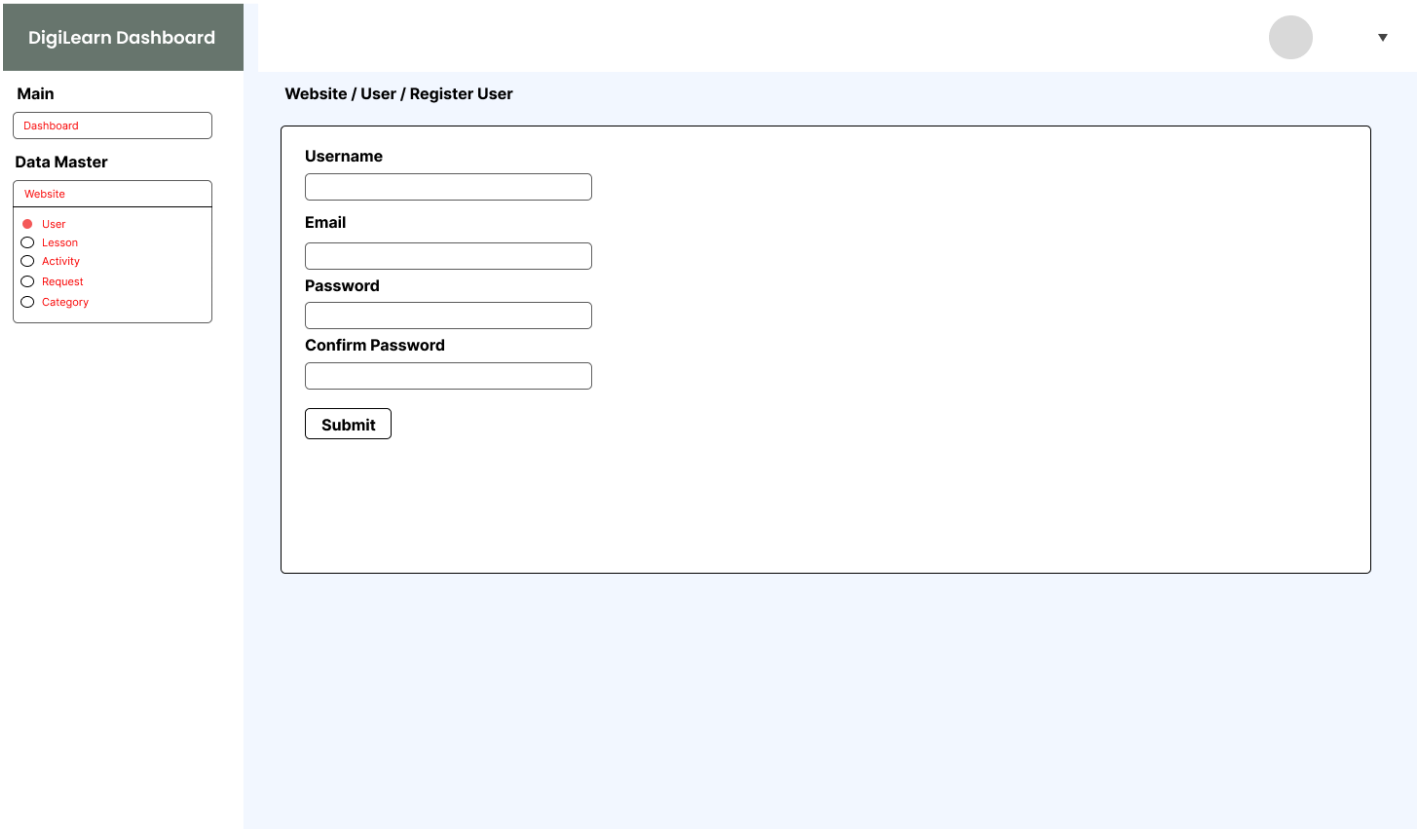

Figure 4.17DigiLearn Administrator User / Register User

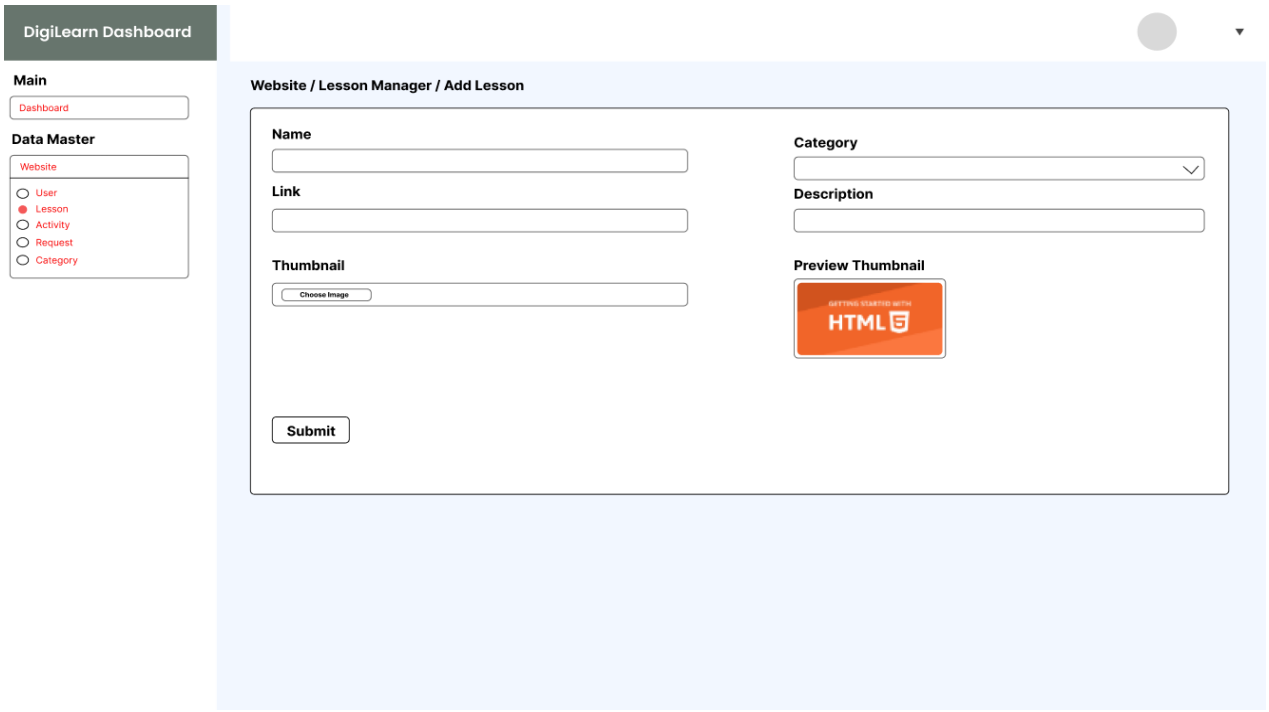

Figure 4.18 Digilearn Lesson Manager / Add Lesson Administrator

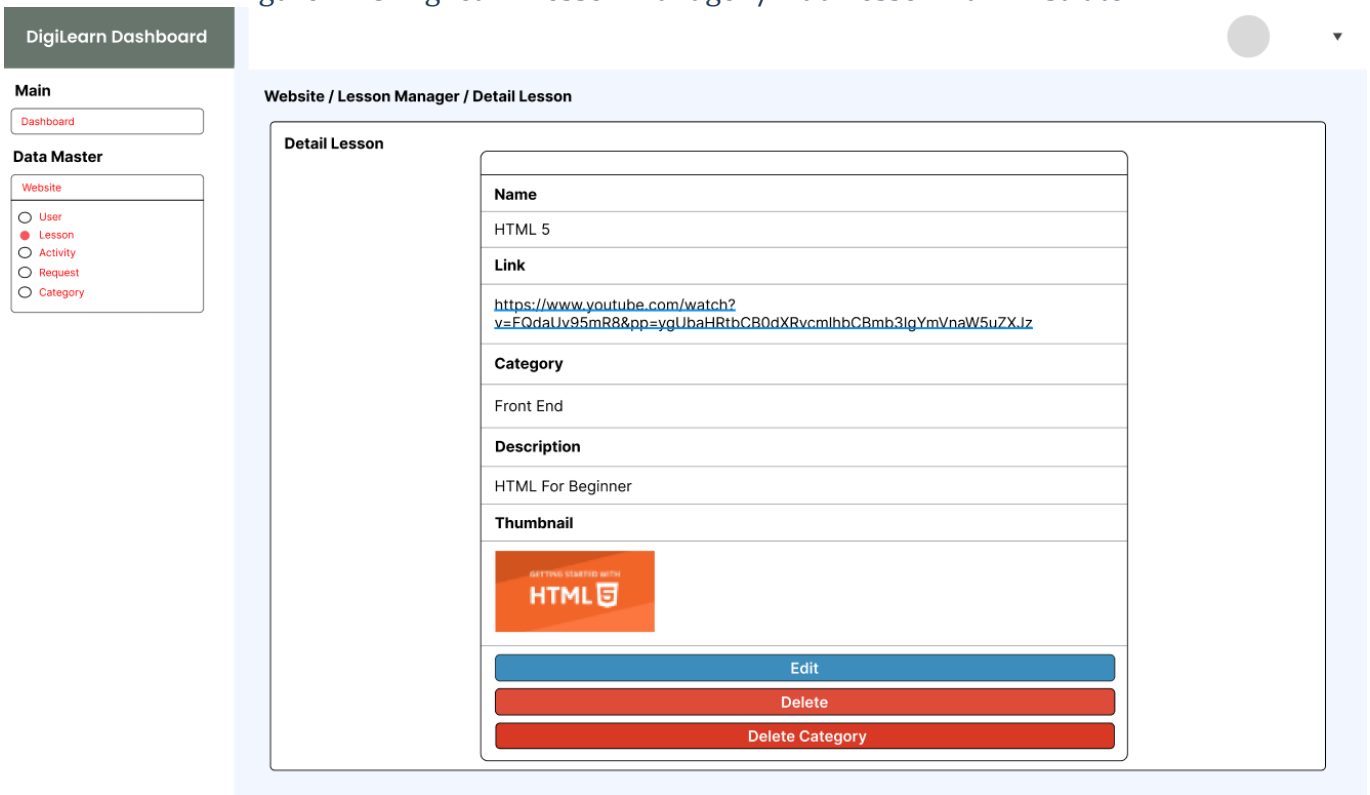

Figure 4.18 Digilearn Lesson manager / Detail Lesson Administrator

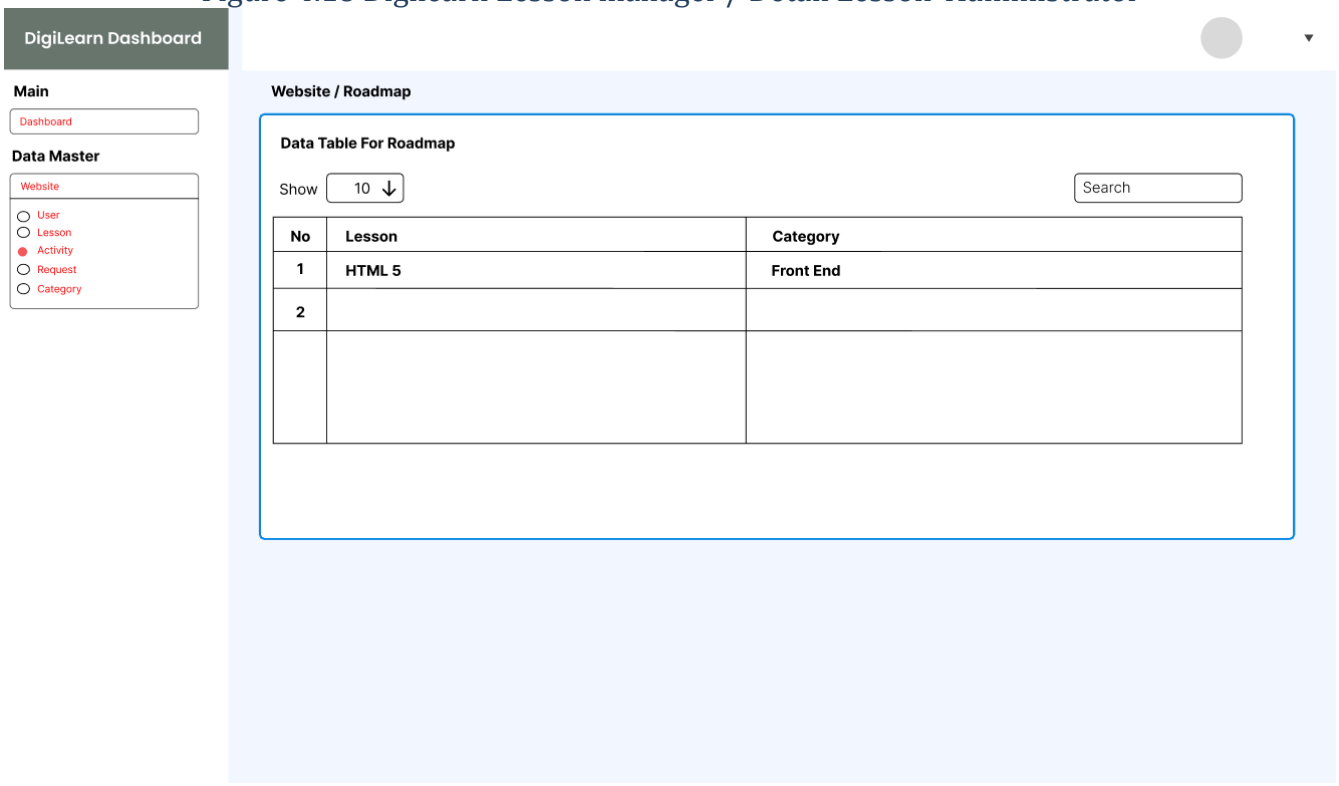

Figure 4.19 Digilearn Lesson manager / Roadmap Administrator

CHAPTER 5
IMPLEMENTATION AND TESTING

Introduction

This chapter delves into the implementation and testing phases of the "DigiLearn" Online Learning Platform. It outlines the systematic approach adopted to transform the design concepts into a fully functional platform and elaborates on the methodologies applied to ensure the platform meets its objectives. Each subsection provides insights into the implementation process, development of critical features, and the comprehensive testing procedures employed to validate the platform's functionalities. Figures and illustrations are included to present the system's pages and their specific purposes, showcasing the seamless learning experience DigiLearn aims to offer.

5.1 Implementation Planning

The implementation phase of DigiLearn followed a meticulously crafted plan to ensure the successful development and deployment of the platform. Key tasks were divided into manageable phases, focusing on core functionalities such as user authentication, lesson management, personalized learning paths, and request handling. The project adopted the Scrum methodology, enabling iterative development and continuous refinement based on feedback. Each sprint was designed to deliver specific components, ensuring incremental progress and adaptability to evolving requirements.

5.2 System Implementation

The implementation of the DigiLearn platform involved translating the design elements and functional requirements into a robust and interactive system. This phase required the integration of multiple components, including user management, interactive lesson pages, request handling features, and administrator tools. Special attention was given to ensure the platform's user interface was intuitive and aligned with the project’s educational goals.

Key features implemented include:

Homepage Navigation: Designed to guide users efficiently through recommended lessons and categories. **User Dashboard:** A centralized hub for tracking progress and managing personalized learning paths.Request Tutorial Feature: Allowing users to propose new tutorials, with real-time tracking of request statuses. **Administrator Tools**: Comprehensive tools for managing lessons, monitoring user activity, and handling requests effectively.

The following figures illustrate the platform's core pages, detailing their design, purpose, and contribution to delivering an engaging learning experience for beginner web developers.

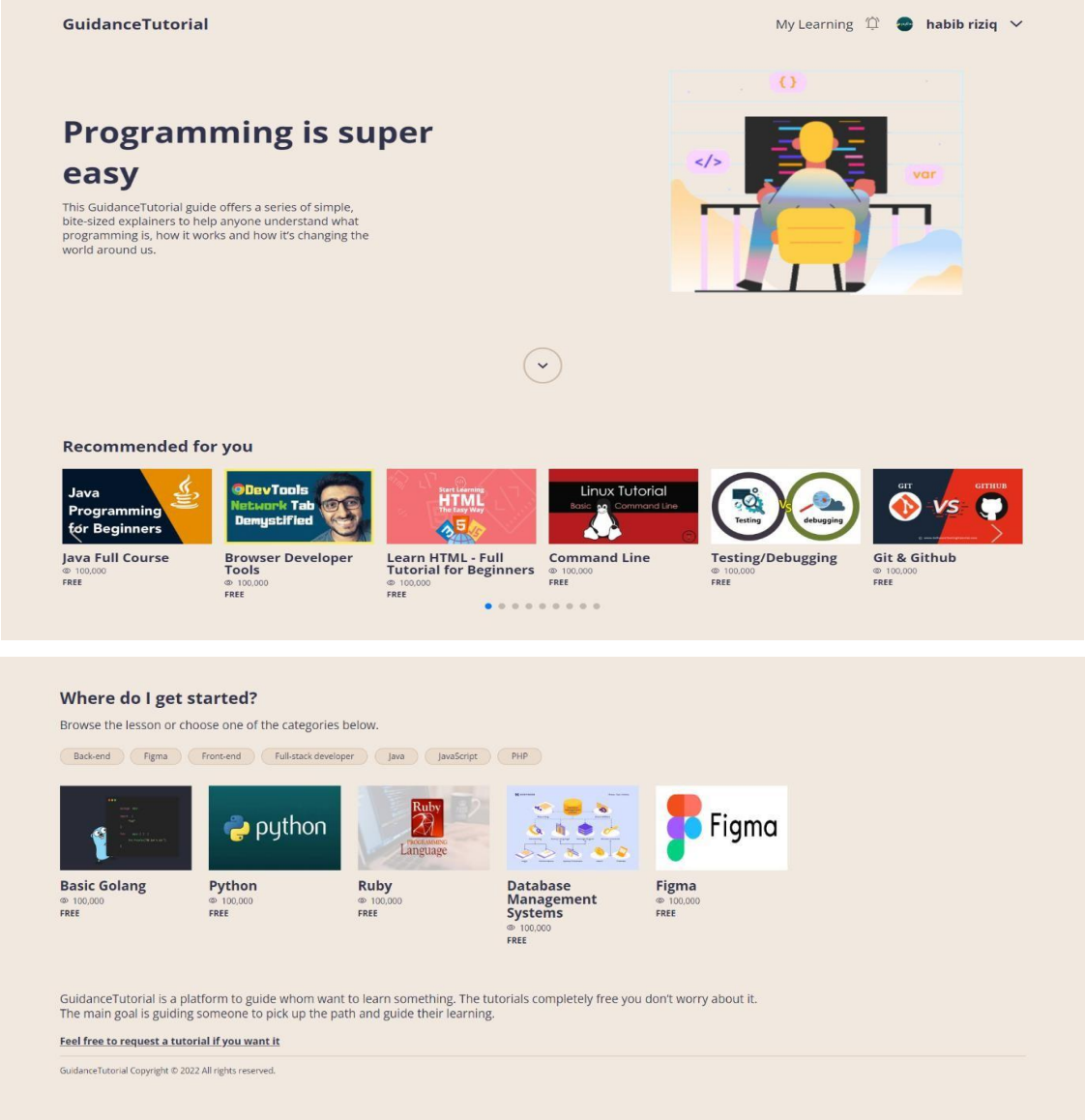

Figure 5.1 Homepage DigiLearn

Figure 5.1 Display The platform provides two sections accessible without requiring an account: **'Recommended for You'** and **'Where Do I Get Started?'**. The **'Recommended for You'** section features curated lessons tailored to your interests, while the **'Where Do I Get Started?'** section offers a wide range of categorized lessons for easy navigation, helping users quickly find the content they need to begin their learning journey.

Registered users gain additional privileges, including the ability to request specific tutorials, add lessons to their personalized learning path, and engage with the content by commenting on lessons. These features enhance the learning experience by allowing greater customization and interaction.

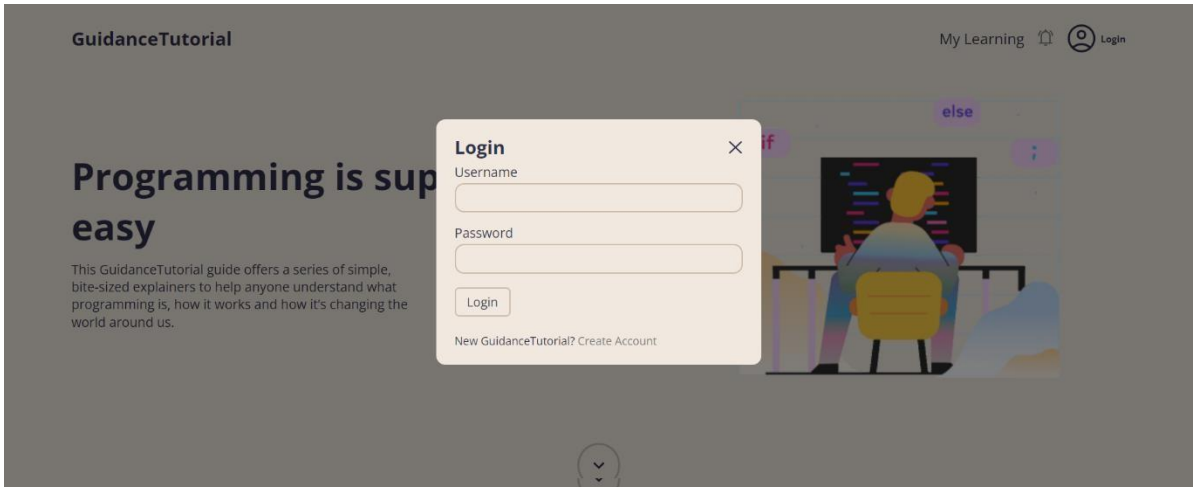

Figure 5.2 LoginPage DigiLearn

Figure 5.2 In the top-right corner of the homepage, there is a **Login** button that allows users to access their accounts. Clicking this button opens a pop-up window, providing a convenient and seamless login process.

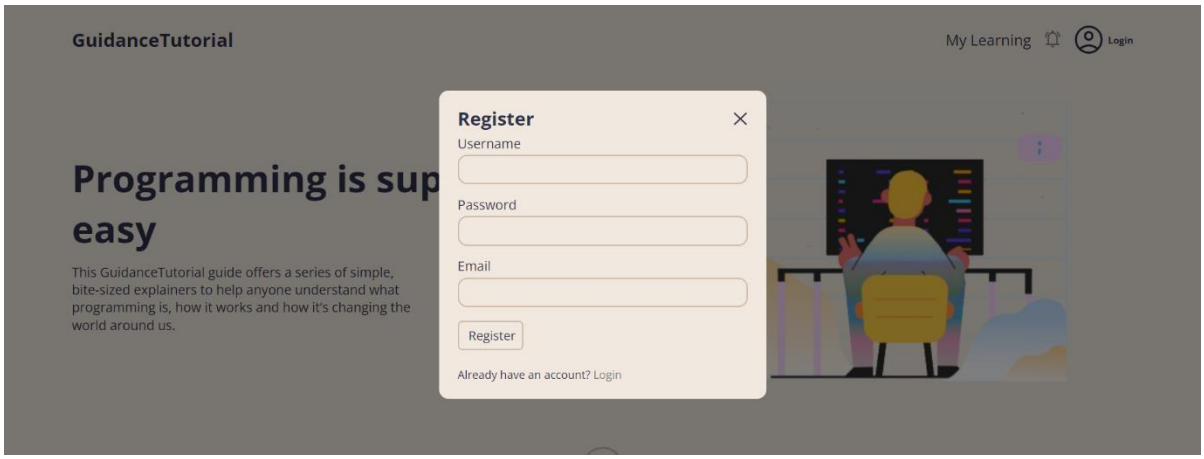

Figure 5.3Register Page DigiLearn

Figure 5.3 The **Login Page** allows users to securely access their accounts on the platform. It features input fields for entering a username or email address and a password, along with a **Login** button to confirm the credentials. Additionally, the page provides options for users to reset their password in case of forgotten credentials and a quick link to the **Register Page** for new users who wish to create an account. The interface is designed for simplicity and ease of use, ensuring a smooth login experience.

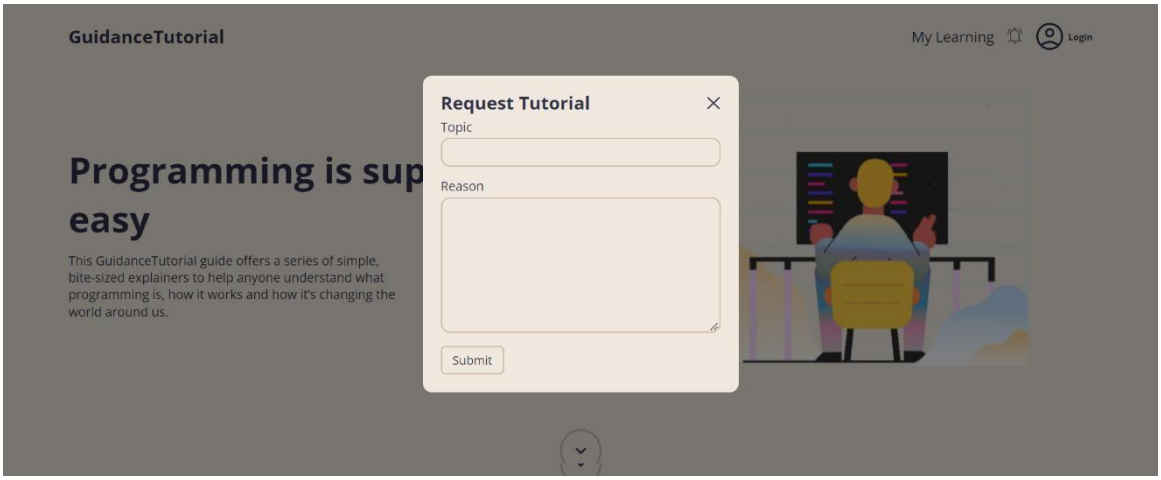

Figure 5.4 Request Page DigiLearn

Figure 5.4 In the footer section of the website, there is a button labeled **'Feel Free to Request a Tutorial if You Want It'**. Clicking this button opens a **'Request Tutorial'** pop-up, allowing users to easily submit requests for specific tutorials they wish to see on the platform.

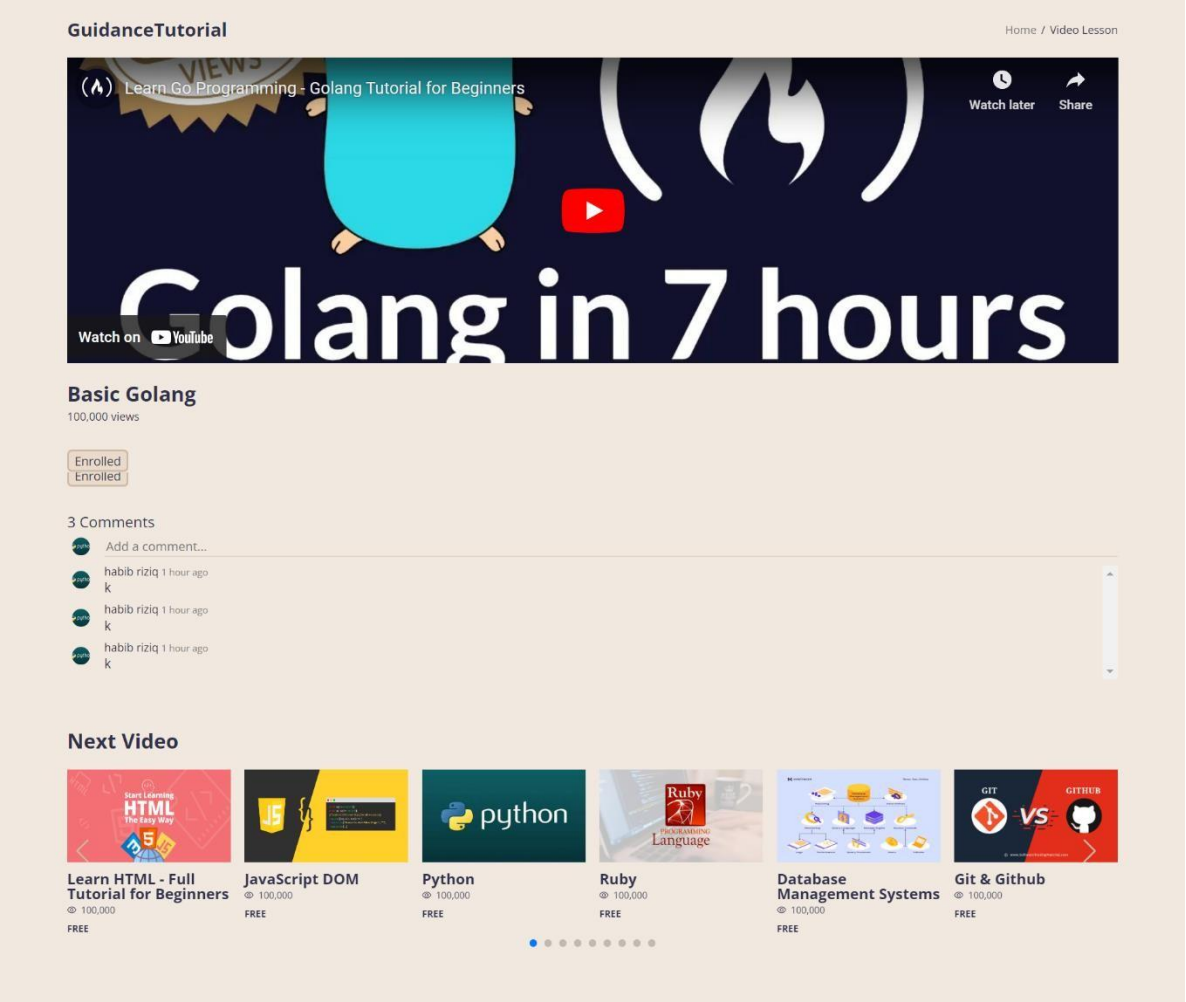

Figure 5.5 Video Lesson Page DigiLearn

Figure 5.5 This page displays the lesson's video content along with several interactive features to enhance the learning experience. Users can view the tutorial video, add lessons to their personalized learning path, and leave comments or ask questions directly under the video. The "Next Video" section suggests the next relevant lesson based on the user's current progress, providing a smooth and organized learning journey. This layout is designed to keep learners engaged and help them easily navigate through their courses.

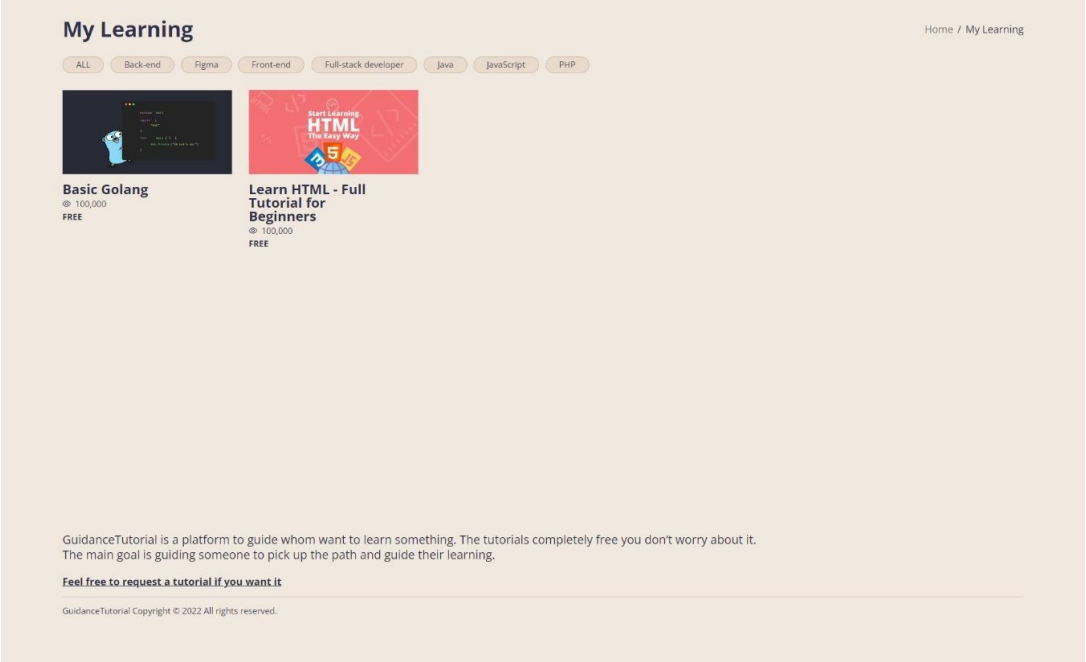

Figure 5.6 My Learning Page DigiLearn

Figure 5.6 The **'My Learning'** page serves as a personalized hub where users can access all the lessons they have added by clicking the **'Add Lesson'** button. This page organizes the selected lessons in one place, allowing users to track their progress and revisit content easily, ensuring a tailored and efficient learning experience.

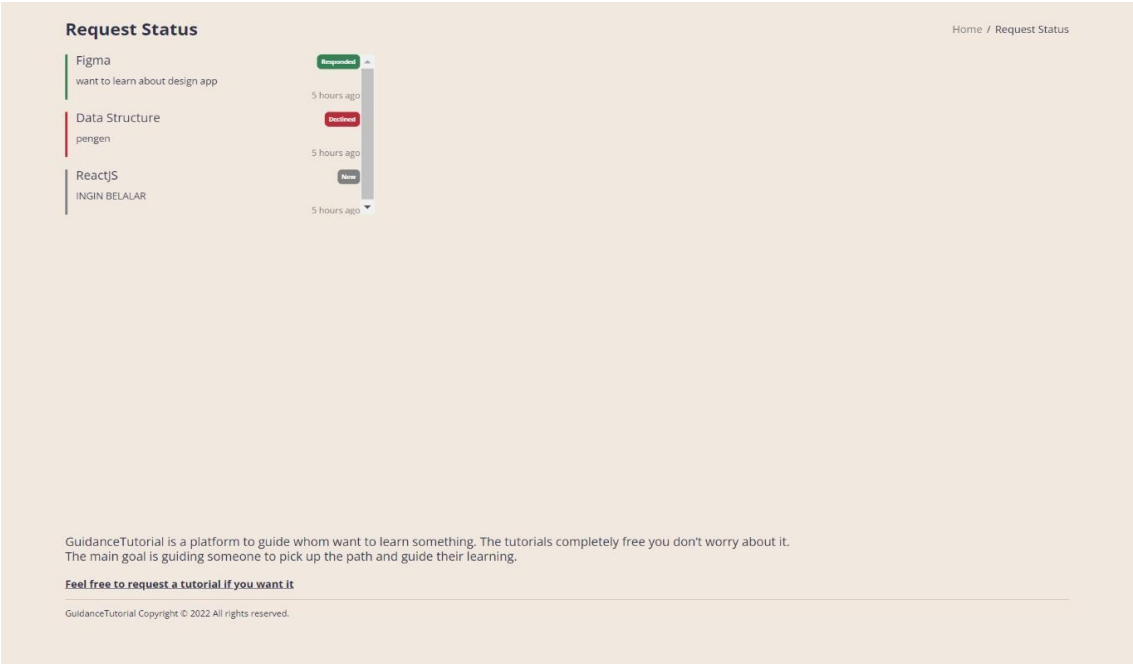

Figure 5.7 Request Status Page DigiLearn

Figure 5.7 The **‘Request Status’** page provides an overview of all tutorial requests submitted by the user. It displays the current status of each request, such as **pending**, **in development**, or **completed**, ensuring users are informed about the progress of their submissions.

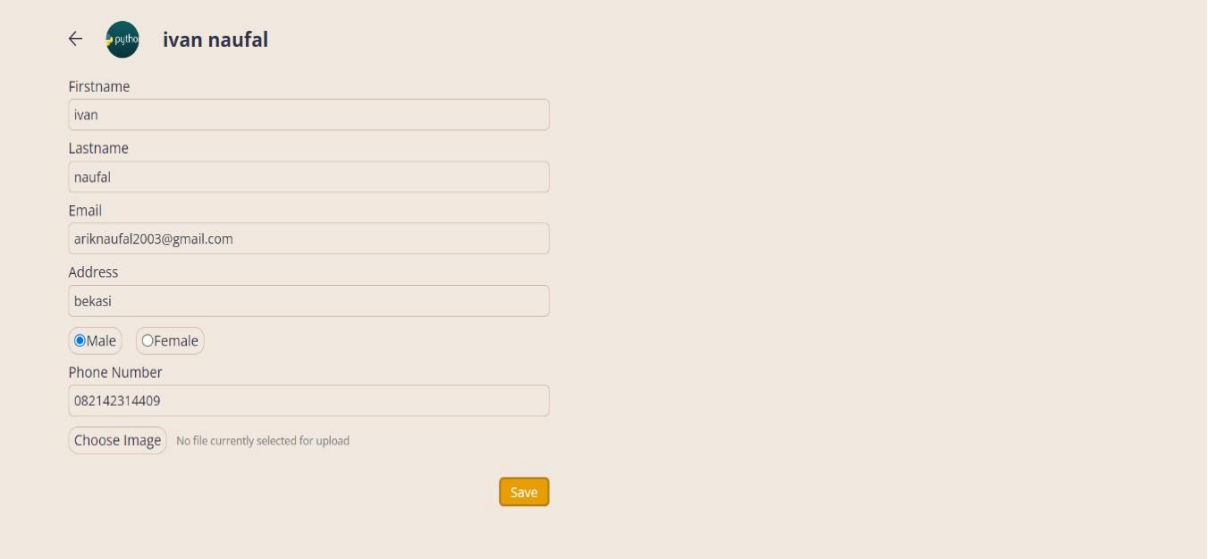

Figure 5.8 Update Profile Page DigiLearn

Figure 5.8 To update account information, users can navigate to the **‘Update Profile’** page. This page allows modifications to personal details such as username, email address, password, and other relevant information, providing a user-friendly and secure interface for managing profile updates.

Admin-Side

The **Admin Page** serves as the control center for managing the **Guidance Course Website**. It includes a dashboard and five menu sections for efficient platform administration. The dashboard provides an overview, displaying statistical counts for each section.

1. **User Menu**: This section allows administrators to register new admin accounts and manage user data. It features a data table displaying details of all registered users for easy monitoring and updates.

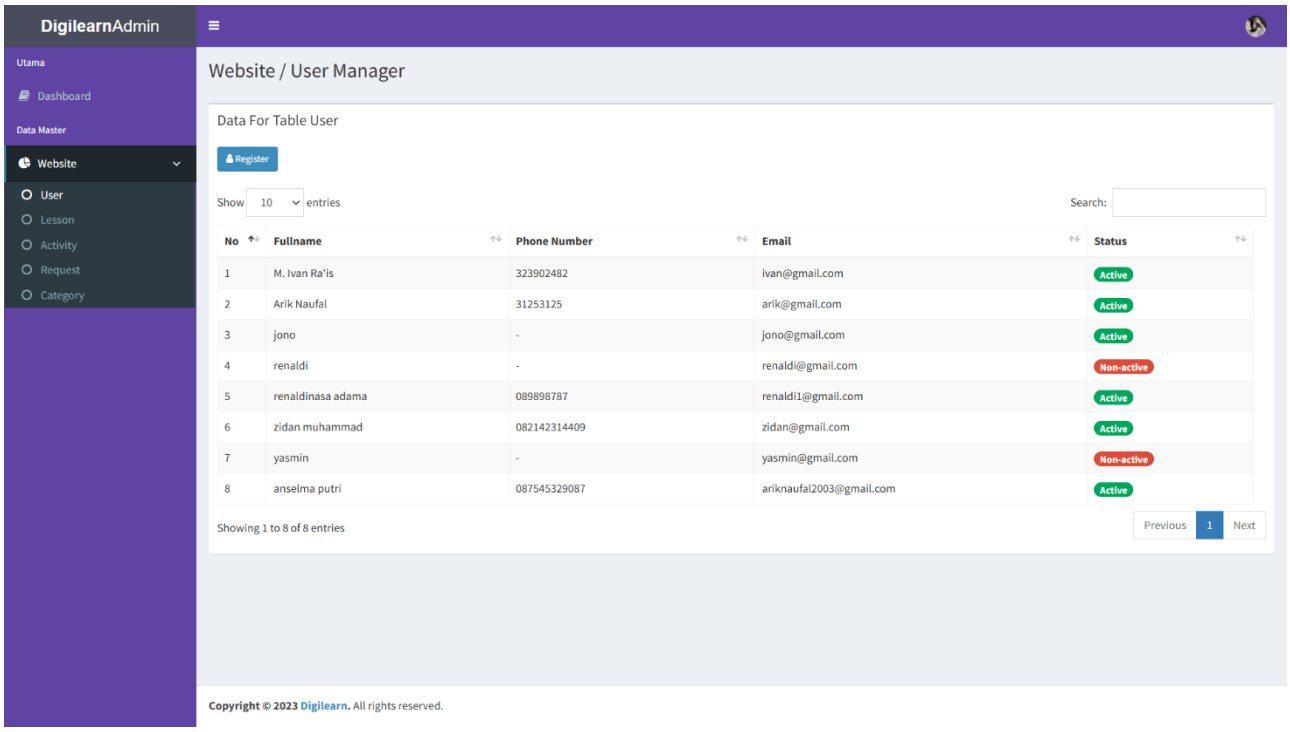

Figure 5.9 User Admin Page DigiLearn

2. The **Lesson Menu** enables administrators to manage lessons efficiently. It includes functionalities to **add new lessons**, view **lesson details**, **edit or delete lessons**, and manage **categories** by adding or deleting them. Additionally, it features a data table for an organized overview of all lessons and a **roadmap** to display the category each lesson belongs to, ensuring a structured and well-organized platform.

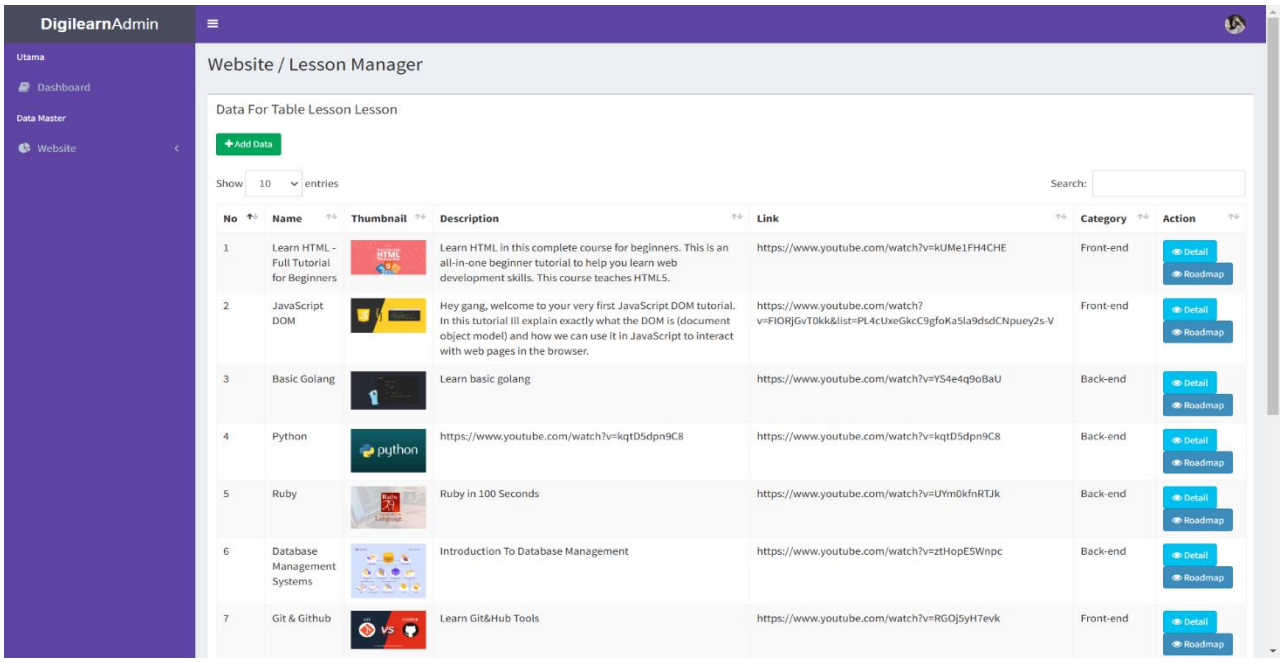

Figure 5.10 Lesson Manager Admin Page DigiLearn

3. **Activity Menu**: This section displays a data table that logs all administrative activities. It records actions such as adding or updating categories and inserting, updating, or deleting lessons, providing a clear and detailed overview of administrative changes for tracking and accountability.

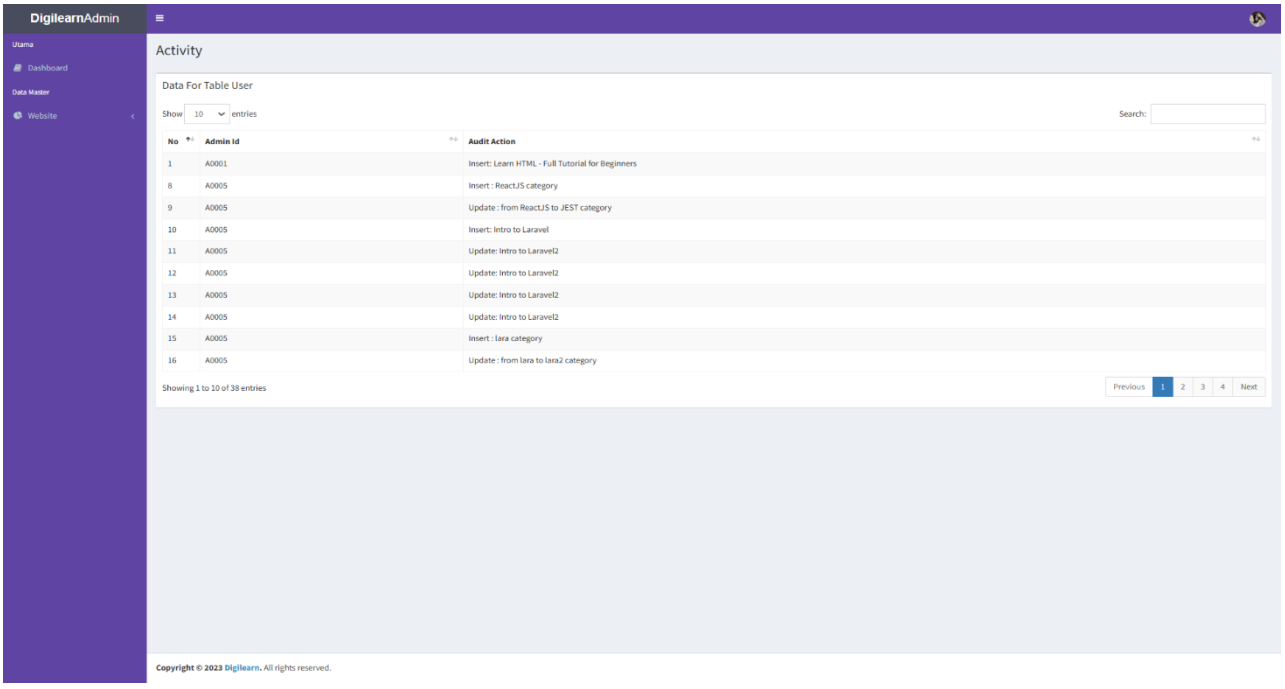

Figure 5.11 Activity Admin Page DigiLearn

4. **Request Menu**: This section allows administrators to manage student tutorial requests. Administrators can **accept** or **decline** requests, with all submissions displayed in a data table for easy review and tracking.

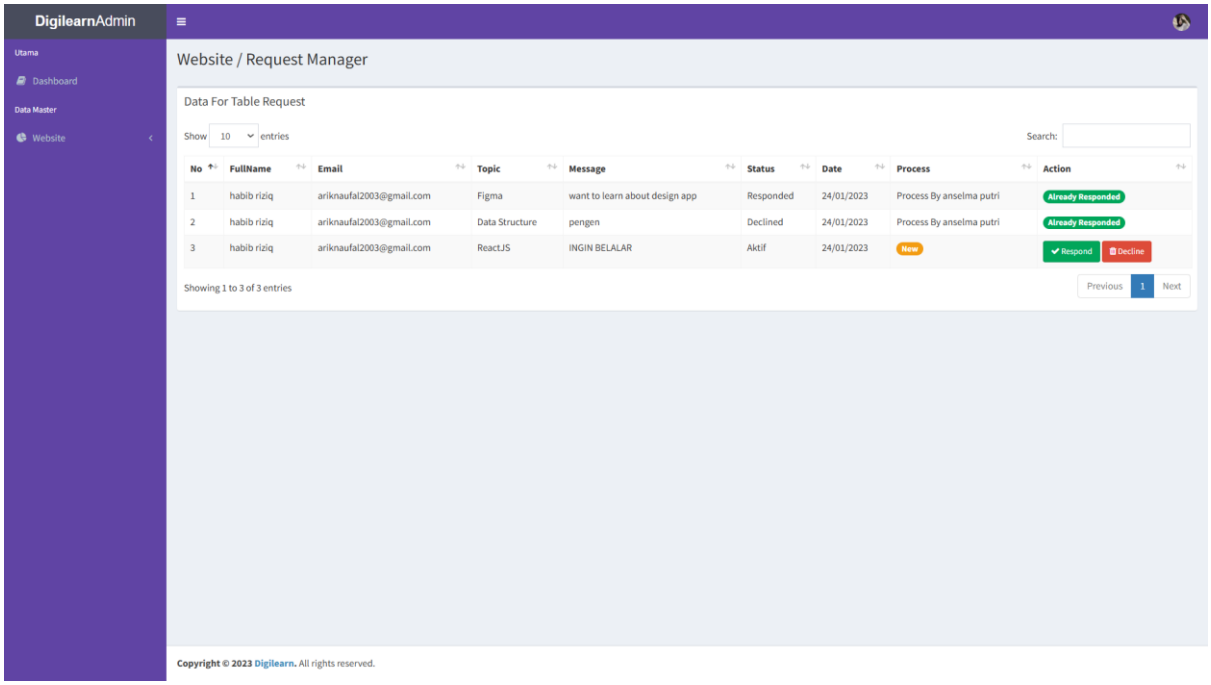

Figure 5.12 Request Manager Admin Page DigiLearn

5. **Category Menu**: This section allows administrators to manage lesson categories by **adding**, **editing**, or **deleting** category data, ensuring the platform's content is well-organized and easy to navigate.

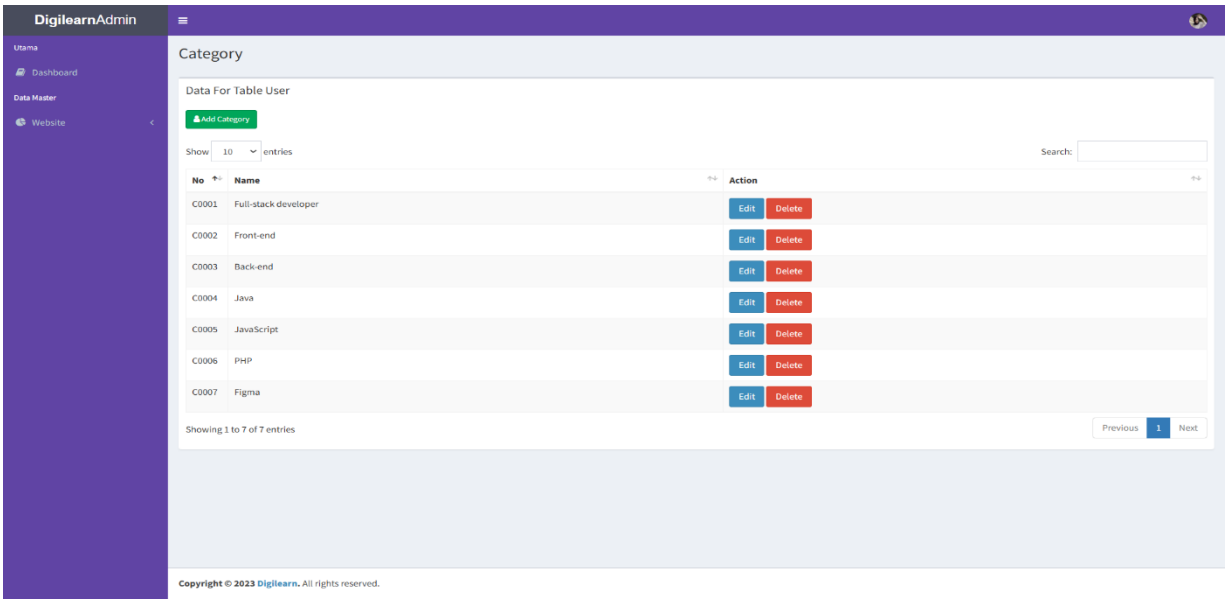

Figure 5.13 Request Manager Admin Page DigiLearn

6. **My Profile**: This section displays information about the currently logged-in admin. It provides options to **edit profile details**, **change the password**, and **delete the account**, giving administrators full control over their personal account settings.

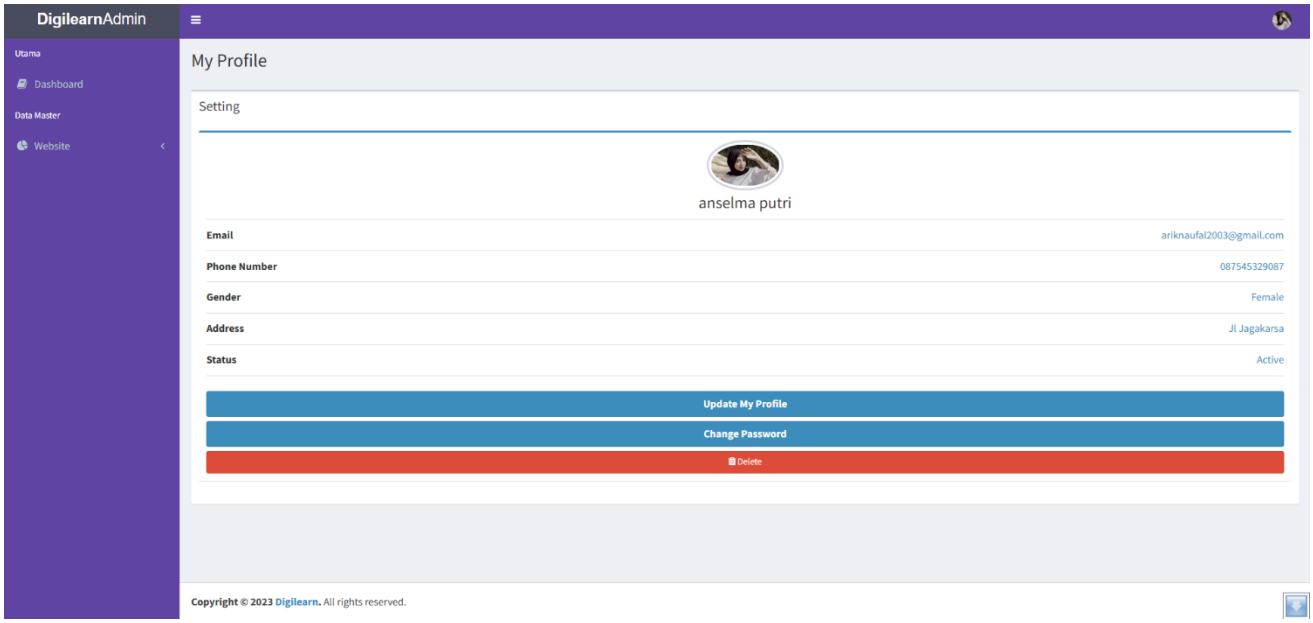

Figure 5.14 Profile Admin Page DigiLearn

5.3 Implementation Schedule

The implementation of the **DigiLearn** platform was divided into key phases to ensure a structured development process. Each phase was focused on specific tasks and milestones to guarantee timely delivery and effective functionality:

Phase 1: Weeks 1-2

- **Objective**: Planning and requirements gathering.
- **Activities**: Identify system requirements, define the scope of features, and gather input from stakeholders to set clear project goals.

Phase 2: Weeks 3-6

- **Objective**: Development of user-facing functionalities.
- **Activities**: Implement the user registration and login system. Develop the catalog browsing feature, allowing users to search and filter lessons. Focus on creating a seamless user experience for navigating the platform.

Phase 3: Weeks 7-10

- **Objective**: Integration of core functionalities.
- **Activities**: Develop and integrate the **tutorial request system**, allowing users to request new lessons. Implement features for personalized learning paths, enabling users to add lessons and track their progress. Test and ensure proper integration with existing systems.

Phase 4: Weeks 11-14

- **Objective**: Development of administrative functionalities.
- **Activities**: Build the admin panel to manage lessons, categories, and users. Create functionalities for administrators to approve or decline tutorial requests. Test admin tools to ensure they are intuitive and effective.

Phase 5: Weeks 15-16

- **Objective**: Final testing and debugging.
- **Activities**: Conduct system-wide testing to identify and resolve any bugs or issues. Perform user acceptance testing (UAT) to ensure the platform meets requirements. Fine-tune the system for optimal performance before deployment.

5.4 System Testing and Documentation

To ensure the **DigiLearn** platform met its intended objectives, comprehensive testing and documentation were conducted throughout the development process. Manual testing was performed to verify the system's functionality and user experience. The testing process included:

- **User Registration and Login**: Confirming users could successfully create and log into their accounts.
- **Lesson Interaction**: Testing the ability to browse, add lessons to the learning path, and track progress.
- **Tutorial Request System**: Ensuring users could submit, track, and manage tutorial requests.
- **Admin Functions**: Verifying that administrators could manage lessons, categories, and user requests.

Documentation

To assist both developers and users, detailed **documentation** was created:

- **User Guides**: These guides provide step-by-step instructions on how to navigate the platform and utilize its features.

- **Technical Specifications**: Comprehensive technical documentation was prepared to support ongoing maintenance and future development.

next phases of testing will involve a broader audience to ensure comprehensive system evaluation. This will allow for a more extensive identification of issues and provide valuable insights for refining the platform. In addition to this, extensive documentation, including detailed user guides and technical specifications, has been carefully prepared. This documentation will serve as a critical resource for future system updates, helping to streamline enhancements and ensuring that both users and developers can effectively engage with the platform as it evolves.

CHAPTER 6
CONCLUSION

6.1 Project Evaluation

The development of **DigiLearn** faced several challenges, particularly in integrating dynamic session-based data to synchronize user interactions such as lesson management and tutorial requests. This required in-depth work with PHP session handling to ensure data consistency. Additionally, debugging the system's role-based access controls for users and administrators was crucial to maintaining the integrity of the system.

The project also encountered time management challenges, with unexpected bugs and feature adjustments influencing the timeline. Database optimization and UI/UX design required careful attention, particularly in ensuring fast data processing and a smooth user experience. Despite these challenges, continuous testing, feedback, and iterative problem-solving led to a successful outcome that achieved the core project objectives.

The development of **DigiLearn** faced several significant challenges, which were resolved through continuous effort and iterative testing.

- **Session Management**: One of the main difficulties was ensuring that user interactions, such as adding lessons to the learning path or submitting tutorial requests, were synchronized across the platform. This required thorough handling of **PHP sessions** to avoid data inconsistencies.
- **Role-Based Access Control (RBAC)**: Implementing a secure system to distinguish between user roles (admin vs. user) was a challenge. Admins had to be able to manage platform content without disrupting user-facing functionalities. Fine-tuning the permissions and testing these role-based access mechanisms was essential.
- **Time Management and Database Optimization**: Unforeseen bugs and adjustments required constant modifications to the timeline, while database structure and optimization were essential for fast and reliable data handling, especially as the platform grows.

6.2 System Advantages

DigiLearn offers a user-friendly interface that simplifies navigation, which is crucial for beginner web developers. The platform provides comprehensive administrative controls, making it easy for admins to manage lessons, user accounts, and tutorial requests. It is built with scalability in mind, allowing for future growth and feature expansion as the user base increases. Additionally, the dynamic role-based access system ensures security by controlling user privileges based on their roles, safeguarding sensitive platform features from unauthorized access.

The **DigiLearn** platform offers several key advantages that align with the needs of its users and administrators:

- **User-Friendly Interface**: The platform's simple and intuitive design makes it easy for beginners to navigate and access lessons, providing a smooth learning experience.
- **Comprehensive Admin Controls**: Administrators have the necessary tools to manage lessons, user accounts, and tutorial requests efficiently, enabling effective platform management.
- **Role-Based Access Control**: By distinguishing between user and admin roles, the platform ensures that sensitive features are secured, and only authorized users can access or modify certain parts of the system.
- **Scalability**: The system architecture was designed with future growth in mind, allowing for the addition of new features, content, and the ability to scale up as the user base increases.

6.3 System Limitations

Despite its successes, **DigiLearn** has some limitations that need to be addressed. One key limitation is the lack of a password reset feature, which is essential for user account security. Additionally, while initial testing helped identify basic usability issues, broader testing with a larger group is necessary for more reliable results. The platform also requires further optimization for mobile users to improve accessibility across various devices. Although the platform is functional, there are some limitations that need attention:

- **Password Management**: The absence of a password reset feature for both users and admins is a significant gap, which should be addressed in future versions to improve security and user experience.
- **Testing Scope**: The initial manual testing was conducted with a small group, limiting the reliability of the findings. Expanding testing to a broader user base will help uncover issues that might have been missed.
- **Mobile Optimization**: While the platform works on mobile devices, further optimization is needed to ensure better accessibility, particularly on smaller screens.
- **Advanced Features**: Some features, such as **personalized learning paths** and **real-time content recommendations**, were planned but not fully developed, leaving room for further improvement.

6.4 Learning Outcomes

Throughout the development process, I gained valuable experience in **web development technologies** such as **HTML, CSS, JavaScript**, and **PHP Laravel**. I also learned the importance of managing dynamic session-based data for personalized user experiences, as well as the complexity of designing secure **role-based access controls**. The iterative development process taught me how to adapt to challenges, refine the system, and incorporate feedback, emphasizing the importance of **Agile methodologies** in achieving project goals.The **DigiLearn** project provided valuable learning experiences across various areas of development:

- **Web Development Skills**: I gained hands-on experience in **HTML, CSS, JavaScript**, and **PHP**

Laravel, learning how to integrate front-end and back-end technologies effectively.

- **Session and Data Management**: Handling dynamic user sessions and ensuring data consistency provided a deep understanding of how to create personalized experiences while managing complex user interactions.
- **Role-Based Access Control**: Designing and implementing secure access controls taught me the importance of protecting sensitive data and ensuring the system's security through proper authentication and authorization mechanisms.
- **Problem-Solving and Agile Development**: Throughout the project, I learned how to adapt quickly to challenges and use **Agile methodologies** to make iterative improvements based on user feedback.

6.5 Future Enhancements

For future iterations of **DigiLearn**, there are several enhancements to consider. Integrating a password reset feature and further improving mobile optimization will enhance both security and user accessibility. Additionally, expanding the platform's features to include personalized learning recommendations and interactive tools will improve engagement. Broader usability testing will also be necessary to ensure the platform meets the needs of a diverse user base and remains scalable as it grows.

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APPENDIX

Appendix A: Project Database Structure

The database structure for the **DigiLearn** platform is designed to ensure data integrity and optimal performance. Below is a summary of the key tables and their attributes:

1. **Tbl_Admin:**
   - Id (Primary Key, Char(5))
   - Username (Varchar(20))
   - Password (Text)
   - Email (Varchar(40))
   - Status (Enum: 'Active', 'Non-Active', Default 'Active')
2. **Tbl_Category:**
   - Id_Category (Primary Key, Int)
   - Category_Name (Varchar(255))
3. **Tbl_Class:**
   - Id_Class (Primary Key, Int)
   - Class_Name (Varchar(255))
4. **Tbl_Course_Suggestion:**
   - Id_Course_Suggestion (Primary Key, Int)
   - Suggestion_Content (Text)
   - Submitted_By (Int, Foreign Key To Tbl_Student)
   - Date_Created (Datetime)
5. **Tbl_Detailed_Admin:**
   - Id_Admin (Primary Key, Int, Foreign Key To Tbl_Admin)
   - Full_Name (Varchar(255))
   - Contact_Number (Varchar(15))
6. **Tbl_Feedback:**
   - Id_Feedback (Primary Key, Int)
   - Feedback_Content (Text)
   - Submitted_By (Int, Foreign Key To Tbl_Student)
   - Date_Created (Datetime)
7. **Tbl_Inserted_Lesson:**
   - Id_Inserted_Lesson (Primary Key, Int)
   - Lesson_Title (Varchar(255))
   - Added_By (Int, Foreign Key To Tbl_Admin)

- Date_Added (Datetime)

8. **Tbl_Lesson:**
   - Id_Lesson (Primary Key, Int)
   - Lesson_Title (Varchar(255))
   - Description (Text)
9. **Tbl_Lesson_Audit:**
   - Id_Audit (Primary Key, Int)
   - Id_Lesson (Foreign Key To Tbl_Lesson)
   - Audit_Details (Text)
   - Audit_Date (Datetime)
10. **Tbl_Notification:**
    - Id_Notification (Primary Key, Int)
    - Notification_Text (Text)
    - Recipient (Int, Foreign Key To Tbl_Student)
    - Sent_Date (Datetime)
11. **Tbl_Profile_Student:**
    - Id_Profile (Primary Key, Int)
    - Id_Student (Foreign Key To Tbl_Student)
    - Profile_Picture (Varchar(255))
    - Bio (Text)
12. **Tbl_Request_Manager:**
    - Id_Request (Primary Key, Int)
    - Request_Details (Text)
    - Requested_By (Int, Foreign Key To Tbl_Student)
    - Status (Enum: 'Pending', 'Approved', 'Rejected')
13. **Tbl_Roadmap:**
    - Id_Roadmap (Primary Key, Int)
    - Roadmap_Title (Varchar(255))
    - Roadmap_Details (Text)
    - Created_By (Int, Foreign Key To Tbl_Admin)
    - Date_Created (Datetime)
14. **Tbl_Student:**
    - Id_Student (Primary Key, Int)
    - Student_Name (Varchar(255))

• email (VARCHAR(255))
• date_of_birth (DATE)

Appendix B: Key Features and Functionalities

1. **User Management**
    - User registration and login functionality.
    - Role-based access control (Admin and Learner).
2. **Lesson Management**
    - Admins can add, edit, and delete lessons.
    - Learners can view the lesson catalog and detailed descriptions.
3. **Tutorial Request Management**
    - Learners can submit requests for new tutorials.
    - Admins can approve or decline tutorial requests.
4. **Progress Tracking**
    - Learners can track their progress in lessons (e.g., percentage completion).
    - Admins can monitor learner progress and engagement.
5. **Responsive Design**
    - The platform is designed to be mobile-friendly, using the **Bootstrap** framework to ensure a seamless user experience across all devices.

Appendix C: Technology Stack

- **Frontend**: HTML5, CSS3, Bootstrap
- **Backend**: PHP (Laravel Framework)
- **Database**: MySQL
- **Development Environment**: Localhost (XAMPP)