

**SCHOLARS REPOSITORY: DESIGN AND DEVELOPMENT OF A WEB
BASED APPLICATION**

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project titled “SCHOLARS REPOSITORY: DESIGN AND DEVELOPMENT OF A WEB BASED APPLICATION”, submitted by MD. MAHAMUD MREDHA to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 14.07.2024.

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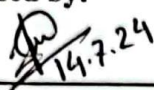
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We hereby declare that, this project has been done by us under the supervision of **Mr. Raja Tariqul Hasan Tusher, Assistant Professor, Department of CSE Daffodil International University**. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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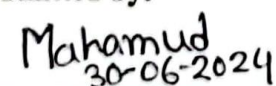

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ABSTRACT

In the era of information technology, students rely heavily on online platforms to meet their everyday educational needs. Currently, the Internet offers diverse services, and numerous online platforms aim to improve students' education by providing digital solutions. Amid the ongoing digital transformation process, there is a growing preference for acquiring information through online platforms. Despite the abundance of online study aids, students often require additional assistance in their exam preparation. The primary factor is the overwhelming quantity of tasks that must be dealt with within a limited timeframe. They need help to figure out the crucial topics for the examination. What were the origins of the question papers from the prior year? Methods for resolving them. To address this problem, I have developed a cutting-edge web application that offers a platform for exchanging question papers and their corresponding solutions in different formats. The "Scholars Repository" provides various educational resources for students and educators from multiple institutions. The portal facilitates the seamless dissemination of educational materials, encompassing question papers, video solutions, lecture slides, notes, and books. Through user identification and user-friendly filters, consumers may easily access information categorized by country, university, and course. The main goal is to promote collaboration and facilitate efficient dissemination of knowledge in academia.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Today, developments in technology have made certain tasks more convenient and efficient. Given the increasing comfort level of individuals with technology, I have worked to develop a project that could be advantageous for all college and university students. The main objective of this project is to help students find the resources they need very easily. The "Scholars Repository" is a cutting-edge web application that is transforming education. It is designed to meet the needs of students and educators in universities. With a focus on creating a dynamic environment for sharing information, this platform provides a user-friendly login process, a wide range of study materials, and easy-to-use search functions. An exclusive rewards system serves as an incentive for users to actively contribute, thereby cultivating a vibrant community. The platform incorporates a customized Leaderboard and Honorable Mention page to acknowledge and foster healthy competition. The presence of comprehensive user and administrative interfaces guarantees effective management and use. Utilizing a robust technological infrastructure, "Scholars Repository" ensures a seamless user experience. Strategic navigation enhances user engagement by enabling smooth platform navigation. In addition to serving as a repository for study materials, "Scholars Repository" fosters a vibrant community, revolutionizing the way knowledge is shared in the digital age.

1.2 Motivation

Especially this platform is developed to easily find video solutions of very important topics of a particular course which are repeatedly covered in various exams. Students find those topics in a short time before the exam but fail to find their solutions. This process only wastes their time which often leads to poor exam results. This is how students lose focus on studies in most cases. In such a situation if they can use like a platform where they can get all the previous exam papers and whole semester resources together with video solutions in a very short time then they will be able to prepare thoroughly for the exam and at the same time they will be able to gather good knowledge about the important topics of a particular course. Address to this problem, this platform has been neatly developed so that students can find all the educational resources they need very easily and by sharing them to help others, the entire education system can be taken forward a long way.

1.3 Objectives

The main goal of this project is to help the students to utilize their precious time properly so that they can find all the resources they need in a short time from a specific platform. It is often seen that students get depressed when it comes time for their exams. Then students do not get the resources they need together. Finding these essential resources in today's various digital media is a hassle and time-consuming process. This platform is developed for this purpose. Here students can get almost all the topics and their video solutions of a particular course of a particular college or university instantly. In this way our education system will progress towards improvement day by day.

1.4 Expected Outcome

The "Scholars Repository" aims to transform education by offering a user-friendly platform for accessing and exchanging study resources. It encourages participation by providing points and leaderboards and promoting community involvement. Effective user and admin dashboards optimize the experience, while a contemporary technical infrastructure guarantees scalability and flexibility. The platform's user-friendly interface improves user experience, leading to consistent content and user population expansion. The ultimate goal of the "Scholars Repository" is to establish itself as a significant hub for educational resources, capable of adapting to the changing requirements of the education sector.

1.5 Project management and Finance

This project adheres to a cost-efficient methodology for project development. Presently, I am using it on a free hosting platform. Therefore, there is no expense incurred. The current capacity of the online database has been set to 500 megabytes. A paid online database, online server, and website hosting will be necessary for implementation in large hospitals. There will be a cost involved, although it will not be excessive.

1.6 Report Layout

This project aims to provide a concise overview of my complete working process, including my motivation, related works, and the instruments I utilized during the development period. I have segmented the entire process into multiple chapters, each providing a detailed summary of the flow of my project. Currently, I am focusing on implementing essential features necessary to enhance my product's efficiency and user experience. In addition, I will address

the issues and obstacles encountered throughout the development phase. Throughout several chapters of the project report, I have made a concerted effort to highlight distinct subjects, including database design, challenges, resolutions, the intricate framework of my web application, and my proposed strategy for this project.

CHAPTER 2

BACKGROUND

2.1 Preliminaries

Today, developments in technology have made certain tasks more convenient and efficient. Given the increasing comfort level of individuals with technology, I have worked to develop a project that could be advantageous for all college and university students. The main objective of this project is to help students find the resources they need very easily. The "Scholars Repository" is a cutting-edge web application that is transforming education. It is designed to meet the needs of students and educators in universities. With a focus on creating a dynamic environment for sharing information, this platform provides a user-friendly login process, a wide range of study materials, and easy-to-use search functions. An exclusive rewards system serves as an incentive for users to actively contribute, thereby cultivating a vibrant community. The presence of comprehensive user and administrative interfaces guarantees effective management and use. Utilizing a robust technological infrastructure, "Scholars Repository" ensures a seamless user experience. Strategic navigation enhances user engagement by enabling smooth platform navigation. In addition to serving as a repository for study materials, "Scholars Repository" fosters a vibrant community, revolutionizing the way knowledge is shared in the digital age.

2.2 Related Works

In the realm of online educational platforms, "Scholars Repository" and several other efforts achieve similar objectives by enabling the sharing of academic resources and fostering interactive learning spaces. An assessment of comparable studies provides valuable insights into existing solutions and influences the development and uniqueness of the Scholars Repository. Notable platforms include:

- **Course Hero** is a highly regarded platform that facilitates the sharing of study materials among learners and teachers. It includes various resources and study aids customized to different courses. The company has a freemium business model, providing complimentary access to fundamental resources and enhancing functionality to subscribed users.
- **EdX** and **Coursera** are MOOC platforms that provide online courses from colleges and institutions worldwide. Although they have various areas of emphasis, their common objective is to ensure global accessibility to educational resources.

- **Google Drive and Dropbox** are popular cloud storage platforms for collaborative document sharing. Although not primarily designed for educational purposes, students and instructors often favor these options for sharing study materials.
- **Chegg** is an educational technology startup offering various services, such as textbook rentals, homework assistance, and study materials. It is renowned for its vast repository of academic resources and online tutoring offerings.
- **Quizlet** is an online platform emphasizing cooperative learning using flashcards, quizzes, and study activities. Although its main focus is on interactive learning tools, it also functions as a platform for users to share study materials they have created.

2.3 Scope of the problem

My primary purpose in creating this website is to improve student learning. Any institution may utilize this project, which can be altered as necessary. Moreover, new functions can be incorporated based on needs.

2.4 Challenges

The difficulties I encountered in creating this web application to provide the best possible outcome for the consumers. Data consistency and integrity are crucial because this is a dashboard-related website, and many users check in frequently to get the needed services. My website was created using a web framework and is dynamic. As a result, I had to learn a lot about the web foundation. To further strengthen the security of the user's data, I have also integrated custom authentication. Along with the front end, I also have to improve how I handle the backend API calls. Among the principal difficulties are:

- **Security and Privacy Issues:** It's critical to protect user data and preserve the privacy of sensitive information. Establishing user trust requires strict safety precautions, encrypting data, and adhering to data protection laws.
- **Technological Connection with Google Drive:** There may be technical difficulties while integrating Google Drive for file storage and retrieval. To ensure an enjoyable experience for users, extensive testing and support with various file types and sizes are crucial.
- **Technological Layer Connection:** There may be problems with compatibility when integrating a variety of technologies, such as React.js, Tailwind CSS, Node.js, Express.js, MongoDB, Google Drive, and Google Cloud Console. It's essential to keep up with technological changes and to receive regular updates.

CHAPTER 3

REQUIREMENT SPECIFICATION

The terminology requirement specification describes to us an idea about the functionality and characteristic of a system application. The entire project is developed based on required specification. Developers and engineers specially create their project according to their targeted customer and their requirements.

3.1 Business Process Model

An undertaking's development is centered around it. This includes all essential procedures for the development of the project. Among all the project development models, the agile model is the most suitable for my project because it employs incremental and iterative approaches, which are distinctive features of agile software development. Agile is a software development process known for its practical approach to deliverables and its capacity to foresee the need for adaptability. Agile software development prioritizes the efficient delivery of specific components or sections of the program rather than the entire product. This requires a significant

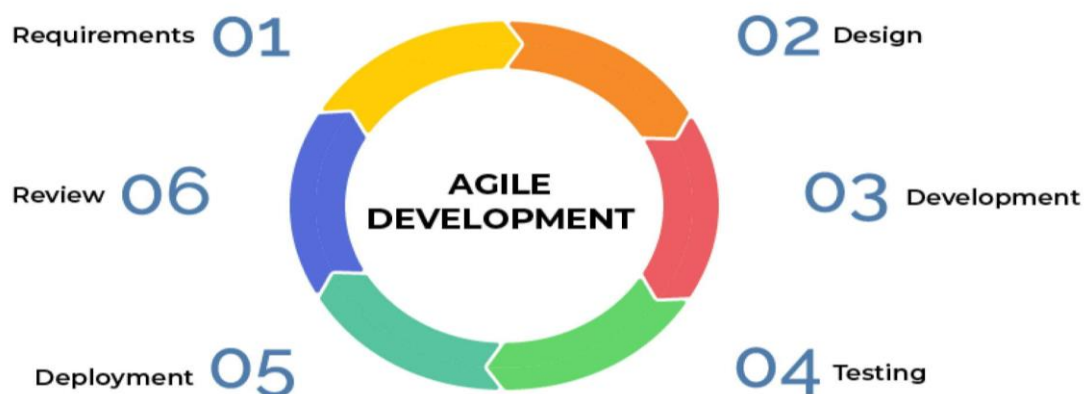


Figure 3.1: Agile Model

change in the culture of many firms. The advantages of Agile include its ability to help teams navigate a changing environment while focusing on delivering business value effectively. Agile methodology promotes a collaborative culture, which improves organizational efficiency by assisting teams to understand their roles in the process and work together.

3.2 Requirement collections and analysis

Requirement analysis is crucial in the development of any project. This stage is the most critical aspect of the project management system. Thoroughly developing and maintaining a project is of utmost importance. The process of requirement collecting is contingent upon the specific requirements made by the customer. A project is hazardous if it fails to fulfill all the essential prerequisites. Consequently, the project needed to meet the expectations of clients. Thus, the process of acquiring requirements is crucial for effective project management. Therefore, I have made an effort to gather all the necessary criteria according to customers' specific demands, taking into account the context of Bangladesh.

3.3 Use Case Diagram Modeling and Description

The Unified Modeling Language, or UML, is a standard notation used to represent systems and objects in the real world. The website's graphical user interface is depicted in a use case diagram. Use case diagrams aid in organizing application development based on system requirements in system analysis. The development paradigm I use is referenced in the diagram system. The figure indicates that a registered user can schedule and manage appointments but only visit and see doctors. Below is the diagram.

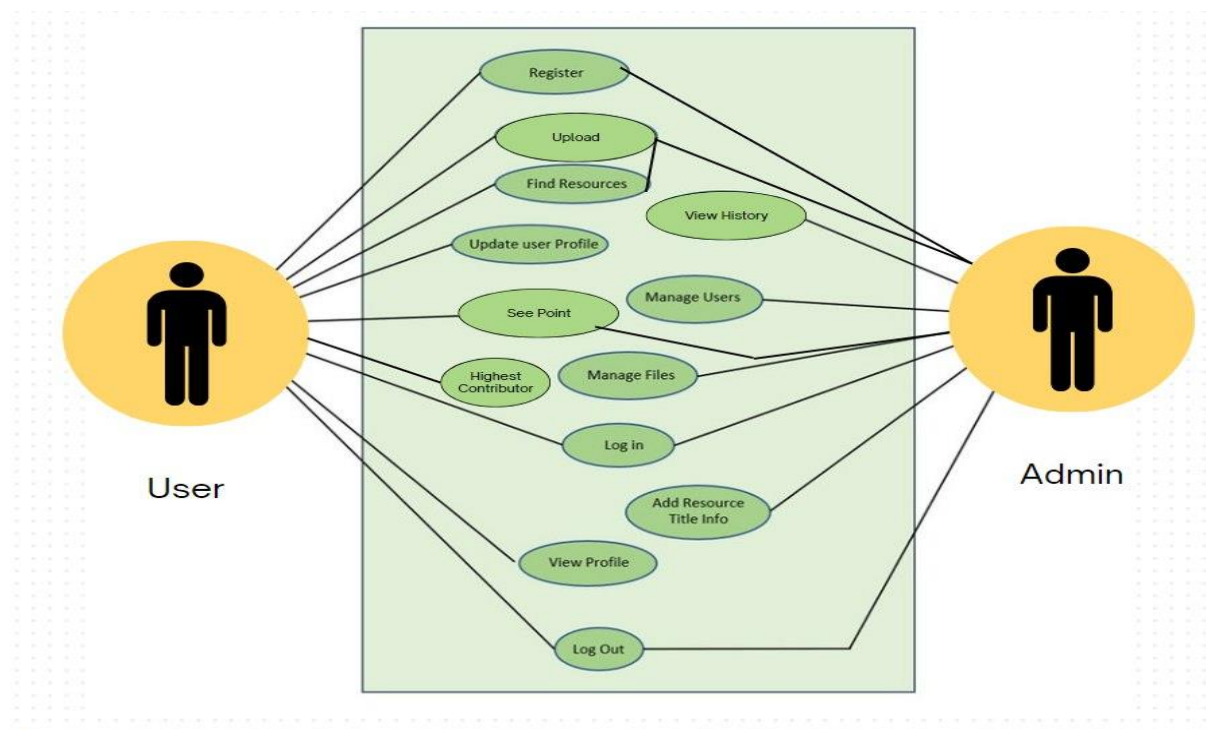


Figure 3.2: Model Diagram

3.4 Flow Chart

A flowchart is a graphical representation that illustrates the structure, sequence, or logic of a system, process, or computer algorithm. It provides a concise overview of the essential actions needed to solve the problem and a visual depiction of the solution to a particular situation. Utilizing flowcharts throughout the creation and planning of a process can assist in identifying the significance of each phase while also providing a comprehensive understanding of the overall framework. The system organizes the tasks chronologically and classifies them based on their type, such as process, decision, data, etc. The complete procedure of my project is illustrated here.

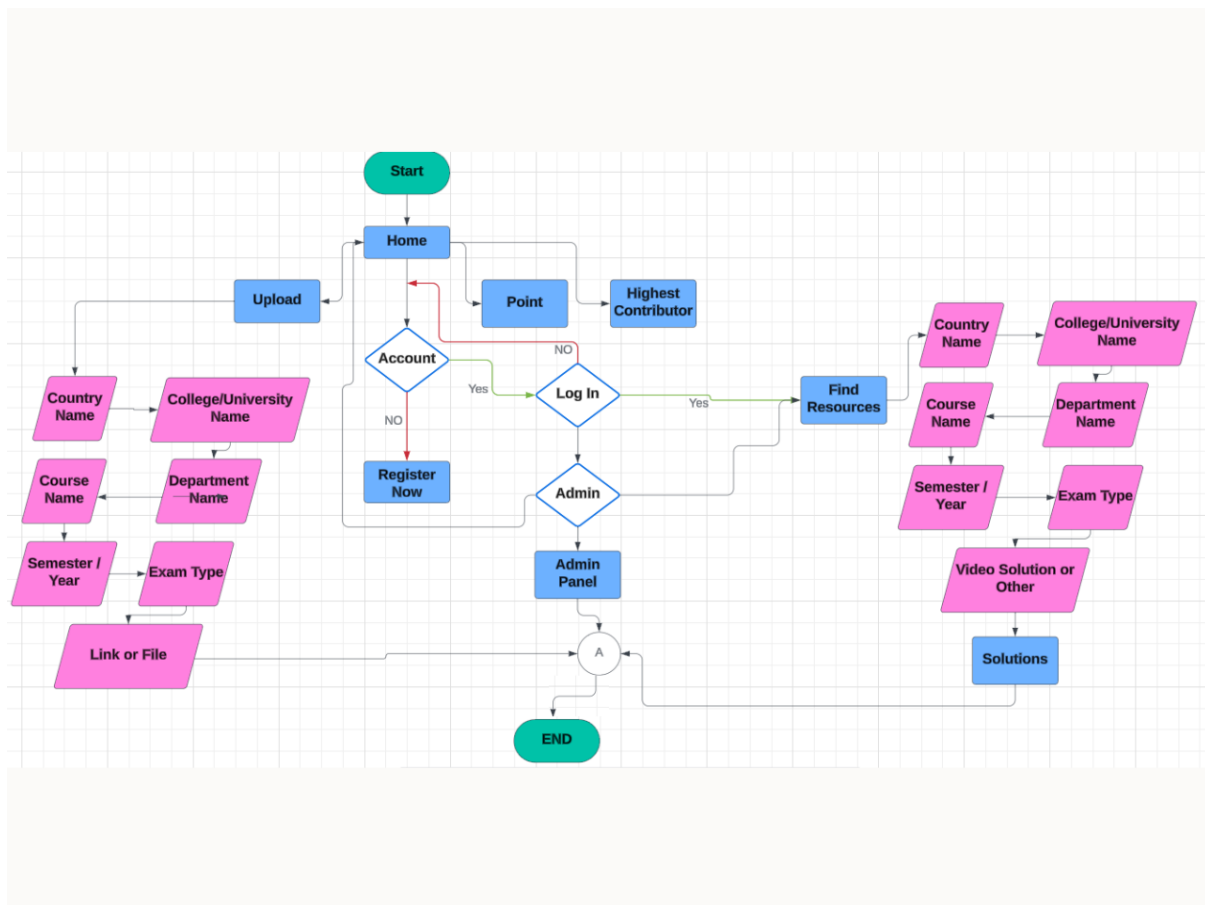


Figure 3.3: Flow chart Diagram

3.5 Class Diagram

A class diagram is a diagram that represents the static structure of a system. It depicts the stationary perspective of an application. A class diagram serves the purpose of visually representing, explaining, and documenting various elements of a system and facilitating the creation of executable code for the software program. A class diagram provides a detailed representation of the characteristics and actions of a class, as well as any limitations placed on

the system. Class diagrams are extensively utilized in the design of object-oriented systems due to their direct mapping with object-oriented languages, making them the sole UML diagrams capable of this. A class diagram visually represents a set of classes, interfaces, affiliations, collaborations, and constraints. It is alternatively referred to as a structural diagram.

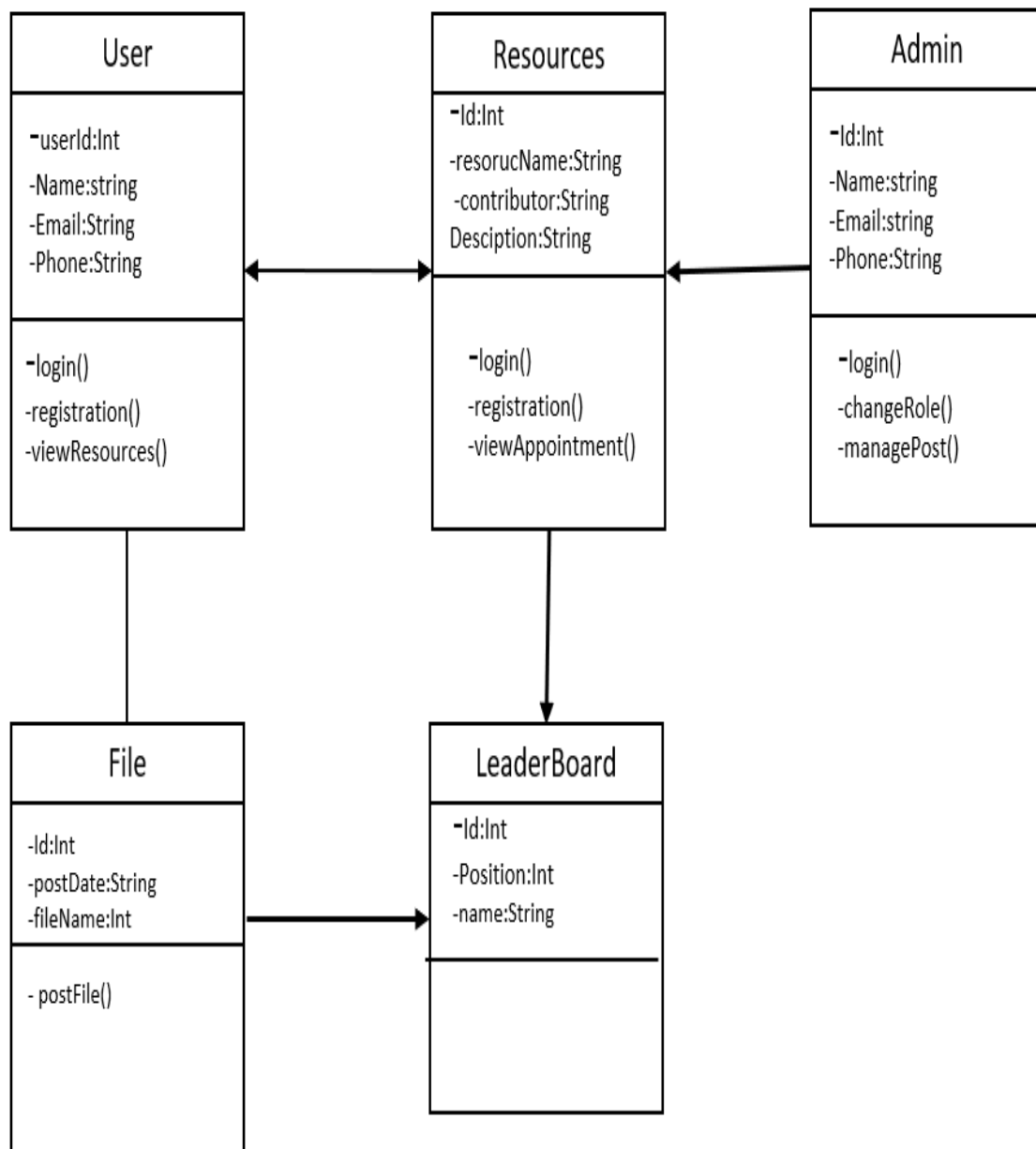


Figure 3.4: Class diagram

3.6 Activity Diagrams

Activity Diagrams depict the control flow within a system and represent the sequential processes of executing a use case. An activity diagram can represent both sequential processing and concurrent processing of activities. It emphasizes explicitly the flow condition and the order in which activities occur. The complete procedure of my project is illustrated here.

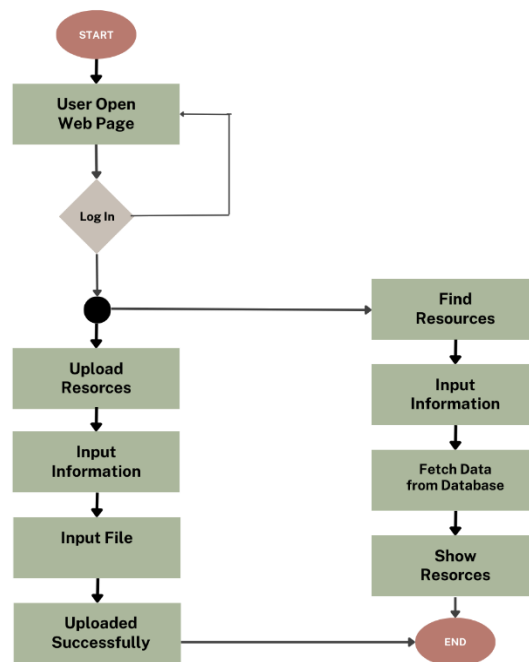


Figure 3.5: Activity Diagram

3.7 Entity-Relationship Diagram

The Entity Relational Model is a framework used to identify entities that will be included in the database and to depict the relationships between those entities. The ER data model defines the enterprise schema, which visually displays the complete logical structure of a database. The Entity Relationship Diagram illustrates the connections between the entities within the database. ER models represent real-world entities such as individuals, vehicles, or organizations, as well as the associations between these entities. Essentially, the ER Diagram represents the underlying structure of the database. The Entity Relational Model is a framework used to identify entities that will be included in the database and to depict the relationships between those entities. The ER data model defines the enterprise schema, which visually displays the complete logical structure of a database. The Entity Relationship Diagram illustrates the connections between the entities within the database. ER models represent real-

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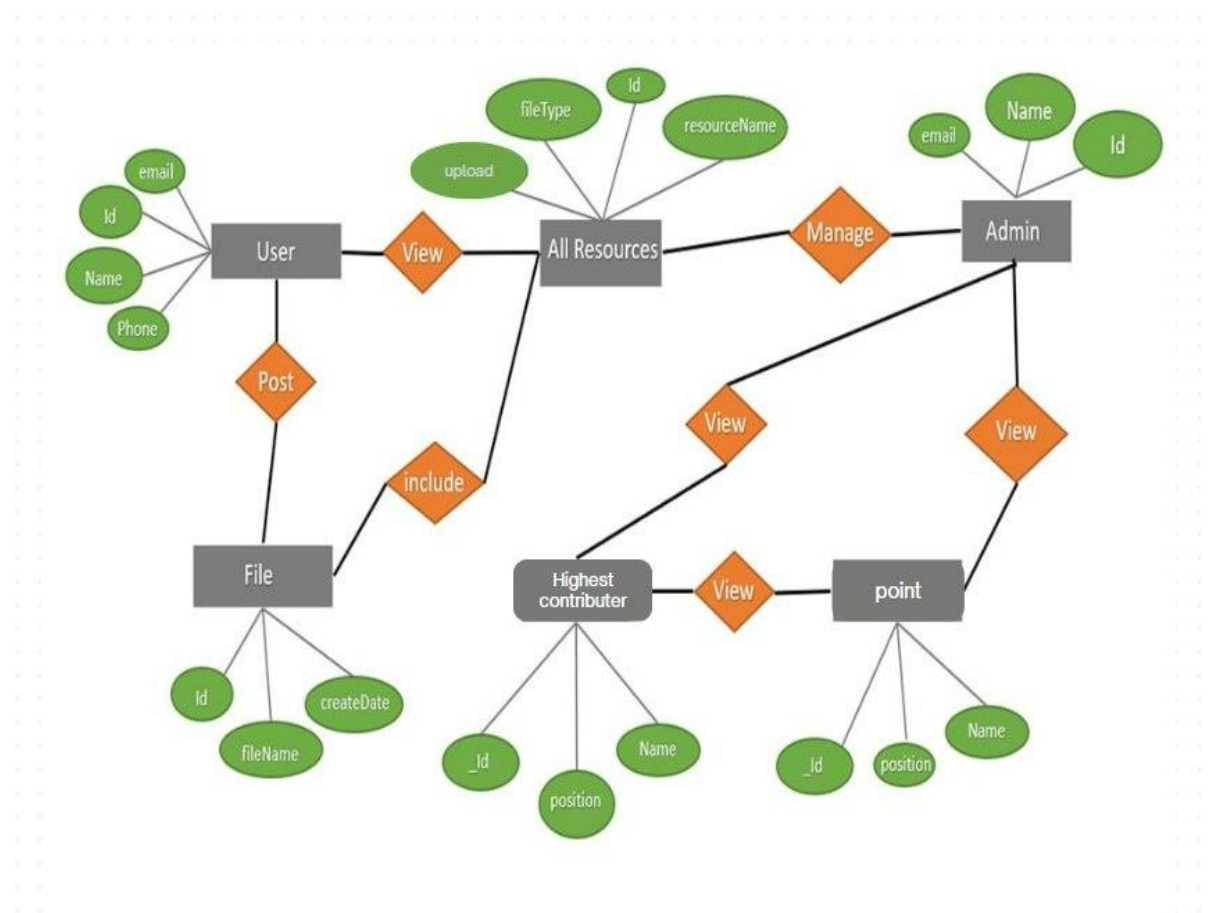


Figure 3.6: Entity-Relational Diagram

3.8 Architecture Design

I strive to construct my project with a straightforward and practical architecture. Below is a depiction of the basic framework of my architectural design. Architecture design functions as a comprehensive plan or model for a system. It offers a way to handle the system's intricacy and develop a method for components to communicate and coordinate. The solution provides a well-organized approach to fulfill technical and operational objectives while maximizing the effectiveness of essential quality aspects such as performance and security. It encompasses a series of crucial determinations regarding the organization's structure to software development.

Each of these determinations can substantially influence the quality, maintainability, performance, and ultimate success of the end product.

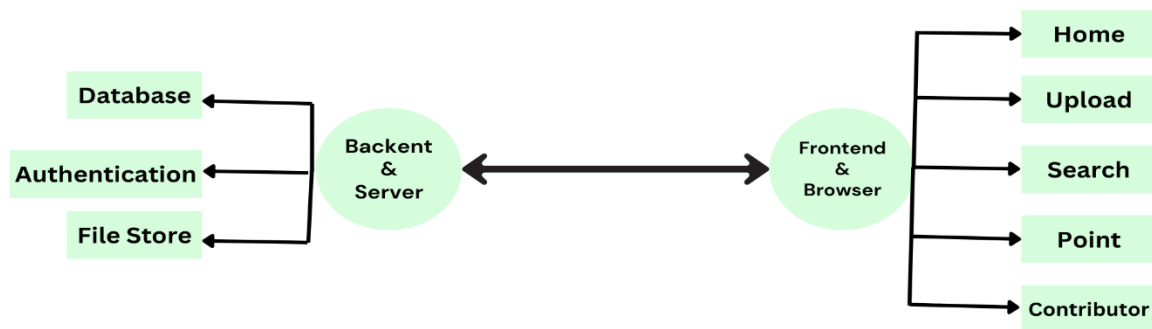


Figure 3.7: Architecture Design

3.9 Sequence Diagram

1. User starts at Home Page
2. Decision to Upload, view Highest Contributor, Find Resources, or access Account
3. If Account is accessed:
 - If not logged in:
 - Prompt to Login or Register Now
 - If logged in successfully:
 - Access Admin Panel (if admin privileges)
4. Admin Panel Interaction (if admin)
5. Uploading Resources:
 - Select Country Name
 - Select College/University Name
 - Select Course Name
 - Select Department Name
 - Select Semester/Year
 - Select Exam Type
 - Upload Link or File
6. Finding Resources:
 - Select Country Name

- Select College/University Name
- Select Course Name
- Select Department Name
- Select Semester/Year
- Select Exam Type
- Choose Video Solution or Other

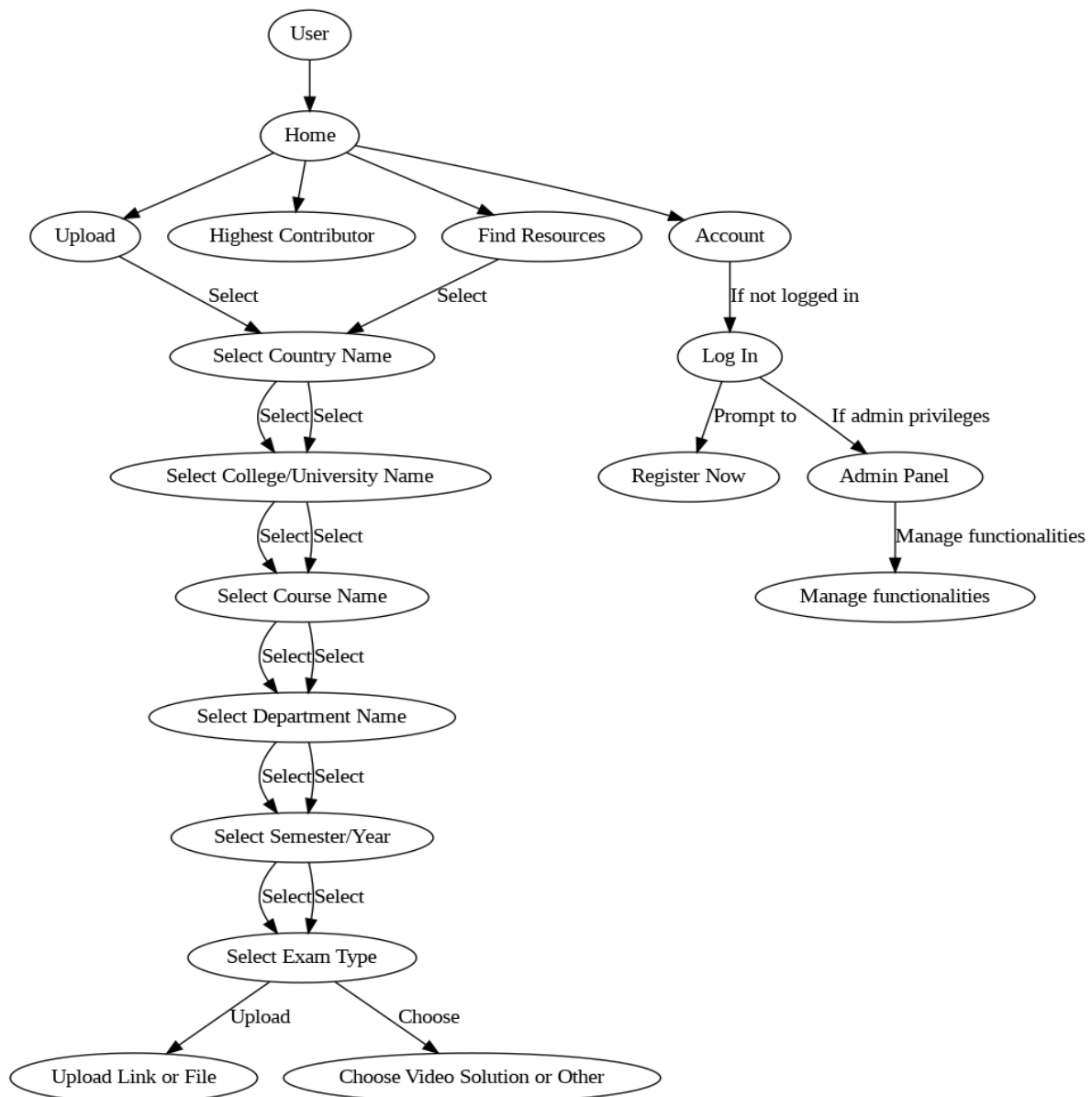


Figure 3.8: Sequence Diagram

3.10 Design Requirement

A well-defined design requirement is crucial for the successful execution of any project. A developer must only create software within the complexity level that the end user can handle. Subsequently, the targeted user will exhibit a complete lack of interest in the service. This compels users to seek alternate solutions. The app's development and design were significantly influenced by the user interface, user experience, and data flow approaches. My web application utilizes contemporary and up-to-date tools and frameworks for its creation. Therefore, I ensure that my project is designed to be easily used by the intended users. Furthermore, I am exerting much effort towards this project to ensure its functionality and simplicity for end users. In the future, I will incorporate additional functionalities and regularly update my application with cutting-edge technologies.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Development

The "Scholars Repository" project focuses on creating a smooth user experience by emphasizing careful front-end design. Utilizing React.js with Tailwind CSS guarantees the creation of sleek and modern user interfaces. The accessibility of critical elements such as Home, Upload, and Point promotes user engagement. The user dashboard provides customized experiences, encompassing profile modifications and contribution monitoring. Responsive design ensures seamless accessibility across many devices. Dynamic components augment engagement, enhancing the browsing and resource-sharing experience.

4.2 Back-end Development

The back-end of the "Scholars Repository" platform is developed using Node.js, Express.js, and MongoDB, with a focus on performance, scalability, and maintainability. Node.js facilitates event-driven functionality to boost responsiveness, whereas Express.js streamlines RESTful API development. MongoDB's NoSQL database provides flexible and scalable data management. Collectively, these technologies establish a robust basis for adequate user verification, file management, and database correspondence, facilitating smooth interaction between the front-end and back-end elements.

4.3 Interaction Design and User Experience

Since my project is a file-sharing website for educational resources, I have prioritized design and efficient data integration. I have focused on retrieving data from the database and presenting it to the user quickly, ensuring smooth completion of operations. I implement a responsive design and provide my website with adaptability to desktop and mobile devices.

4.4 Implementation Requirements

I plan to incorporate all the requisite criteria appropriate for my project. I regularly update my website to ensure it meets the evolving demands of users.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

The database infrastructure of the "Scholars Repository" platform, which is mainly built on MongoDB. The platform effectively handles many data types associated with users, study materials, leaderboard rankings, and user points using distinct collections designed for specific data models. Users' accounts are carefully managed, containing essential details such as encrypted passwords and usernames. The study resources library is meticulously arranged, facilitating effortless categorization according to universities, departments, courses, and semesters. CRUD operations optimize submitting, retrieving, and managing study materials. In addition, specialized collections manage leaderboard data and resource titles, granting administrators dynamic authority over departmental and university names and course titles. The resilient logic is incorporated to calculate points according to the kind and impact of the given study materials. The focus is on creating indexes, optimizing queries, and implementing thorough data validation to improve the database's speed, security, and consistency. The smooth incorporation of the database into the back-end server guarantees reliable and secure operations, ultimately establishing a solid basis for the functionality and scalability of the "Scholars Repository" platform.

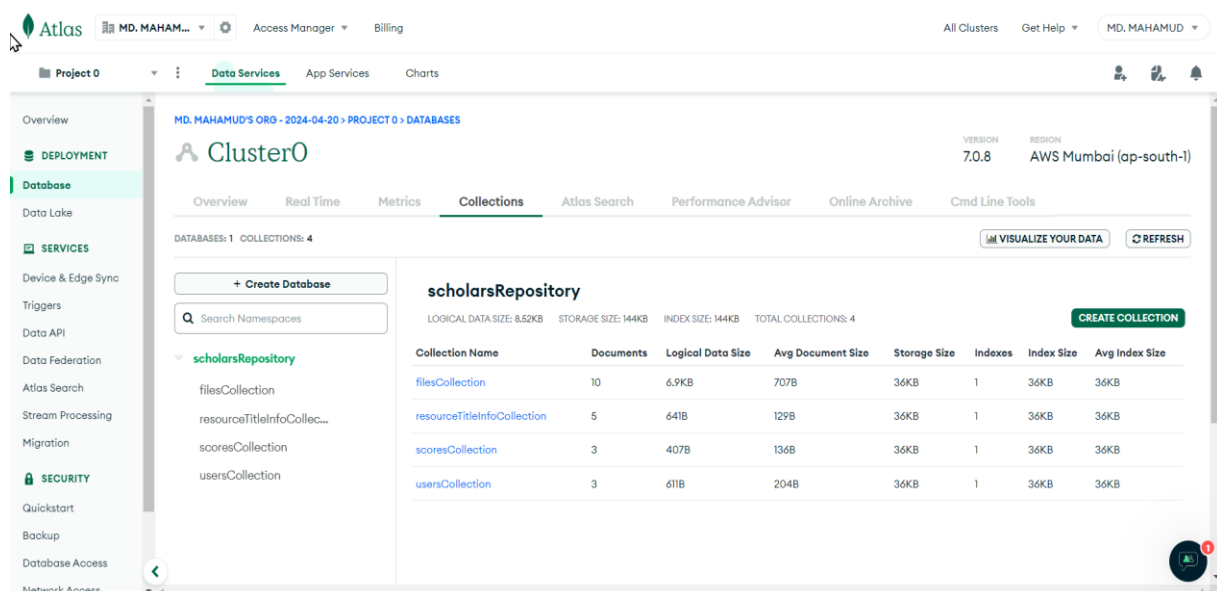


Figure 5.1: Implementation of Database

5.2 File Collection

Every information will be stored here along with the file uploaded.

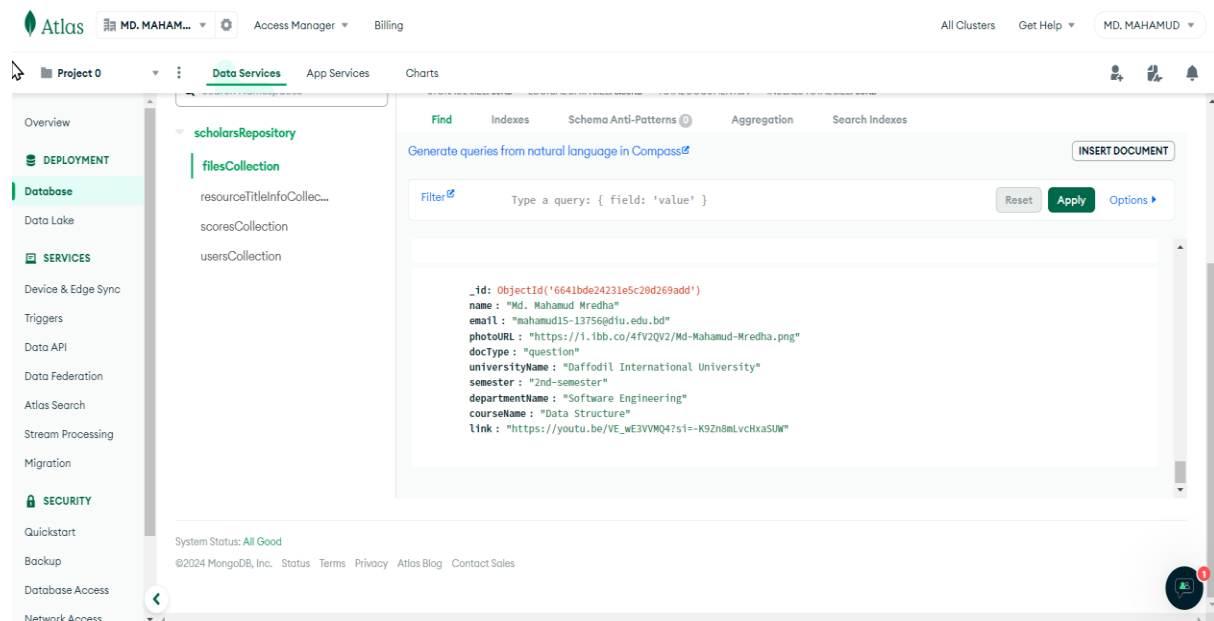


Figure 5.2: File Collection

5.3 Title Collection

Varsity name, Dept name, Course title information will be stored here.

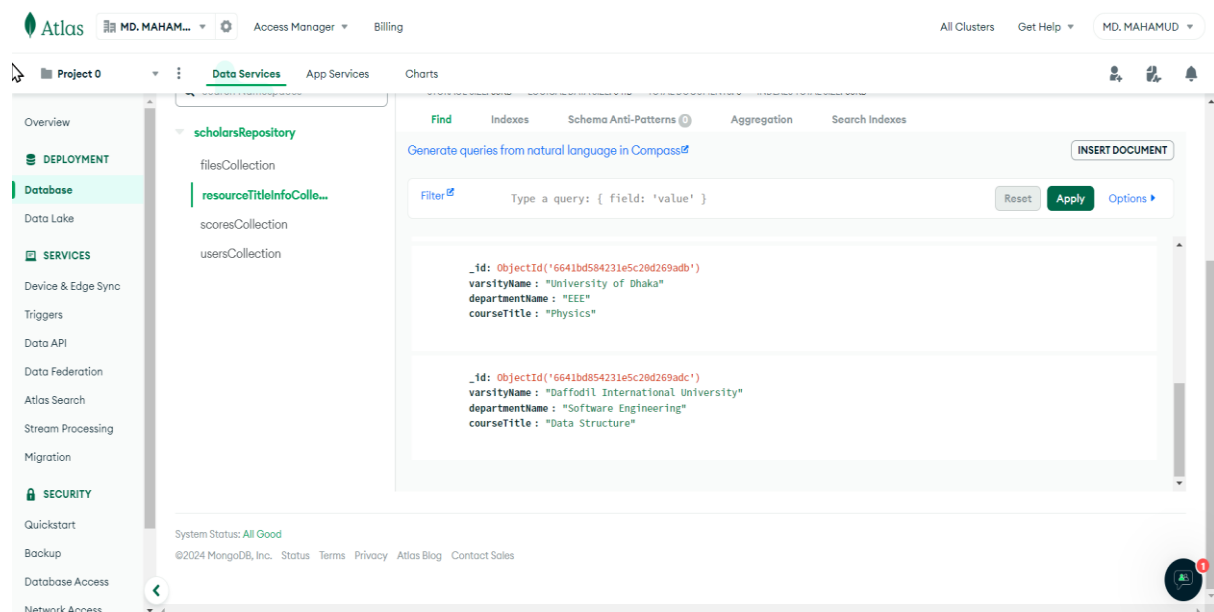


Figure 5.3: Title Collection

5.4 Title Collection

5 foreach user contribution. It will be stored here.

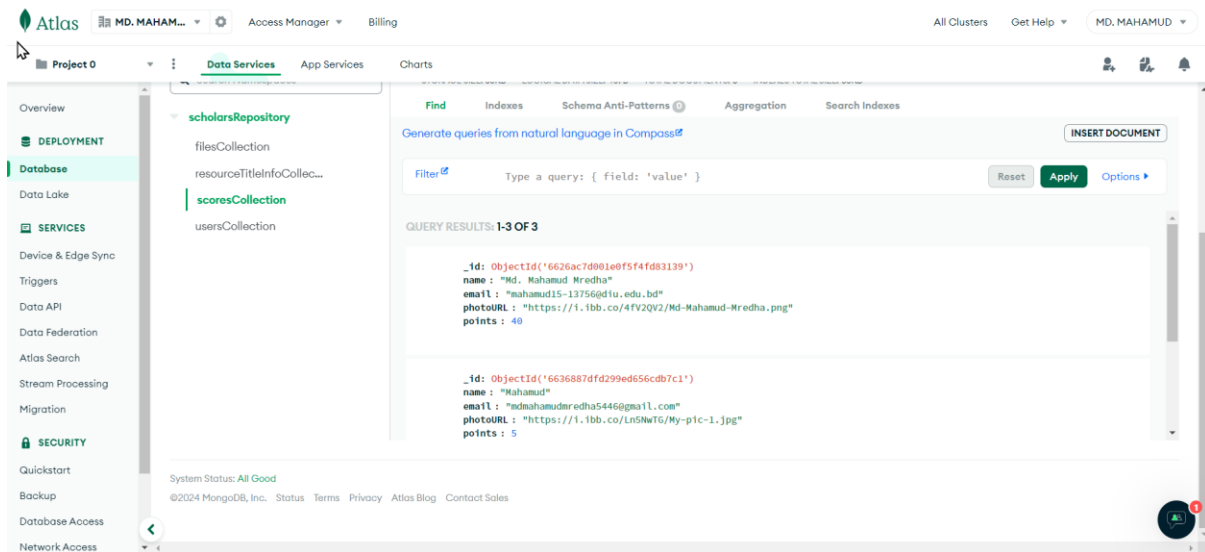


Figure 5.4: Score Collection

5.5 Title Collection

All data of a user will be here like name phone number email profile picture and role.

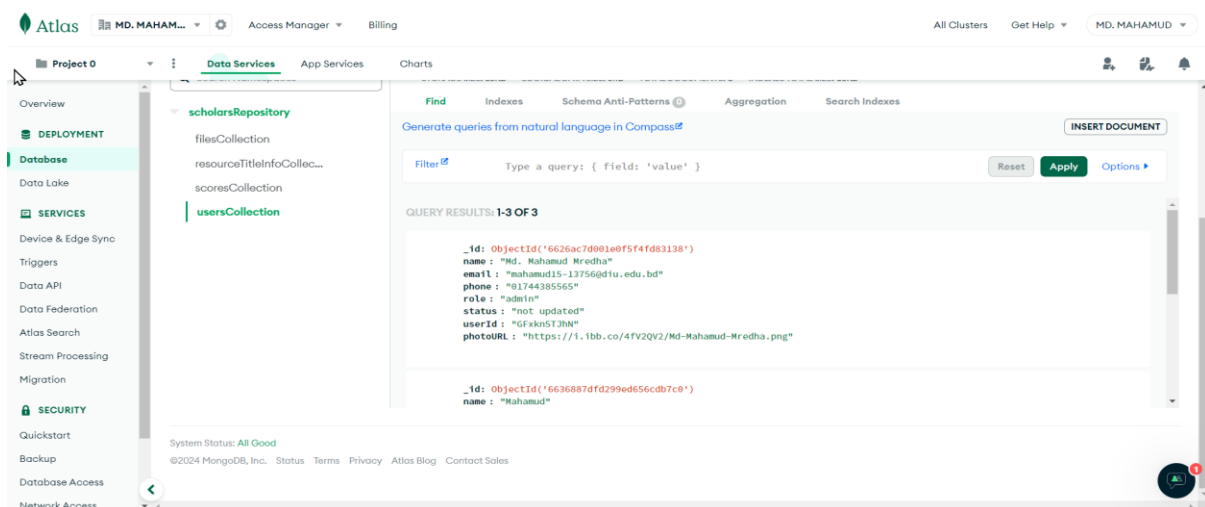


Figure 5.5: User Collection

5.6 Implementation of Front-end Design

The user-friendly design of my website includes features such as user authentication, an Admin panel, a User panel, an Upload panel, a Find Resources function, the ability to change profiles, and file management capabilities, among others. Below is a concise description of all the features.

5.7 Home Page

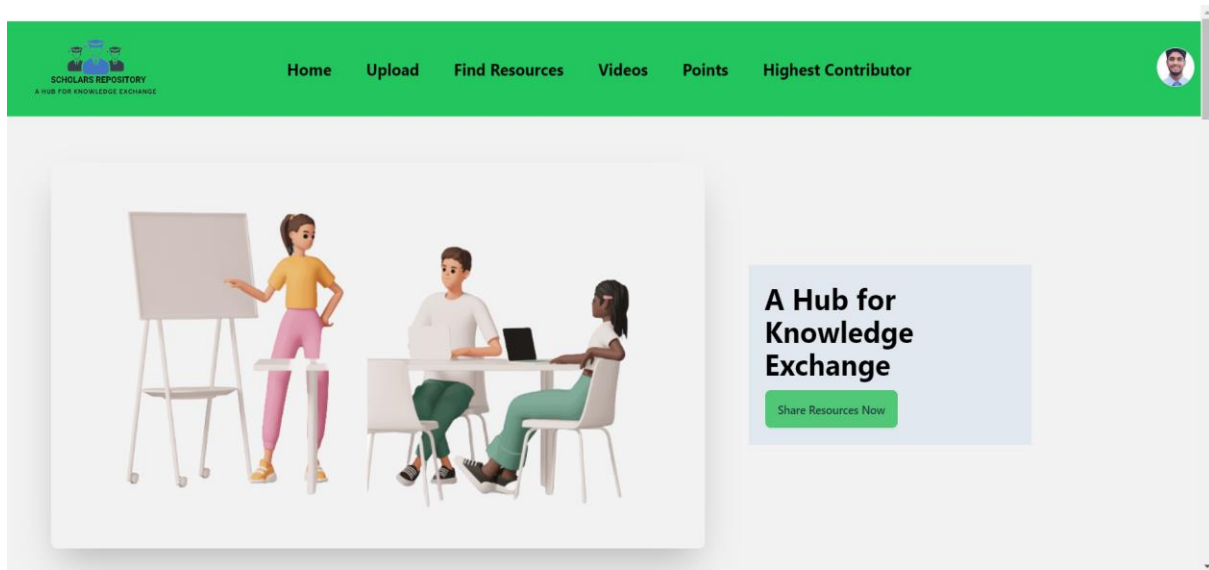


Figure 5.6: Home Page

5.8 Recent Share Question Papers

This section displays recently shared questions and additional relevant information. It keeps users updated on the latest inquiries and topics, fostering engagement and knowledge sharing within the community. Users can easily access new content and stay informed about ongoing discussions and developments.

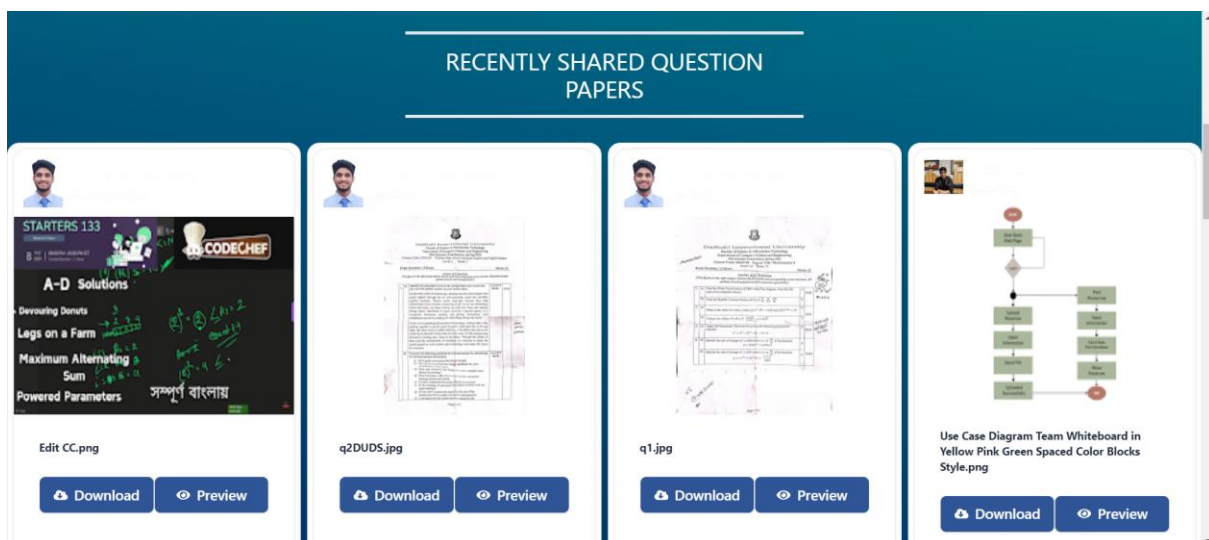


Figure 5.7: Shared Page

5.9 Footer Section

This is Footer Section. Here given our Social Media link, Terms and Condition.

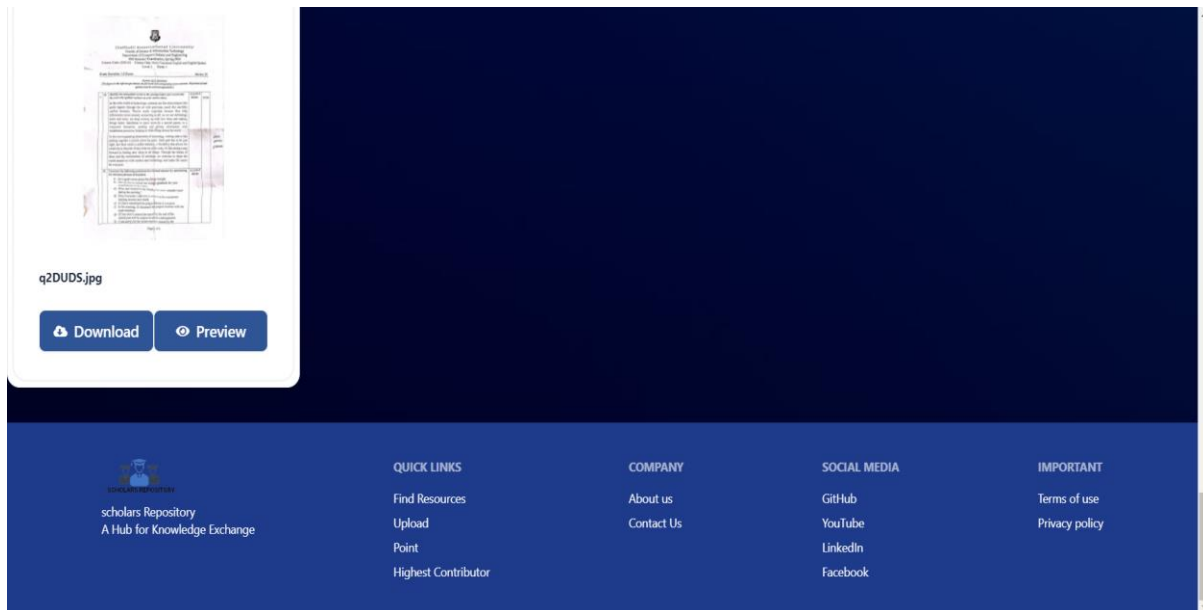


Figure 5.8: Footer Section

5.10 Registration Page

Here we will collect the information of the members who will register.

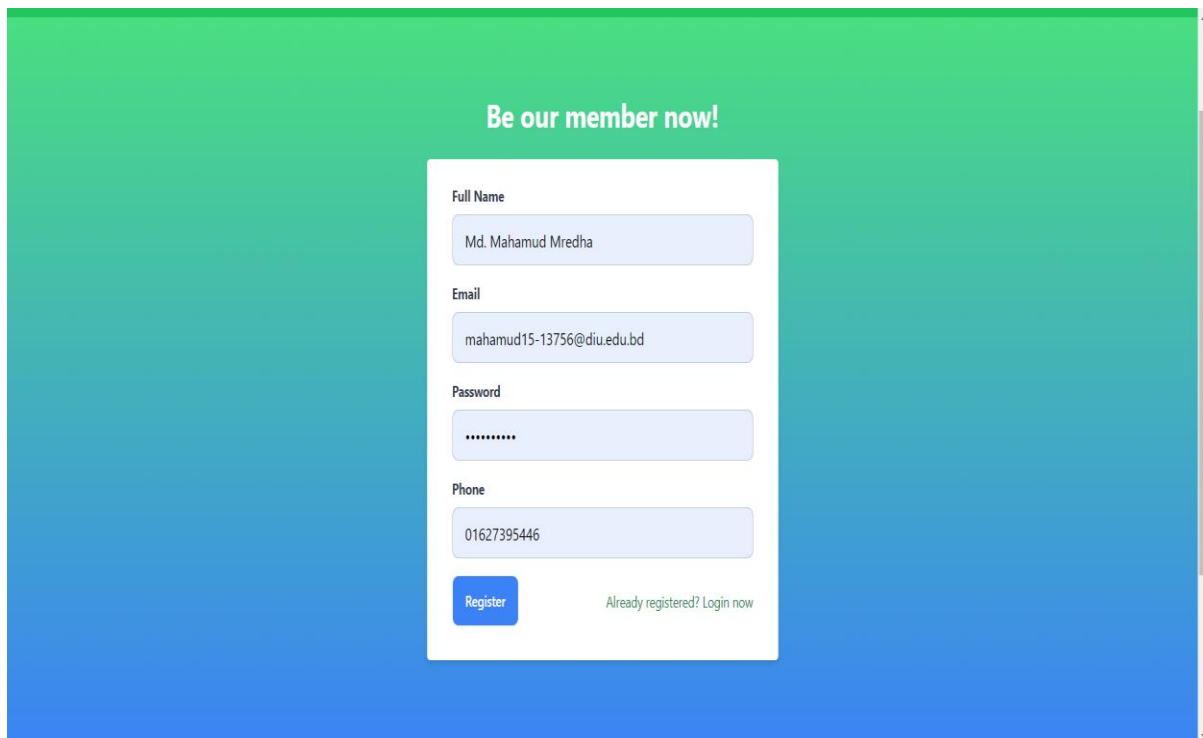


Figure 5.9: Registration Page

5.11 Firebase Authentication

Firebase Authentication uses for valid members to access our website.

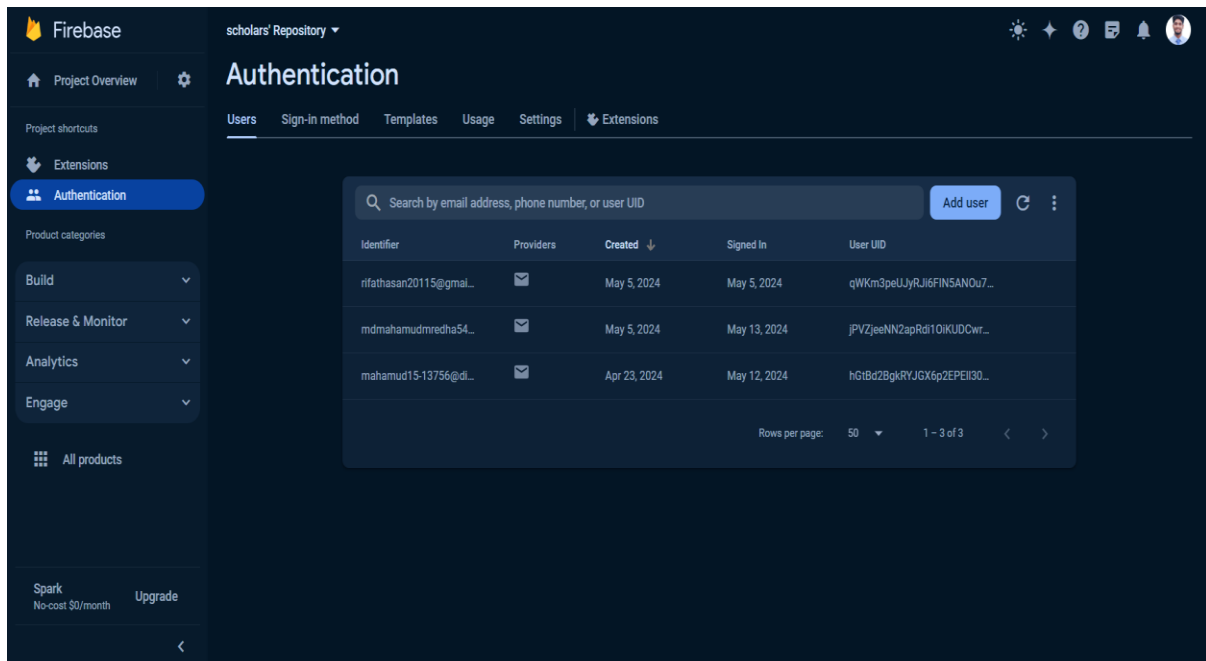


Figure 5.10: Firebase Authentication

5.12 Login Page

Here it is asked that a member needs information to enter our website.

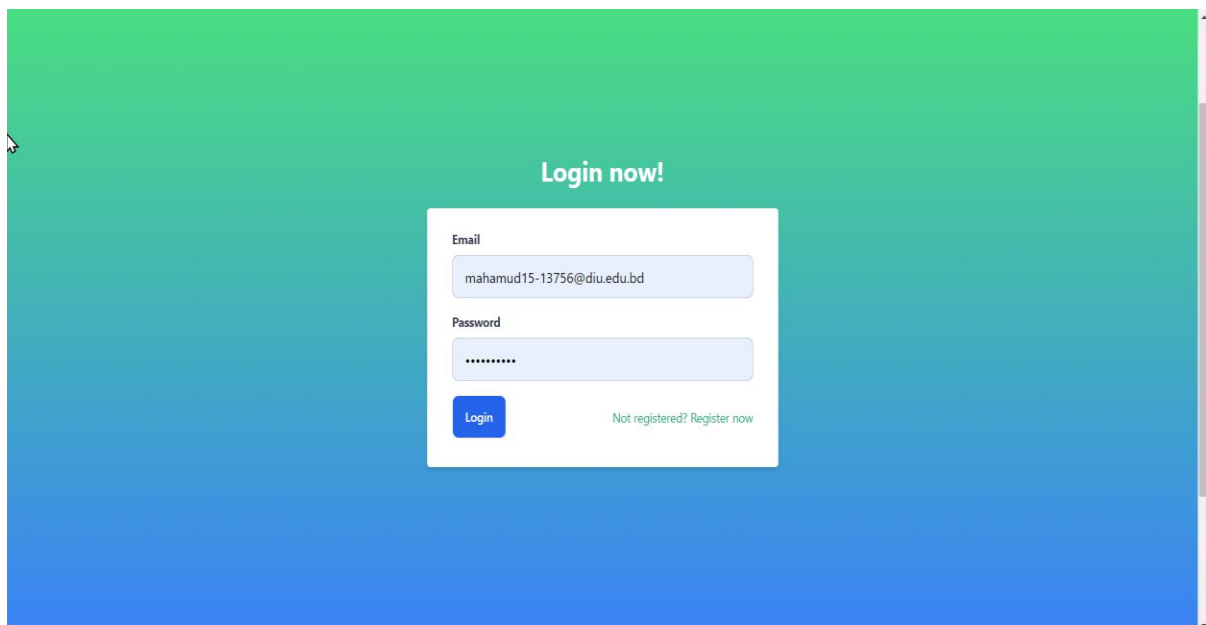


Figure 5.11: Login Page

5.13 User Dashboard Page

This section displays comprehensive information about all users, allowing them to update their details at any time. Users can easily access and modify their personal information, ensuring that their profiles are always current and accurate. This feature promotes user autonomy and data accuracy.



Figure 5.12: User Dashboard Page

5.14 Update Profile Page

A user can change his name photo on this page.

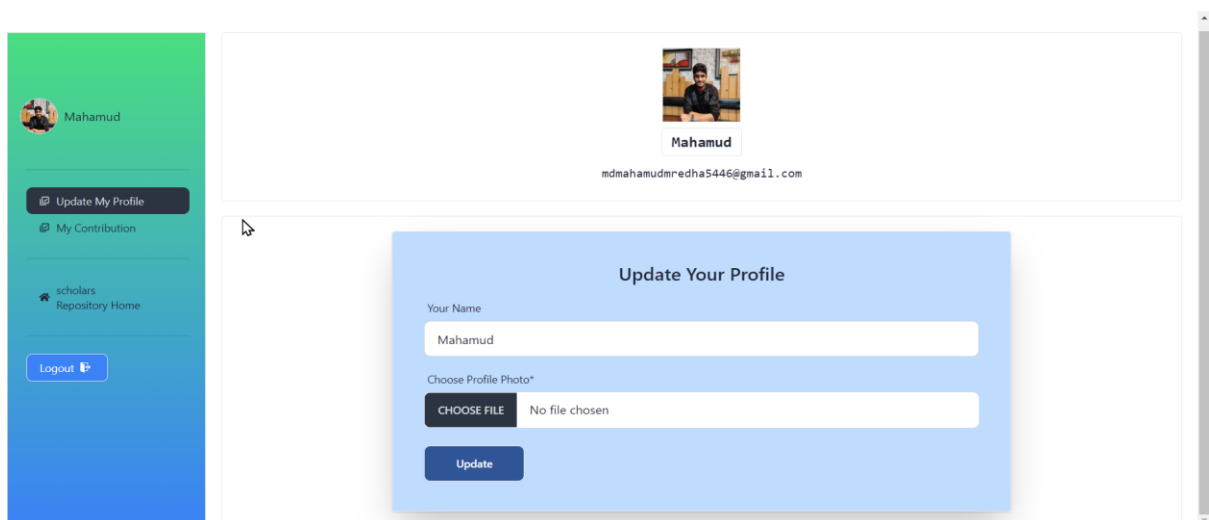


Figure 5.13: Update Profile Page

5.15 My Contribution Page

On this page, a user can view their upload history. This feature allows users to track and review all files they have uploaded, ensuring easy access to their past submissions and maintaining a personal record of their activity.

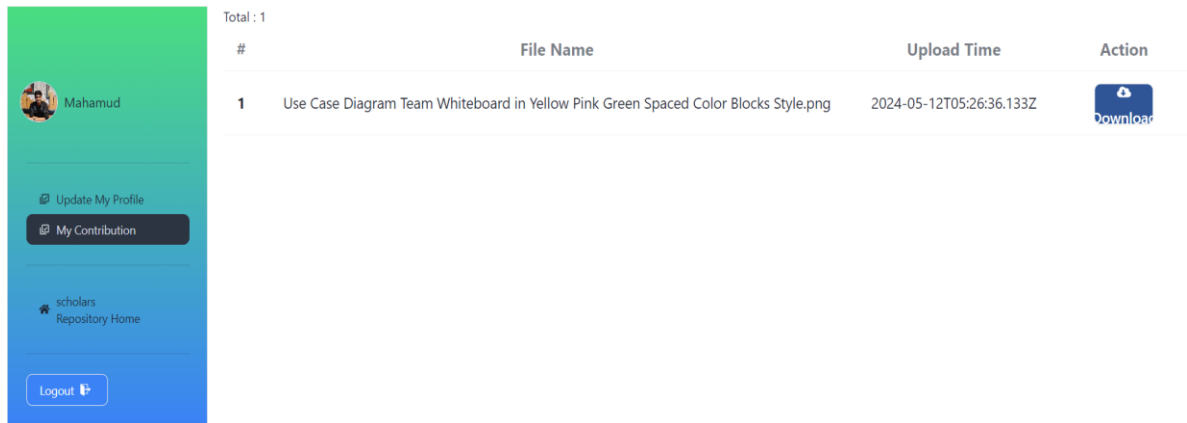


Figure 5.14: My Contribution Page

5.16 Upload Page

This page allows users to upload their academic resources to the website. Users can contribute materials such as lecture notes, research papers, and study guides, enhancing the repository of educational content available to the community. This feature promotes knowledge sharing and resource accessibility among users.

The screenshot shows the 'Upload your Contents' form. It includes fields for 'Select Document type' (with 'Question Paper' selected), 'University' (with 'University of Dhaka' selected), 'Department' (with 'EEE' selected), 'Select Semester' (with a 'Select' button), 'Course Title' (with a 'Select Course' button), and 'Upload File' (with a 'Choose File' button and 'No file chosen' text). There is also an 'Or' section with a 'Video Solution YouTube L' input field. A 'Contribute' button is at the bottom.

Figure 5.15: Upload Page

5.17 Find Resources Page

This page enables users to easily find the files they need. By providing a streamlined search and retrieval system, users can quickly locate specific documents or resources, enhancing efficiency and user experience. This feature ensures that academic and informational resources are readily accessible.

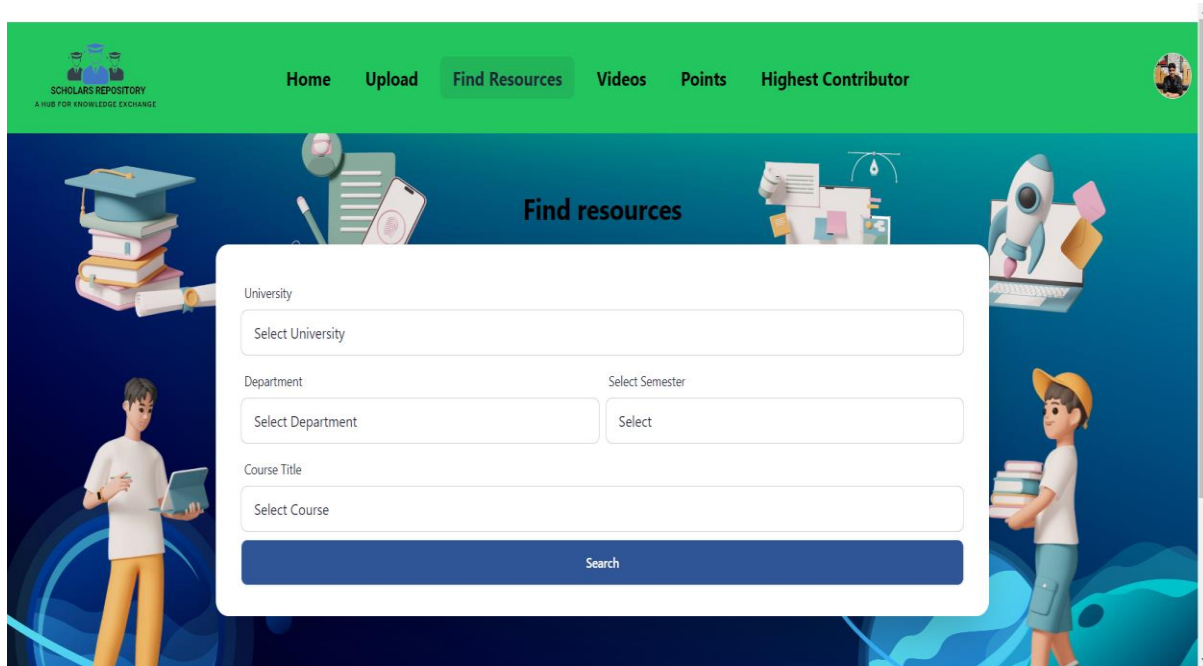


Figure 5.16: Find Resources Page

5.18 Show Resources Page

If the file that the user is looking for is in the database then it will show on this page.

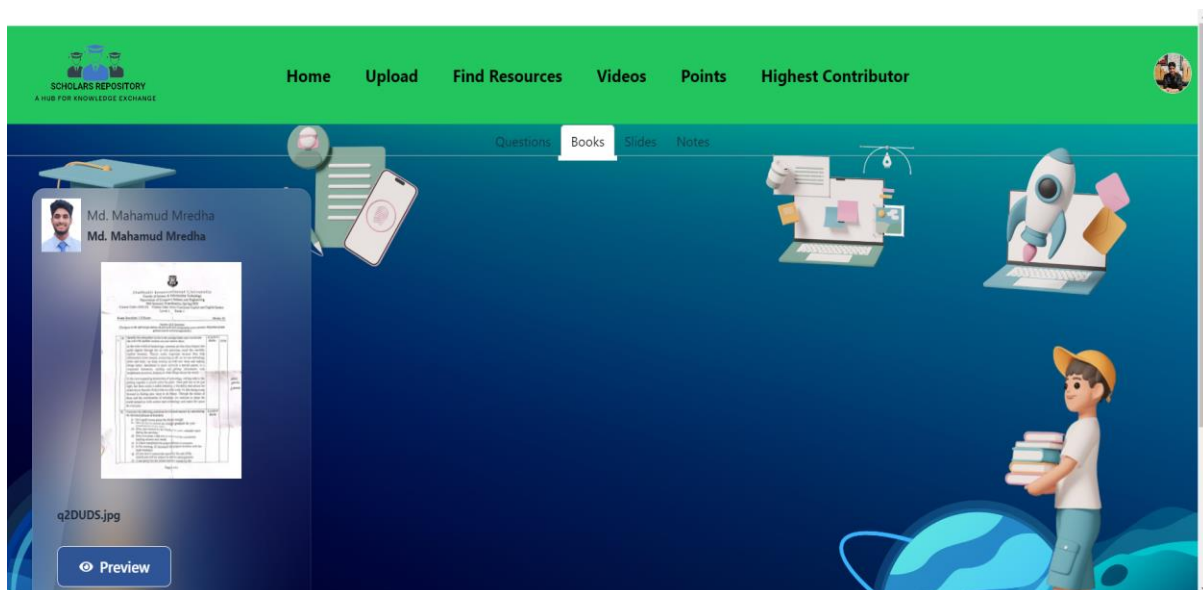


Figure 5.17: Show Resources Page

5.19 Point Page

The points earned by the user for each contribution will show here according to the rank.

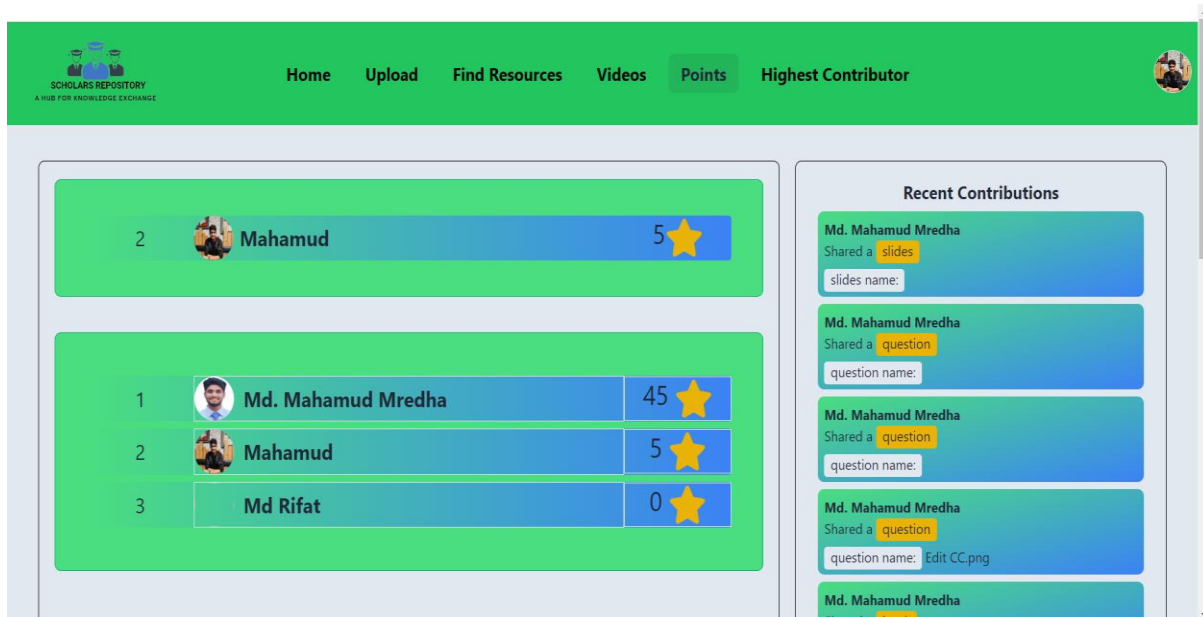


Figure 5.18: Point Page

5.20 Highest Contribute Page

This page will show the top three contributors.

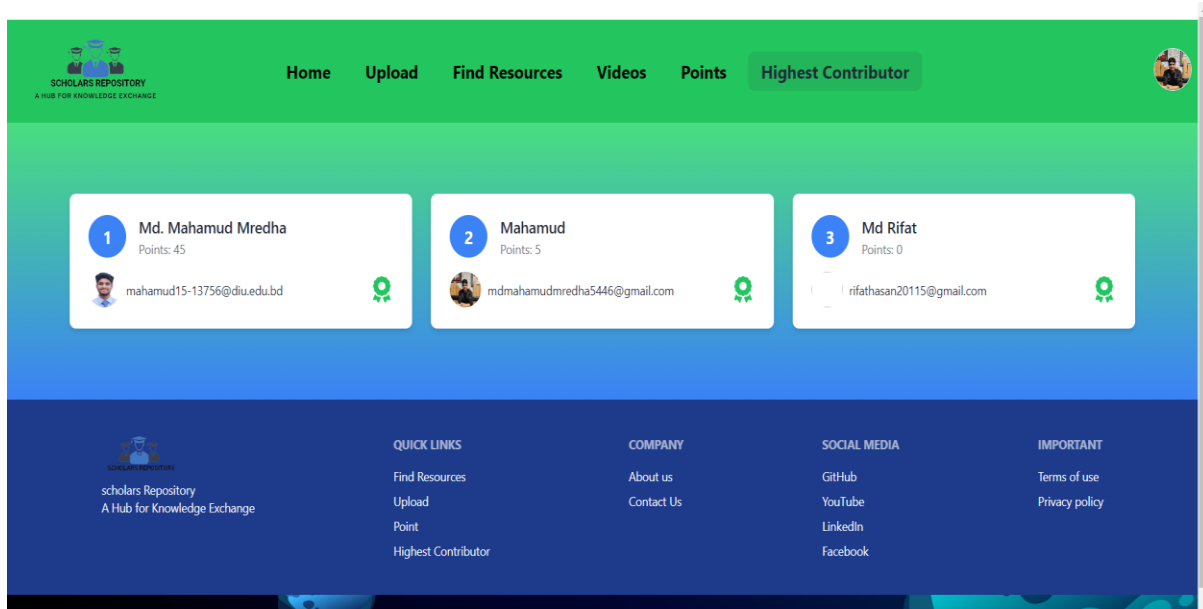


Figure 5.19: Highest Contribute Page

5.21 Admin Dashboard Page

This section offers comprehensive information regarding all admins, encompassing their respective roles and responsibilities. It promotes openness and facilitates efficient management and identification of the administrative team.



Figure 5.20: Admin Dashboard Page

5.22 Manage User Page

This page allows the administrator to bestow administrative privileges upon a standard user. This feature enables the administrator to distribute responsibilities and improve management efficiency by promoting trusted users to the role of administrator, thus extending the administrative team and effectively dispersing chores.

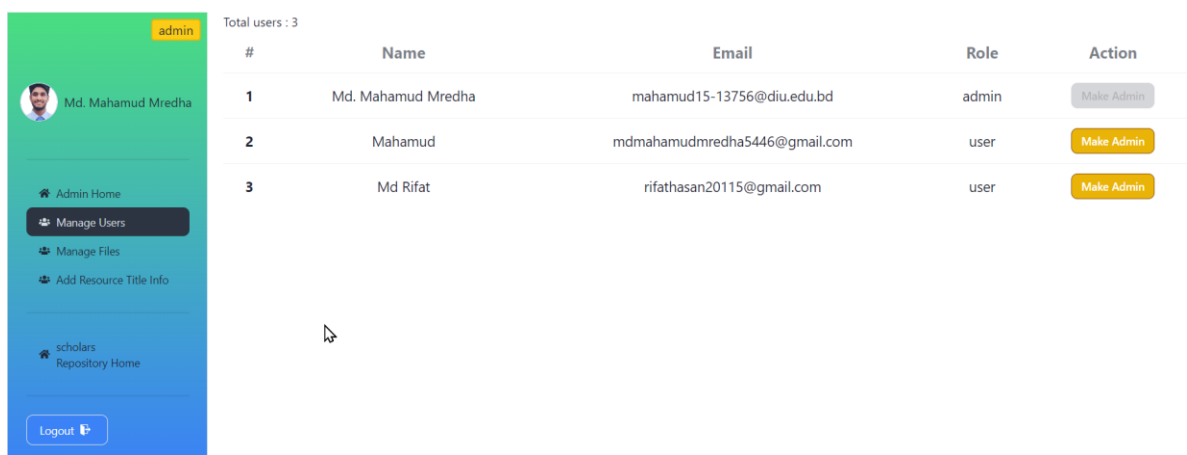


Figure 5.21: Manage User Page

5.23 Admin Dashboard Page

Within this system, the admin has the capability to access and review the comprehensive chronicle of all user actions and retrieve files that have been submitted by users. This function guarantees thorough supervision and streamlines data administration, allowing the administrator to effortlessly monitor user interactions and obtain essential information.



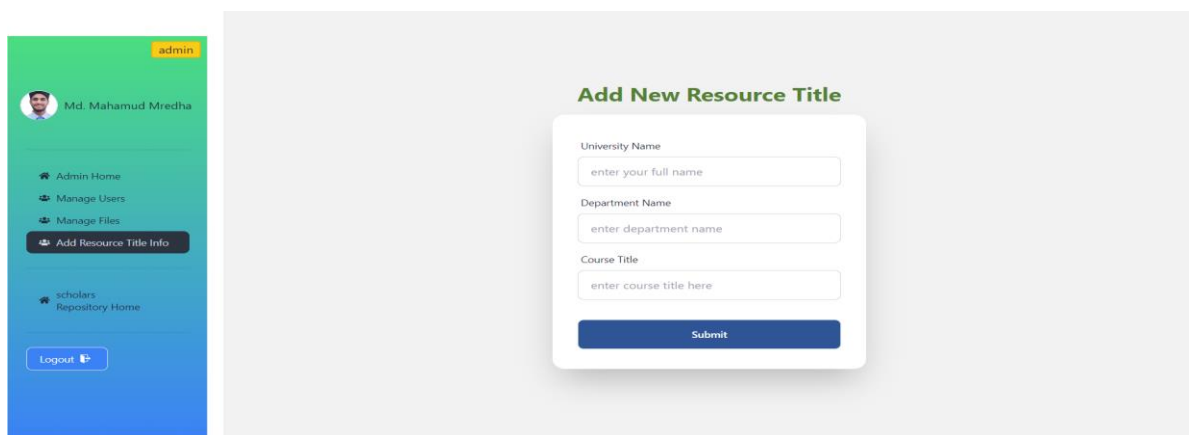
The screenshot shows the Admin Dashboard Page. On the left is a sidebar with a green header containing the user's name 'Md. Mahamud Mredha' and a yellow 'admin' badge. Below the header are navigation links: 'Admin Home', 'Manage Users', 'Manage Files' (highlighted), 'Add Resource Title Info', 'scholars Repository Home', and a 'Logout' button. The main content area displays a table of uploaded files. The table has columns for '#', 'File Name', 'Uploader Name', 'Uploader Email', 'Upload Time', and 'Action'. There are 11 rows of data, each with a 'Download' button in the 'Action' column.

#	File Name	Uploader Name	Uploader Email	Upload Time	Action
1	Tutorial 72 Remote Controlled AC Fan Regulator using Arduino.jpg	Md. Habibur Rahman	admin@gmail.com	2024-01-02T22:45:13.450Z	Download
2	Use Case Diagram Team Whiteboard in Yellow Pink Green Spaced Color Blocks Style.png	Mahamud	mdmahamudmredha5446@gmail.com	2024-05-12T05:26:36.133Z	Download
3	q1.jpg	Md. Mahamud Mredha	mahamud15-13756@diu.edu.bd	2024-05-12T05:38:49.749Z	Download
4	q2DUDS.jpg	Md. Mahamud Mredha	mahamud15-13756@diu.edu.bd	2024-05-12T05:42:23.805Z	Download
5	q2DUDS.jpg	Md. Mahamud Mredha	mahamud15-13756@diu.edu.bd	2024-05-12T13:40:52.888Z	Download
6	q2DUDS.jpg	Md. Mahamud Mredha	mahamud15-13756@diu.edu.bd	2024-05-12T14:03:52.467Z	Download
~		Md. Mahamud	mahamud15-13756@diu.edu.bd		Download

Figure 5.22: Admin Dashboard Page

5.24 Add Resources Title Page

Within this system, the admin has the ability to incorporate a multitude of university names, departments, and course titles. As an illustration, individuals have the option to input "Daffodil International University" as the institution, "Software Engineering" as the field of study, and "Introduction to Artificial Intelligence" as the title of the course. This facilitates the creation of a well-organized database that links universities with their corresponding departments and courses, hence enabling effective administration and retrieval of academic material. This feature is essential for the organization of educational data and the facilitation of academic administration.



The screenshot shows the 'Add New Resource Title' form. It is a white box with a green header. The form contains three input fields: 'University Name' with a placeholder 'enter your full name', 'Department Name' with a placeholder 'enter department name', and 'Course Title' with a placeholder 'enter course title here'. Below the input fields is a blue 'Submit' button.

Figure 5.23: Add Resources Title Page

5.25 Testing Implementation

The testing step in the "Scholars Repository" project is essential to verify the system's reliability, functionality, and security. An all-encompassing testing plan addresses multiple facets of the software development lifecycle. Unit testing using Jest and React Testing Library validates the functionality of individual components, while integration testing guarantees seamless communication between the front-end and back-end. End-to-end testing verifies the interoperability of a software application across different web browsers and assesses the overall user experience. Performance testing evaluates the speed of responsiveness and stability when subjected to heavy loads, whereas security testing concentrates on ensuring data protection and authentication. Usability testing guarantees the accuracy

5.26 Test Results and Reports

SL.	Test Name	Expected Result	Result
01	User Registration	User profile created successfully	Successful
02	User Login	User Authentication ok	Ok
03	User Authorization	Can determine admin and normal user	Yes
04	Dashboard authorization for each user	successful	Successful
05	Updating user information	updated	Successful
06	APIs integration	Fetching Data	Fetching
07	File uploading and fetching	Uploading and fetching successfully	Successful
08	Admin can make admin others user	Make successfully	Successful

09	User can upload video link	Link uploaded successfully	Successful
10	Admin can add title	Title added successfully	Successful
11	User can see recently shared documents	User can see successfully	Successful

TABLE 5.1: TEST RESULTS AND REPORTS

CHAPTER 6

IMPACT ON SOCIETY AND ENVIRONMENT

6.1 Impact on society

The "Scholars Repository" project is a multifaceted platform created to improve the educational ecosystem by offering centralized access to study materials, promoting collaborative learning, and adopting a gamified incentive system. It enables the exchange of information between users and administrators, fostering a feeling of involvement in the community. Incorporating elements such as leaderboards and awards promotes and acknowledges active engagement from participants. Through democratizing educational materials and cultivating a constructive academic community, our goal is to influence society substantially.

6.2 Impact on environment

The web-based platform "Scholars Repository" provides numerous environmental advantages. It decreases paper usage by offering digital study materials, enhances energy efficiency by functioning online, and facilitates worldwide access to resources, reducing the necessity for physical trips. The scalability and optimization of the system improve resource efficiency, while the facilitation of remote collaboration helps minimize transportation's environmental impact. In general, It is supports sustainability objectives by utilizing digital technology to reduce paper, energy consumption, and environmental effects related to conventional teaching methods.

6.3 Ethical Aspects

During the entire development phase of my project, I have strictly followed a code of ethics policy. By leveraging Next.js and Express.js as the fundamental technologies, I have adhered to integrity and user privacy ideals. This initiative aims to promote individuals' well-being by prioritizing ethical behaviors and preventing data exploitation. Ensuring the project's intended purpose is served without sacrificing user confidence and security is paramount. This will guarantee responsible and ethical conduct throughout the whole development process.

6.4 Sustainability Plan

While creating my web project, I followed the principles of the agile methodology, which emphasized flexibility and adaptability throughout the development process. This method allowed me to consistently improve and extend the project as new technologies and functionality arose. I included many technologies in my web application's architecture, harnessing their potential to develop a dynamic and efficient platform. An essential feature of my project is the implementation of Next.js for the front end. Next.js is a comprehensive framework that enables the development of React apps quickly and efficiently, offering a wide range of solid capabilities. Nevertheless, like any progressive technology, Next.js often issues updates and new versions, each potentially bringing proper functionality and enhancements. Due to the iterative nature of agile development, I am vigilant about staying updated on the progress and improvements made in Next.js. Upon releasing new versions, accompanied by enticing features and stability improvements, I am fully equipped to incorporate them into my project smoothly. By adopting a proactive strategy, I guarantee that my web application stays ahead of the curve in innovation. This allows me to provide users with an optimal experience by utilizing the most recent improvements in Next.js technology. In addition, although many crucial aspects of Next.js are presently in beta status, I expect them to migrate into stable releases. Once these features are stabilized, I plan to integrate them into my project to significantly improve its performance, functionality, and scalability. By adopting the agile methodology and keeping up with technological improvements in Next.js, I guarantee that my online project remains flexible, strong, and ready for ongoing success in a constantly changing digital environment.

CHAPTER 7

CONCLUSION AND FUTURE SCOPE

7.1 Discussion and Conclusion

The "Scholars Repository" project is an innovative and comprehensive platform that facilitates the sharing of resources with user-friendly interfaces and efficient administration dashboards. The system includes a scoring mechanism and leaderboards to track and reward active engagement. The project incorporates Google Drive and Google Cloud Console to enhance file storage capabilities, hence increasing scalability and reliability. Furthermore, it places a high importance on environmental sustainability through reducing paper usage, improving energy efficiency, and facilitating worldwide access to learning materials.

7.2 Future Scope

The "Scholars Repository" initiative has great potential for future improvements and expansions, providing numerous opportunities to enhance the educational experience. Several important avenues for future development and expansion include:

- Expand the platform's accessibility by creating mobile applications for Android and iOS devices. Developing a mobile application would enhance accessibility and user engagement with educational materials while moving.
- Utilize machine learning models to customize user content recommendations by analyzing their study patterns, preferences, and academic history. This can optimize the user experience by offering personalized recommendations and enhancing.
- Implement multilingual support to accommodate a broader range of users, enabling individuals from diverse locations and language backgrounds to explore and contribute to the platform effortlessly.

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