Elite Project Report

FACULTY PUBLICATION MANAGEMENT

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SUBMITTED BY

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Abstract

Faculty Publication Management is an innovative web application developed using the powerful MERN (MongoDB, Express.js, React, and Node.js) stack technology. The project aims to provide a comprehensive solution for faculty members at our college, allowing them to enter their publication data into a centralized database through a user-friendly GUI form. Additionally, the application includes authentication and CRUD (Create, Read, Update, Delete) features, enabling secure access and efficient management of academic publications. With the integrated CRUD functionality, faculty members can efficiently Create, Read, Update, and Delete their publication records within the centralized database.

The Faculty Publication Management system improves the process of handling academic publications within the college by providing an online solution. By incorporating authentication and CRUD functionality, the application ensures data integrity, accessibility, and personalized management for faculty members.

In conclusion, Faculty Publication Management, a web application with authentication and CRUD functionality, elevates the management of academic publications at our college to the next step. By offering secure access, personalized data management, and efficient publication handling, the application reinforces the timely uploading of research data one time and easy availability whenever needed.

Acknowledgement

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CERTIFICATE

This is to clarify that the project titled, 'FACULTY PUBLICATION MANAGEMENT' has been done by Shahnwaz Khan and Prakash Kumar Singh during semester-VI at the 'Acharya Narendra Dev College' under the Elite Summer Internship Programme in the supervision and guidance of Prof. Sharanjit Kaur.

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Supervisor

Prof. Ravi Toteja

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Contents

Chapter 1

Problem Statement

The lack of a centralized system for managing college publication data has the potential to create inefficiencies and missed opportunities for collaboration and recognition, as faculty and administrators may struggle to track and analyze academic publications effectively.

Currently, there is no centralized platform for faculty to submit and manage their publication data, leaving the management of this information to individual researchers or departments. This approach can lead to fragmentation and inconsistent data tracking, making it difficult to identify research trends and potential collaborations.

To address this problem, we propose a web application using MERN technology that provides a centralized platform for faculty to submit and manage their different types of publications like book, chapter, journal and conference. The application will enable users to easily submit publication details through a user-friendly form and store this data in a database. Additionally, the application will provide administrators with a filtering system to view and download data in Excel format, making it easier to track and analyze publication trends over time.

Overall, this application aims to provide a more efficient and effective way to manage academic publication data in the college, reducing duplicate efforts in collecting data, and with increased accessibility whenever the need arise.

1.1 Work Done in 2022

In the previous stage, the application had the home page, user verification, and the basic functionality of just adding book publications. The home page was the entry point to the application. It was a central hub where users could navigate to different sections.

1.2 Additional Work Done

At this phase of the project, a lot of new functionalities and features have been added to the Faculty Publication Management system, which improves the user experience and improves the overall usefulness of the application. Based on the existing base, following key features have been added:

- **User Profiles and Personalization:** Users now have dedicated profiles where they can view and manage their personal information, alongside their publication records. This personalized space provides a central hub for users to oversee their contributions.
- **CRUD Operations:** In addition, the user can include a variety of publication types. Users can now perform CRUD (Create, Read, Update) operations on various types of publications, such as books, journals, conferences, and chapters.
- **Publication Listing and Filtering:** Users can experience an organized listing of publications, categorized by publication type. This feature allows users to effortlessly filter and search through their publications, making it simpler to locate specific records.
- **Admin Dashboard:** Users are equipped with a specialized dashboard to view publication records across all users. While maintaining user privacy, users can only filter and export data. Any modification is not allowed.
- **Export Functionality:** A significant enhancement is the introduction of the ability to export publication records in CSV format.
- **Improved User Interface and Navigation:** The user interface has been revamped with enhanced aesthetics and intuitive navigation. This redesign ensures that users can effortlessly access various sections of the application and perform actions with minimal effort.
- **Contact Us Section:** Users now have the option to connect with the management

team through a dedicated 'Contact Us' section. This section serves as a means to gather feedback, address concerns, and provide assistance.

1.3 Organization of Report

This report is structured to provide a systematic and comprehensive understanding of the Faculty Publication Management project. To facilitate a clear and cohesive presentation, the report is divided into several key sections, each serving a specific purpose:

- **Tools and Technology:** In this chapter, we delve into the tools and technologies used in the project's development, providing insights into the technical aspects of the system.
- **Functional Requirements:** This chapter outlines the specific functionalities and features of the Faculty Publication Management system, detailing how it addresses the identified challenges.
- **User Interface Design:** Here, we explore the principles, layout, and interactive elements that enhance the user experience in the system's interface.
- **Database Design:** In this chapter, we delve into the architecture and organization of the project's database, explaining how data is structured and managed.
- **Conclusion and Future Scope:** This chapter summarizes the key findings and achievements of the project and outlines potential areas for future development and expansion.

Chapter 2

Tools and Technology

The MERN (MongoDB, Express.js, React, Node.js) stack caught our attention because of its unified development environment. JavaScript is used throughout the stack to guarantee code coherence and smooth communication. The component-based design of React made it easier to create dynamic user interfaces, improving user experience. Development was sped up by the resources the vibrant MERN communities provided. Scalability was aided by Node.js' quick handling of asynchronous activities, and MongoDB's schema flexibility allowed for adaptability to changing data requirements. This decision sped up development, promoted teamwork.

2.1 MERN Stack

- **MongoDB:** A NoSQL database for storing publication records. [6]
- **Express.js:** A framework for building APIs and handling HTTP requests. [3]
- **React:** A JavaScript library for building dynamic user interfaces. [5]
- **Node.js:** A server-side runtime for managing backend logic. [4]

2.2 Authentication and Authorization

- **JSON Web Tokens (JWT):** Used for user authentication and authorization. [1]

2.3 Frontend Development

- **React:** Core technology for building user interfaces.
- **React Router:** Library for navigation within the React app.
- **React Icons** UI component libraries.

2.4 Backend Development

- **Node. Js:** Open source runtime environment that allows executing Javascript code on then server side.
- **Express.js:** Backend framework for handling routes and requests.
- **Mongoose:** ODM library for MongoDB interactions.

2.5 User Interface Design

- **Tailwind:** CSS frameworks for UI design. [8]

2.6 Data Storage

- **MongoDB:** NoSQL database for storing publication records.

2.7 Version Control

- **Git:** Version control system for tracking changes. [2]

2.8 Coding Languages

- **JavaScript:** Primary programming language for frontend and backend. [7]

Chapter 3

Functional Requirements

The 'Functional Requirements' chapter outlines the essential capabilities and features that define the Faculty Publication Management project. This chapter dives deep into the specific functions that the application is intended to accomplish, giving a clear idea of what this project is all about and what its scope is.

3.1 User-Friendly Interface

- The GUI shall provide an intuitive and responsive interface for users to interact with the system.
- The naviagtion and interaction flow shall be straightforward and easy to understand.

3.2 User Authentication

- The system shall provide secure user authentication for faculty members.
- Users should be able to register with their credentials and create a unique password.
- Passwords shall be stored securely.

3.3 Publication Entry

- Faculty users shall be able to enter details of their publications via a user-friendly GUI form.

- Required publication details as per standard reference styles.

3.4 Publication sections

- The system shall have two sections: Profile and Admin.
- Faculty users shall be able to manage their own publication records in profile section.
- Users can see all the records in admin section.
- Only authorized users shall have access to CRUD operations.

3.5 Publication Listing and Searching

- The system shall display a list of publications for each faculty member.
- Users shall be able to search and filter publications based on various criteria, such as publication year or faculty department in admin section.

3.6 Publication Details

- Users shall be able to view detailed information about each publication.
- The system shall display the title, authors, publication type, publication date, and related details for each publication.

3.7 Publication Update

- Faculty users shall have the ability to edit and update their publication records.
- Changes to publication details shall be reflected in real-time within the system.

3.8 Publication Deletion

- Users shall be able to delete obsolete or incorrect publications from their records.
- Deleted publications shall be permanently removed from the database.

Chapter 4

User Interface Design

The 'User Interface Design' chapter illuminates the aspect of the Faculty Publication Management project—how users will interact with and experience the application. This chapter reveals the design principles, the layout, and the elements that have been put in place to create an easy-to-understand, interesting, and intuitive user experience.

4.1 User Authentication

The 'User Authentication' section is an essential part of the Faculty Publication Management project. It deals with the most important aspects of data protection and user rights. This section describes the careful implementation of a strong authentication system that controls who has access to what in the application.

4.1.1 SignUp

Before starting with the application, the user needs to create account using the credentials as shown in Figure 4.1. If the user has already created account then he/she can login using email and password used while creating the account.

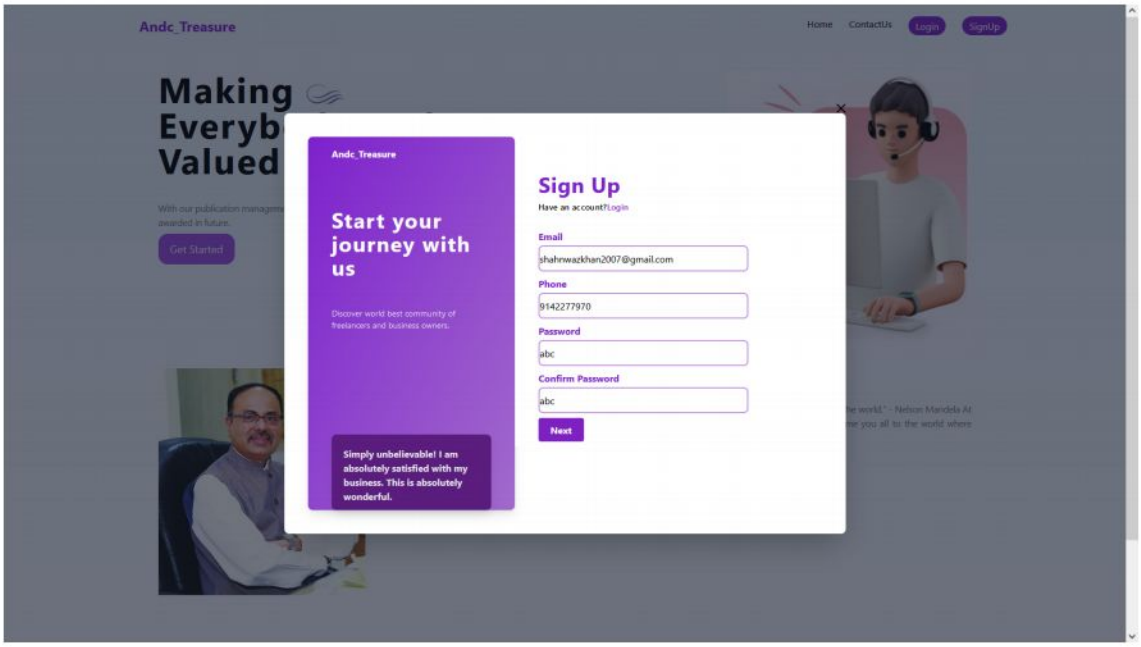

Figure 4.1: SignUp Form Section 1

All the fields are required, user will not be able to move to next section before filling all the fields in the first section. Second section will be having details as shown in Figure 4.2 SignUp Form Section 2.

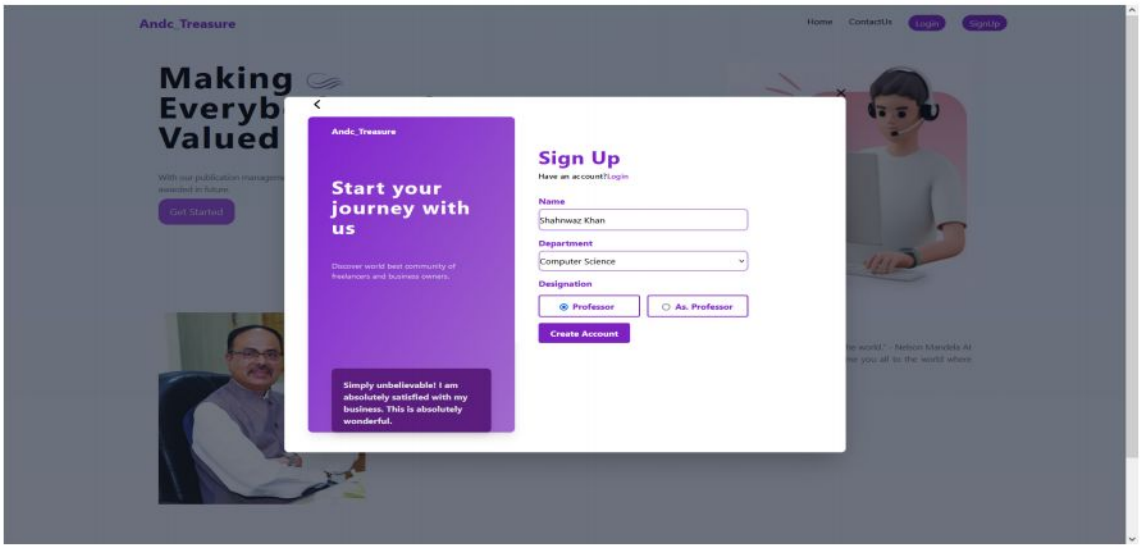

Figure 4.2: SignUp Form Section 2

4.1.2 Login

If the user has created account successfully, he/she can login using details listed in Login Form as shown in Figure 4.3.

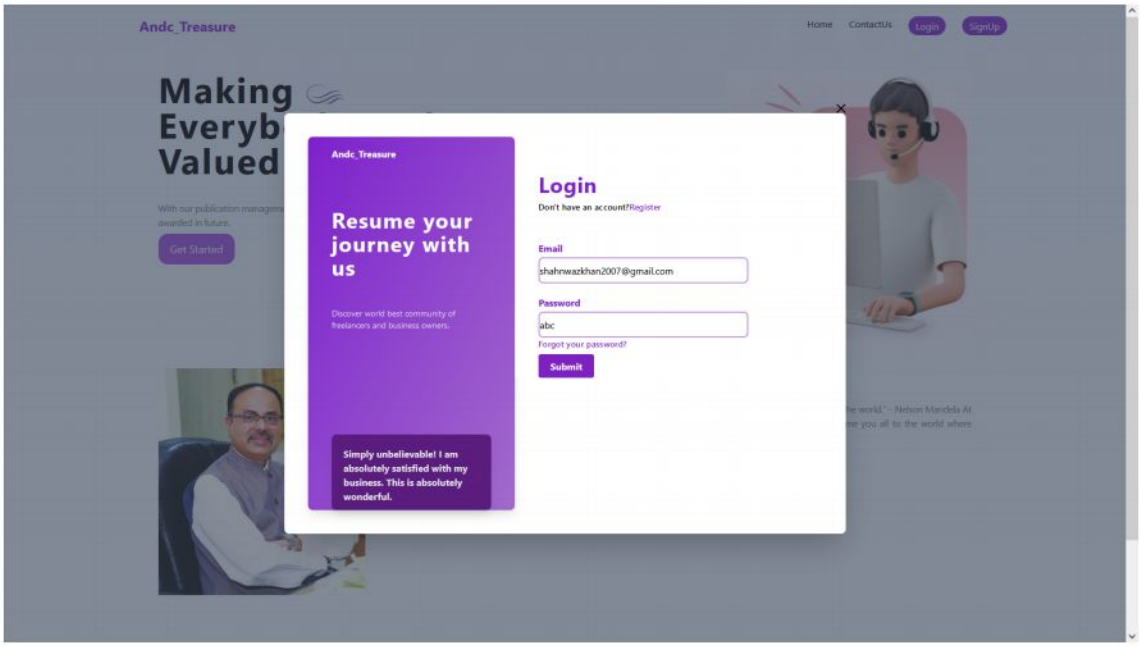

Figure 4.3: Login Form

4.2 Home Page

After successfull signUp or login, user will be taken to the home page, from where user can navigate to different sections by clicking on buttons displayed on top of the page. For proper understanding, figure 4.4 is attached.

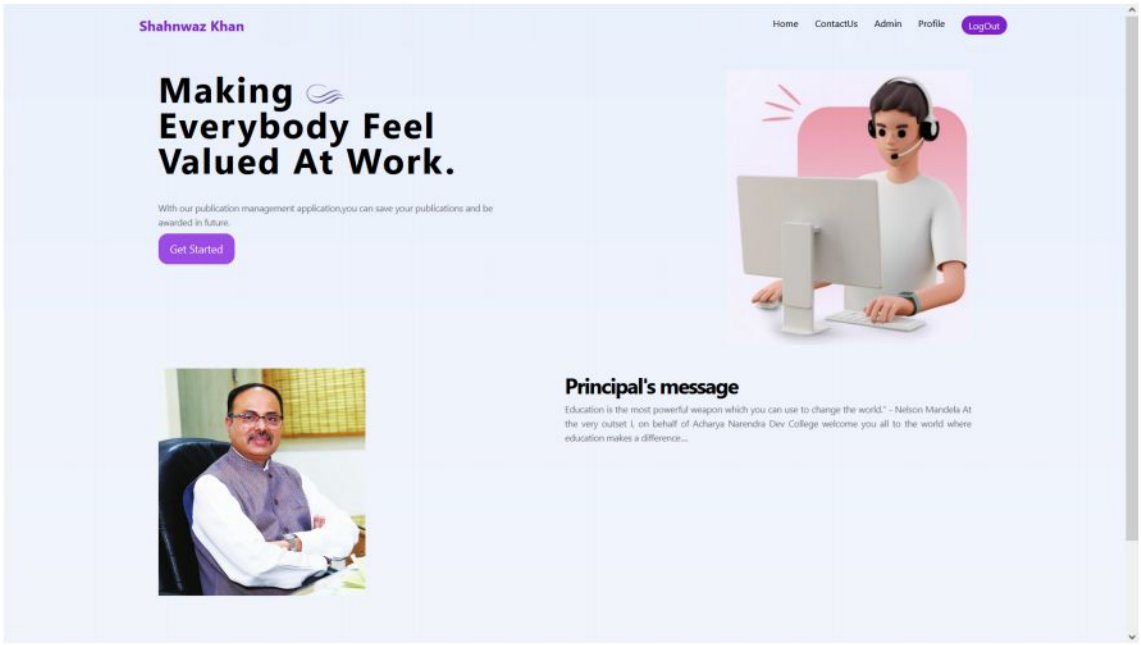

Figure 4.4: Home Page

4.3 Profile Section

In profile section, user can navigate to all types of publcations added so far and will also have options to create new publication, edit and delete the existing publication.

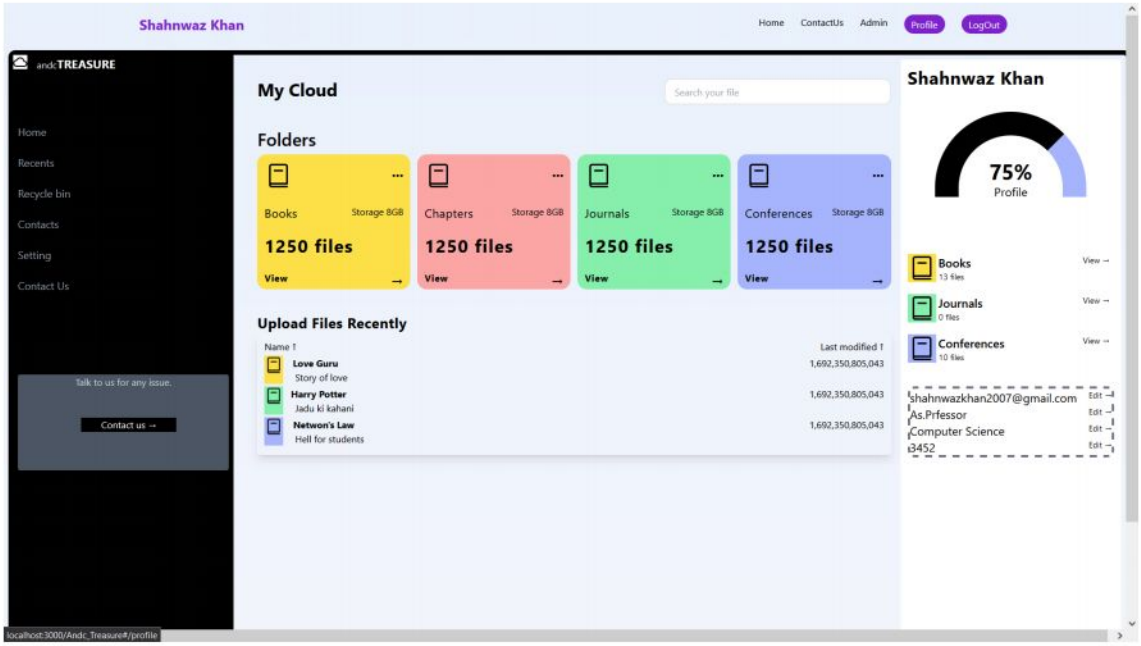

Figure 4.5: Profile Page

4.4 Add and View Publications

Once the user will click on any type of publication from profile section, he/she will be redirected to a page where all the publications added so far will be listed and an option on the top of the page is there to add new publication. For clear understanding Figure 4.6 is attached to get the quick view of the user interface of this section.

To add new publication, click on the button displayed on top. A form will be displayed, all the fields are required. Get a quick view from image shown in Figure 4.7 and Figure 4.8.

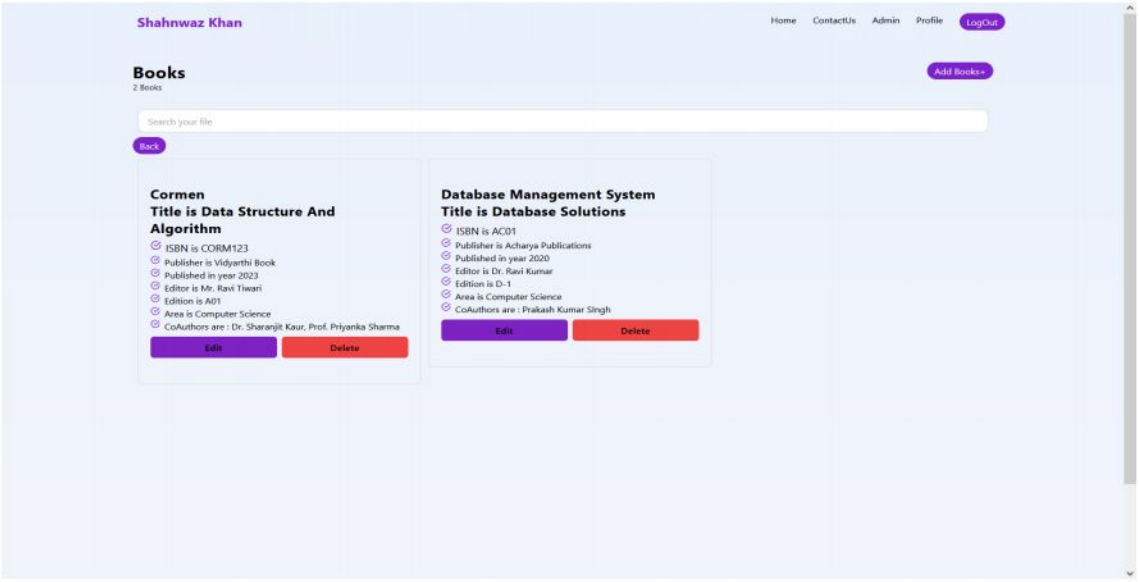

Figure 4.6: Publications View

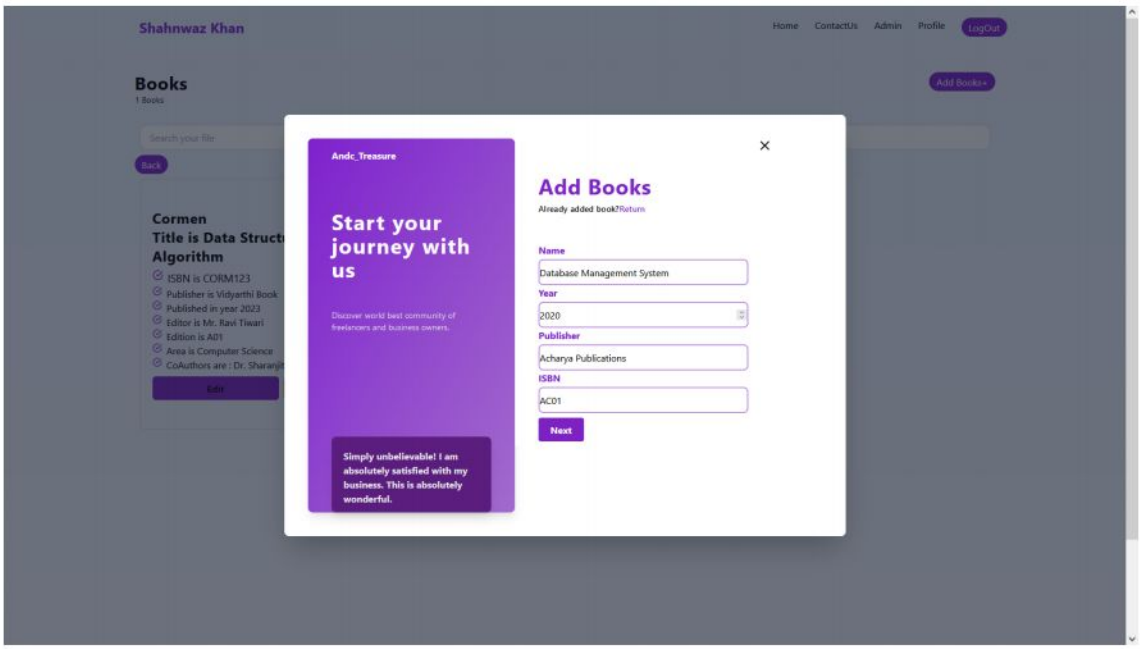

Figure 4.7: Add new book form section 1

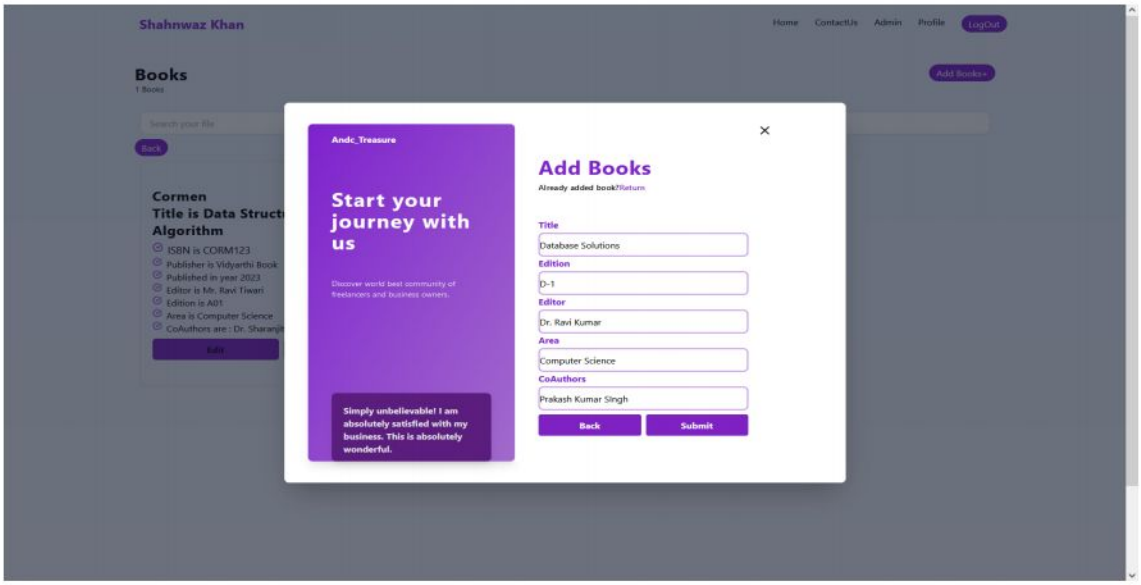

Figure 4.8: Add new book form section 2

4.5 Admin Page

In admin section, user can navigate to all kind of publcations added so far by all the faculties and user will also have options to filter publications and export them in CSV format.

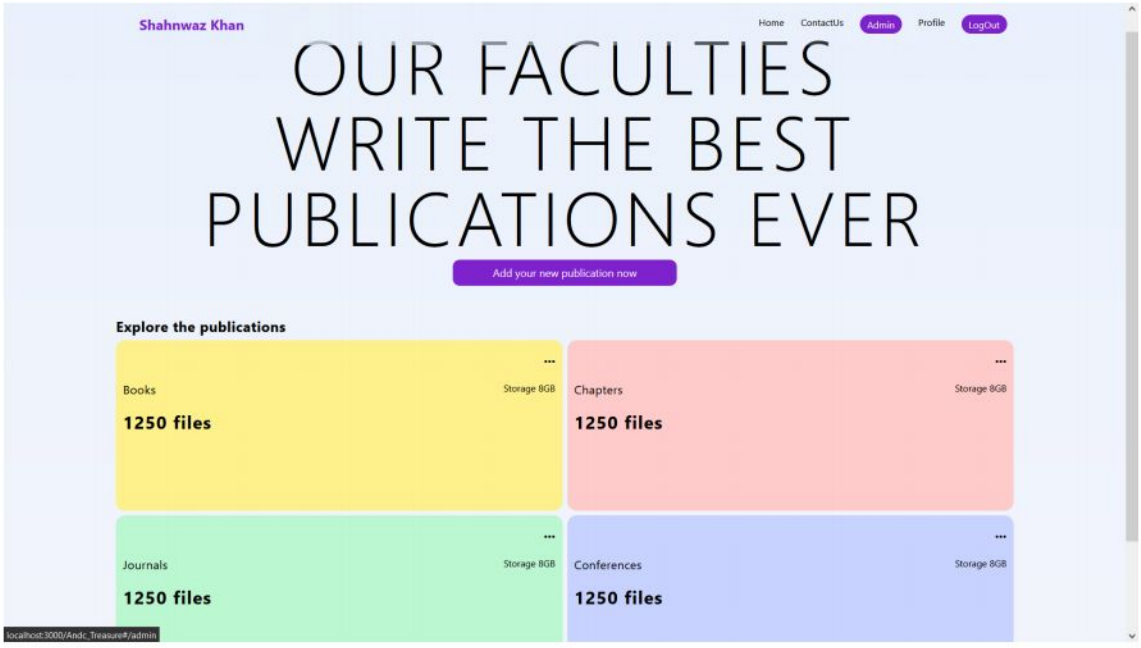

Figure 4.9: Admin section

4.5.1 All publications view

By selecting any type of publication, a page will be displayed as shown in Figure 4.10 listing all types of publications added by the faculty members. User can apply different types of filters like department, year range, designation etc. He/She can also click on any publications listed to get the detailed view.

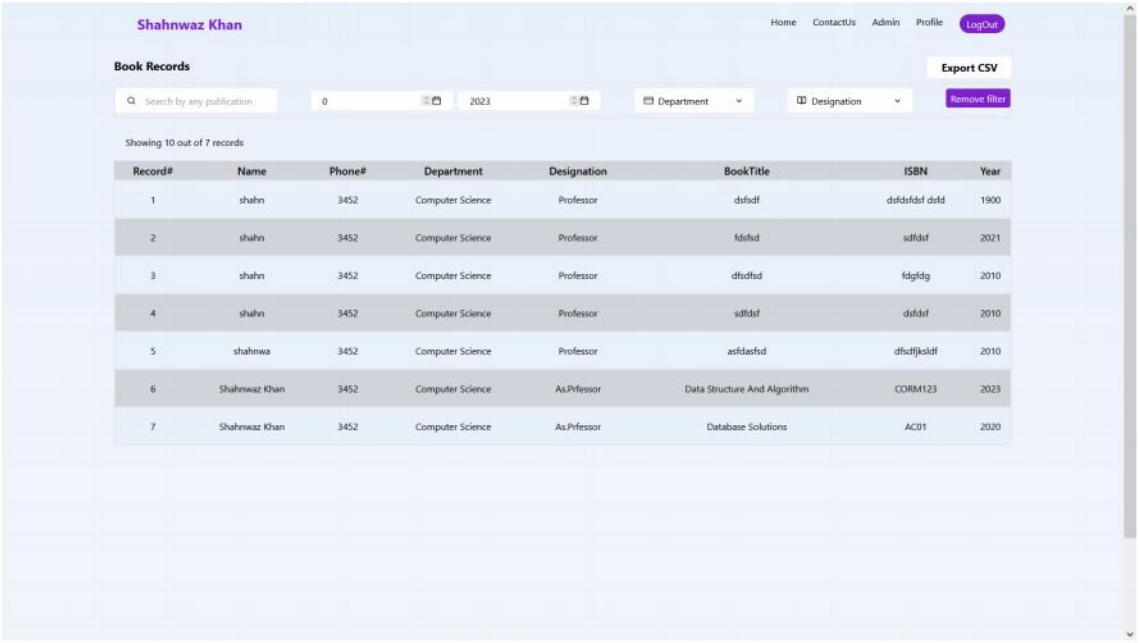

Figure 4.10: All publication view

Chapter 5

Database Design

In the 'Database Design' chapter, the basic structure that forms the foundation of the Faculty Publication Management project is described. Through this exploration of database design, the chapter underscores the project's commitment to robust data management, efficient querying, and the creation of a secure and scalable environment that forms the backbone of the entire application.

5.1 Table Details

'Table Details' section describes the structure of the database of the Faculty Publication Management project. This section unveils the tables that store critical data, unveiling their attributes, relationships, and the role they play in coordinating the application's functionalities.

5.1.1 Faculty

In faculty table, details like Name, Email, Phone, Department and Designation will be stored. Email cannot be same for more than one faculty. MongoDB generates an unique id for each entry in table, which is stored in attribute FID.

5.1.2 Publication Type

This table stores type of publication (Book, Book Chapter, Journal, Conference), Name of the publication, publisher, publishing year and unique ID of each publication, (ISBN,ISSN). PID is the unique id generated by database. ISBN/ISSN is primary key for this table.

5.1.3 Book Publication

Book Publication table has FID, PID as foreign key, referencing Faculty and Publication type table respectively. It has primary key, combination of PID, FID and Title of Book. It stores other details like Editor, Edition, Area and Co Authors of the book.

5.1.4 Conference Proceeding

This table stores details like if the faculty is first author, corresponding author, paper is presented or not, whether it is national and title of the paper. It has primary key, combination of PID, FID and Paper Title. PID and FID is the foreign key in this table.

5.1.5 Journal Publication

Journal publication stores details like ISSN of paper, Volume of paper, Co Authors and if author is first author, corresponding author. It has primary key, combination of PID, FID and the Paper Title. PID and FID is the foreign key in this table.

5.1.6 Book Chapter

Book chapter has attributes, Chapter Title, Book title, Editor, Edition, Area of the Book Chapter. It has primary key, combination of PID, FID and Chapter Title. PID and FID is foreign key in this table.

Chapter 6

Conclusion and Future Scope

This chapter provides an in-depth look at the current state, and future prospects of the Faculty Publication Management project. It defines the innovations that have been made, and the future prospects.

6.1 Conclusion

During this phase of the project, a number of enhancements are made to the Faculty Publication Management system. Users can add different types of publications to the system, making it more flexible. Users now have their own personal profiles where they can create, read, update and delete their contributions. Admin section that allows oversight without the access to modify data, which ensures data integrity. User interface is improved to make it more user-friendly, allowing users to easily navigate the system. Together, these improvements strengthen the project's foundation and pave the way for further development and refinement.

6.2 Future Scope

Here are some potential future scopes for the Faculty Publication Management project that could further enhance its capabilities and address evolving needs:

- **Share Publication:** Add functionality to share the added publication with co-authors.
- **Mobile App:** Develop a mobile application that allows users to access and manage their publication records on the go. This would provide greater convenience and accessibility.

- **Notifications:** Add notification system to notify user when any of the co-authors makes any change in the shared publication.
- **Publication Upload:** Allow users to upload their publication in pdf or any other format.
- **Forgot Password:** Add functionality to allow users update their password after OTP verification in case of forgotten.

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