A PROJECT REPORT ON

GyaanShaala : A One Stop Education Portal For All

Submitted to:

MOTILAL NEHRU NATIONAL INSTITUTE OF TECHNOLOGY ALLAHABAD

In Partial fulfilment of the Requirement for the Award of
MASTER OF COMPUTER APPLICATIONS
MNNIT ALLAHABAD
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UNDER THE GUIDANCE OF
PROFESSOR ANIL KUMAR SINGH
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

UNDERTAKING

We declare that the work presented in the report titled : "***GyaanShaala***", submitted to the Computer Science and Engineering Department, Motilal Nehru National Institute of Technology, Allahabad, for the award of the Master of Computer Applications degree, is our original work. We have not plagiarised or submitted the same work for the award of any other degree. In case this undertaking is found incorrect, we accept that our degree may be unconditionally withdrawn.

May, 2023
Allahabad

Ritika Upreti
Sagar Rawal
Ankita Arya
Shivam Dharpure
Shashi Kumar

CERTIFICATE

This is to certify that Ritika Upreti, Sagar, Ankita Arya, Shivam Dharpure and Shashi Kumar have successfully carried out the completion of the project entitled "GyaanShaala" under my supervision, during session 2022-23 and all the requirements of the project have been met.

May, 2023

_____

Prof. Anil Kumar Singh
Computer Science and Engineering Dept.
MNNIT Allahabad, Prayagraj.

PREFACE

Welcome to our project on academic and placement preparation. This endeavour has been a labour of love, brought to life through the collaborative efforts of our team. With a focus on empowering students and providing them with comprehensive resources, we have developed this platform using HTML, CSS, and JavaScript for the frontend, and Express.js and MongoDB for the backend database, including user login and registration functionality.Our frontend development incorporates HTML, CSS, and JavaScript, allowing for an engaging and user-friendly interface. We have designed intuitive navigation, visually appealing layouts, and responsive elements to ensure a seamless experience across different devices. Through careful consideration of user experience, we aim to make the platform accessible and enjoyable for all students.

To provide robust functionality and database management, we turned to Express.js and MongoDB for our backend development. Express.js offers a flexible and efficient framework for building web applications, enabling us to handle user authentication, data storage, and resource retrieval effectively. MongoDB, a NoSQL database, provides scalability and flexibility, allowing us to store and organise user data securely while ensuring optimal performance.We believe that collaboration and continuous improvement are essential for success. Therefore, we are committed to refining and expanding our project over time. We will gather feedback from users, incorporate new features, and update the platform to stay in line with the evolving educational landscape and industry demands. By doing so, we aim to provide students with the most up-to-date and relevant resources for their academic and placement preparations.

We sincerely hope that our project will make a positive impact on your academic journey and help you achieve your goals. We invite you to explore the platform, take advantage of the resources provided, and connect with fellow students.

ACKNOWLEDGMENT

We would like to give our sincere thanks to our mentor Professor Anil Kumar Singh, who guided us throughout our project "***GyaanShaala***", in every possible way with his invaluable advice and useful suggestions. Our project would not have been possible without his constant guidance, support and encouragement that helped us in completing our project in given time. We feel honoured and privileged to work under him.

Ritika Upreti
Sagar
Ankita Arya
Shivam Dharpure
Shashi Kumar

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Chapter 1

Introduction

GyaanShaala is a dynamic initiative that aims to equip students with the essential resources and support they need to excel in their academic pursuits and prepare for successful career placements.
This project provides a comprehensive set of resources, tools, and guidance designed to improve students' academic performance, develop useful skills, and increase their chances of landing desirable placements. It does so by recognising the importance of holistic development and a smooth transition from the academic to the professional world. By addressing both academic and career preparation needs, this project paves the way for students to achieve their goals and thrive in today's competitive landscape.

The objective of this project is to create a comprehensive online platform that provides students with valuable resources and information related to academics and placements. The platform aims to support students in their educational journey by offering easy access to relevant study materials, career guidance, and job placement assistance.This software is supported to eliminate and in some cases reduce the hardships faced by the students.

1.1 Motivation

Students confront several hurdles when it comes to preparing for their academic pursuits and getting successful placements in today's highly competitive academic and professional scene. As a result, there is an urgent need for a project that focuses on locating resources to assist students with academic and placement preparation. The goal of this initiative is to bridge the gap between the wealth of information available and the students' capacity to access and efficiently use these resources.

The fundamental goal of this initiative is to empower students by providing a centralised platform with comprehensive and personalised information for their academic and placement needs. This project seeks to streamline the preparation process and lessen the stress associated with academic and placement-related activities by combining a wide range of information such as study guides, practise examinations, interview tips, and career development resources.

Furthermore, this study aims to address the resource access disparities that exist among students. Students do not all have equal access to high-quality educational materials and assistance. This project strives to level the playing field by curating a varied range of resources, including those explicitly targeting underrepresented communities or students from poor backgrounds.

To promote a sense of community among students is another important goal. The project will give students a forum to interact, exchange stories, and encourage one another as they navigate the academic and job placement processes.

Additionally, this approach acknowledges the dynamic character of both the job market and education. It will continuously update and adjust its resources to meet the most recent technological advancements, market demands, and fashion trends. The project seeks to give students the knowledge and abilities they need to succeed in an academic and professional environment that is always changing by remaining up to date and pertinent.

In general, our project's inspiration comes from a sincere care for the achievement and welfare of pupils. We seek to empower students, level the playing field and provide them with the readily available and comprehensive materials they need to be prepared for academic and placement success. We want to have a significant and long-lasting impact on students' lives through this project so they can succeed academically and find rewarding employment.

Chapter 2

Related Work

Information serves as a nervous system for both teachers and pupils. Information and communication technology tools have altered the style of communication and information availability in a digital world. The engineering faculties of NMIMS (Deemed to be University), Mumbai, were studied for their use and understanding of e-resources in this study. The results show that the majority of faculty members, 85.71%, use e-resources for research and learning purposes. It is also discovered that the institute's hectic schedule inhibits the effective and efficient use of e-resources, according to 552.38% of respondents.

NMIMS stands for Narsee Monjee Institute of Management Studies and is considered a university in Mumbai.Because of developments in the publishing industry, several resources are now available in electronic or digital format.These e-resources are available to both the library and the public, around the clock, quickly, and saving the user's time and money.

Sue (2014) discusses the use of e-resources by staff, teachers, and students at the University of Montana depending on research and teaching requirements. Tlakula (2016) investigates the use of e-resources student community resources at the University of Venda,whereas, *Yamson, Appiah, and Tsegah (2018) investigate the use of electronic vs. print materials in the Central University library in Ghana*.

It has been discovered that users are more attracted to e-resources rather than printed resources. Because the institution spends so much money on e-resources, library personnel are working especially hard to encourage their utilisation.

Peters (2002) and Yi and Borin (2006) elaborate on the statistics of e-resource utilisation.Kashyap (2016) did a study on a comparative analysis of e-resources utilisation by university faculty members in the states of Madhya Pradesh and Chhattisgarh. According to data analysis, the majority of faculties in Chhattisgarh use e-resources.

Major Findings:

•All e-resources are in high demand, with 45.24% of students accessing them frequently.

•The majority of faculty (40.24%) use e-resources for teaching purposes.

•Faculty were promoting e-resources within the student population by assigning various academic projects such as Classroom assignments (52.38%) and knowledge updates (47.61%).

•The majority of faculty members are pleased with the e-resources in terms of adequacy, coverage, and availability.

Preferred devices to access E-resources

Name of ASN	**Frequency**	**Percentage**
Desktop Computer	**52**	**32.7**
Laptops	85	53.5
Tablet	16	10.1
Smart Phone	4	2.5
Other Devices	2	1.2
Total	159	100

Frequency of Accessing E-resources

Frequency of Access	**Frequency**	**Percentage**
Multiple times a day	39	24.5
Daily	84	52.8
Twice a week	33	20.7
Weekly	3	1.8
Whenever I require	-	-
Total	159	100

Chapter 3

Proposed Work

This project is an all-encompassing platform aimed to help students with their academic pursuits. The project's goal is to provide a welcoming online environment that promotes effective learning, knowledge sharing, and skill development. The platform aims to improve students' study experiences and academic success by combining modern technologies and educational resources. We have tried to provide the following facilities/ features to this website :

- Resources for academics and placements
- User registration and login
- Interview experiences
- Feedback portal
- Information about admins for any queries

Operating environment :

The application will run on websites via a browser. GyaanShaala is an online application that may be accessed via a browser in web sites. The only need for using this website is an internet connection and a device capable of accessing high-speed internet.

Methodology:

The major stages in this project are:

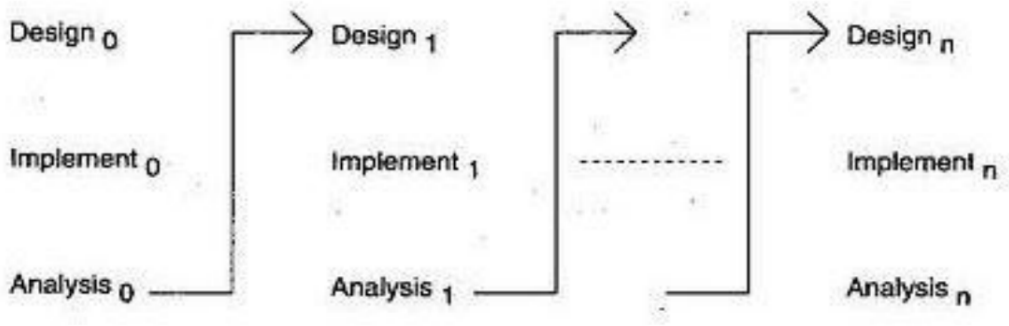
1. Basic Installation and Environment Setup
2. Application Creation
3. Resources Collection
4. Storing them in database
5. Application Running

All the steps are explained in detail in the upcoming sections.

System Planning & System Development Lifecycle (SDLC)

We chose the "Iterative Life Cycle Model" for designing this application since it does not seek to begin with a thorough specification of needs. Instead, development begins by specifying and developing only a portion of the software, which can then be examined to find additional requirements. This process is then repeated for each cycle of the model, resulting in a new version of the software.

Iterative model diagram :



Advantages of Iterative Model :

- We construct and improve the product step by step in an iterative manner. As a result, we can detect flaws at an early stage. This prevents the flaws from flowing downhill.
- It is simple to test and troubleshoot in fewer iterations.
- We can obtain reliable user input using the iteration approach. When we provide product designs and blueprints to users for feedback, we are practically asking them to imagine how the product will work.
- Progress is measurable.
- The iterative methodology spends less effort on documentation and more time on design.
- Risks are identified and resolved each iteration, and each iteration is a manageable milestone. It can adapt to changing needs.

Tech Stack Used :

- **Frontend :**
  - HTML
  - CSS
  - Javascript
  - Bootstrap
- **Backend :**
  - NodeJS
  - Express.js
  - MongoDB
- **Tools Used:**
  - Visual Studio Code
  - Google Chrome Browser
  - Git and Github
- **Packages Being Used :**
  - ejs-mate
  - mongoose
  - express-session
  - connect-flash
  - connect-mongo
  - multer
  - cloudinary
  - passport
  - multer-storage-cloudinary

Chapter 4

Implementation

This project is especially designed for students. The system incorporates both an admin and user implementation, each with its specific set of features and functionalities.

User Implementation :

- **User Login/Register:**
  Allows users to sign up for new accounts or log into their already existing ones. Providing relevant information during registration normally entails giving your name, email address, and password.

- **Resources Viewing and Downloading:**
  Users can browse the resource library, preview and download its contents after logging in. To download a material, users simply need to click the appropriate download button or link.

- **Send Feedback to Admins:**
  Users have the option to provide feedback to the administrators regarding the resources, system functionality, or any other relevant aspect. This feedback can be submitted through a feedback form.

- **Contact Admins for Queries:**
  Users can contact the administrators through the information given in the website. The administrators can then respond to these queries, provide guidance, or resolve any issues that users may have.

- **Logout Feature:**
  Users can log out of their accounts once they have completed using the system or if they want to keep their accounts safe from unauthorised access.

Admin implementation :

- **Admin Login:**
  The project begins with a secure admin login feature that allows authorised administrators to access the system. Admins can log in using their unique credentials to gain privileged access to administrative functionalities and controls.

- **Add and Delete Resources:**
  Once logged in, admins can add new resources to the system. The system ensures that the added resources are properly organised and accessible to the users. Admins also have the authority to remove resources from the system when they are no longer relevant or require updating.

- **Respond to Feedbacks:**
  It facilitates effective communication by enabling admins to respond to user feedback. Admins can review user feedback submissions, including suggestions, concerns, or inquiries, and provide timely responses.

- **Manage Resources :**
  Admins have the ability to modify resource details, such as title, description, or metadata. This ensures that resource information remains accurate and up-to-date, providing users with the most relevant information.

Materials section

- **Data Structure and Algorithm :**
  This portion of the website contains a playlist of all key data structure subjects. We have included the key questions for online coding competitions and interviews. Students can access the playlist for tutorials and solutions provided in this area, which can be found on YouTube or other websites.

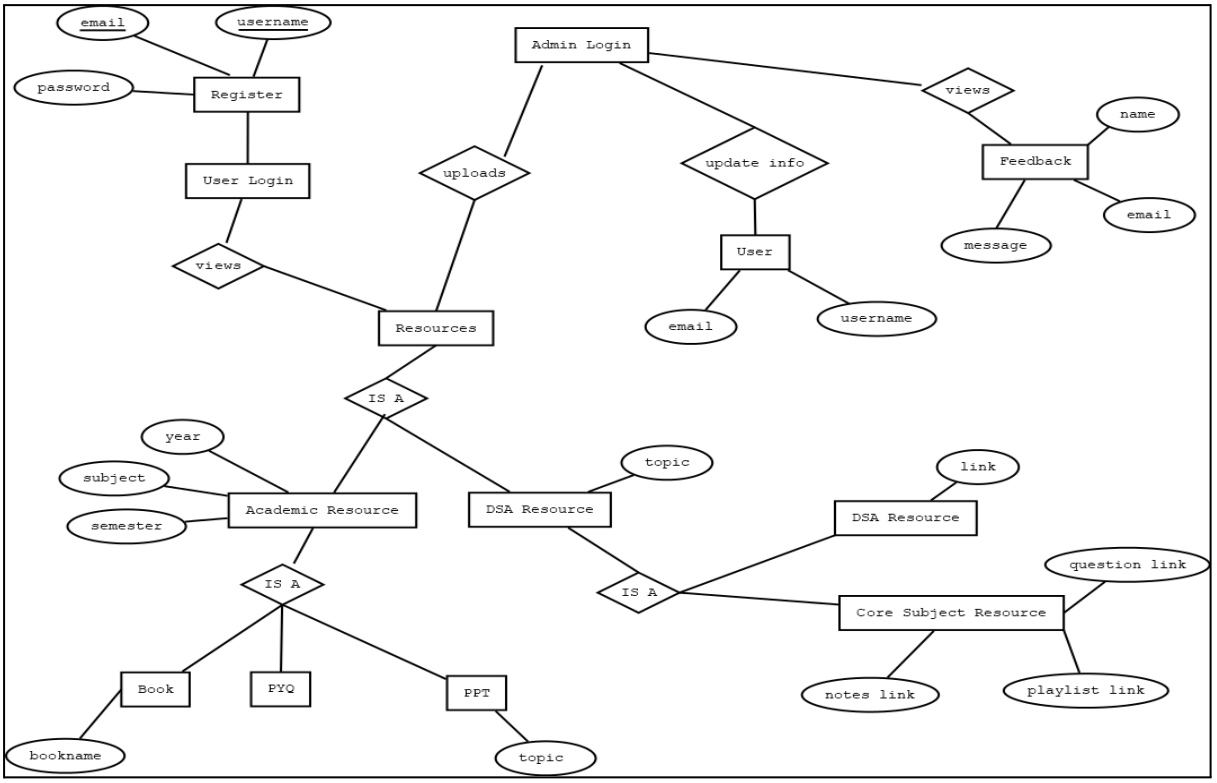
- **Academics :**
  This section contains all of the books, ppts, assignment questions, and academic calendars for the course selected by the user. The user can examine and download books on the subject of his choice, as well as see the newly added resources.

- **Development :**
  This part of the project has the information related to the web development, application development and machine learning. We have provided the links of the free as well as paid courses for each of the category.

Chapter 5

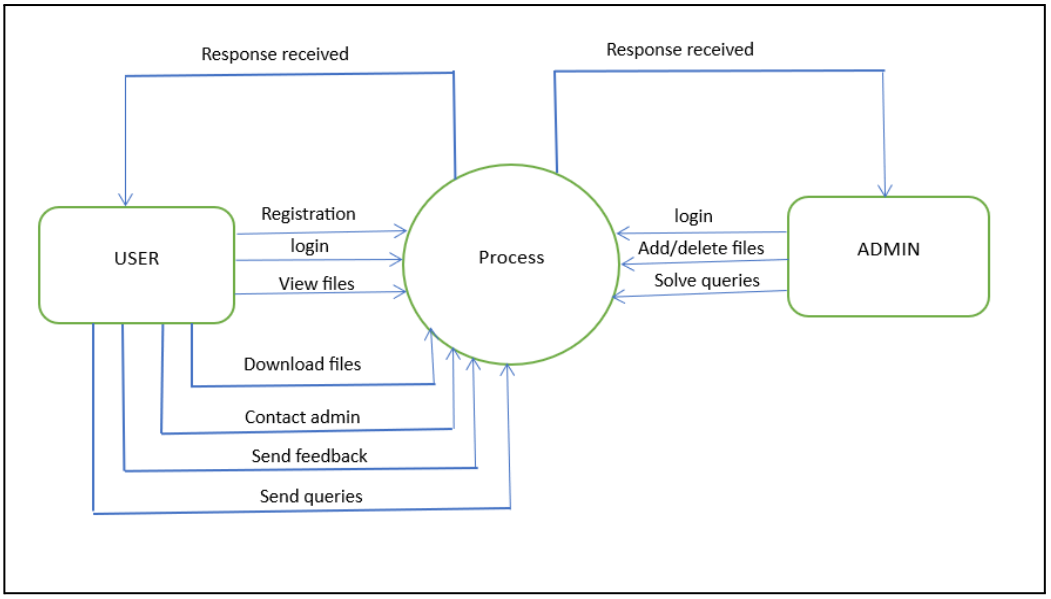
System Design

1. Entity Relationship Diagram

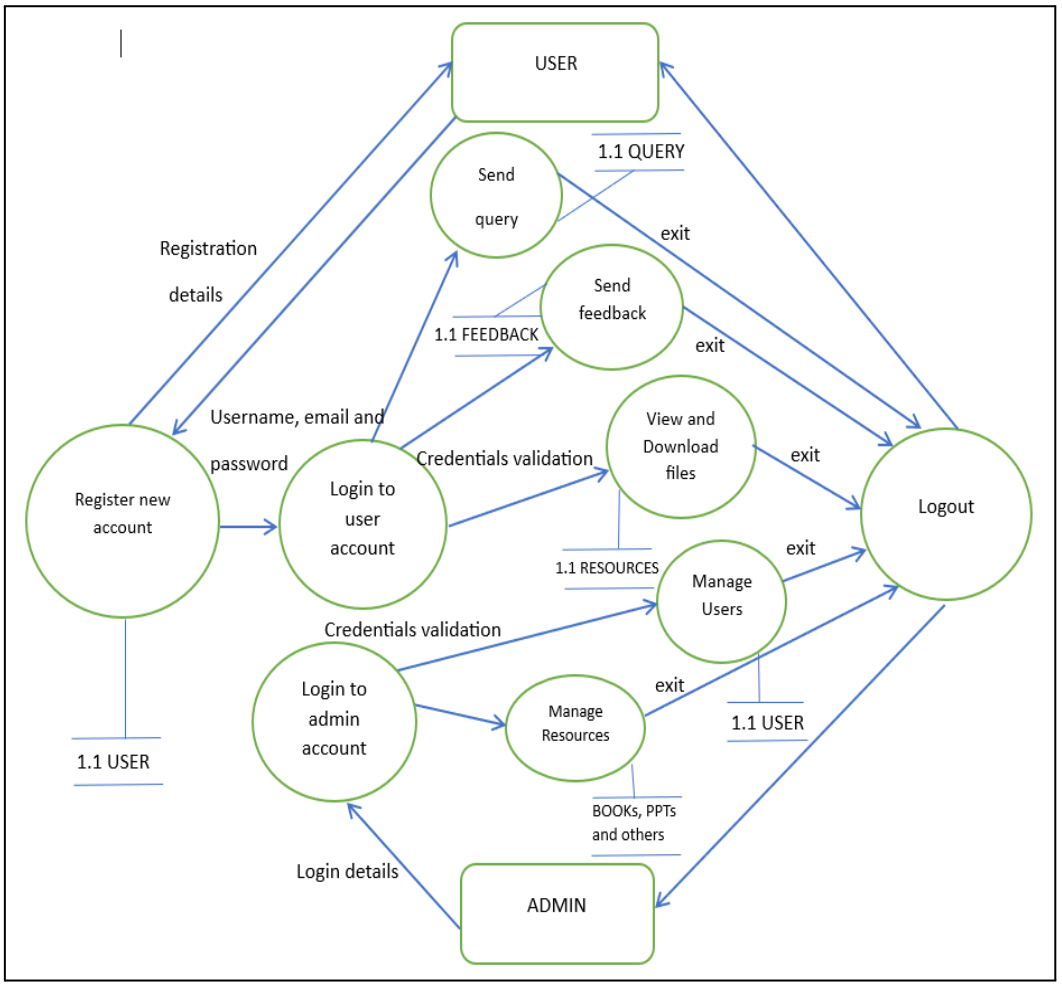


2. Data Flow Diagram

Level 0 :

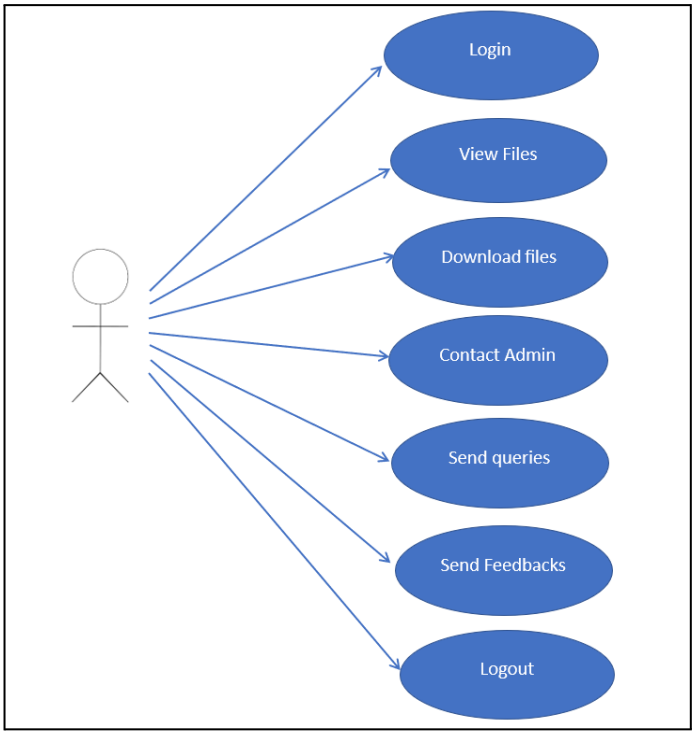


Level 1 :

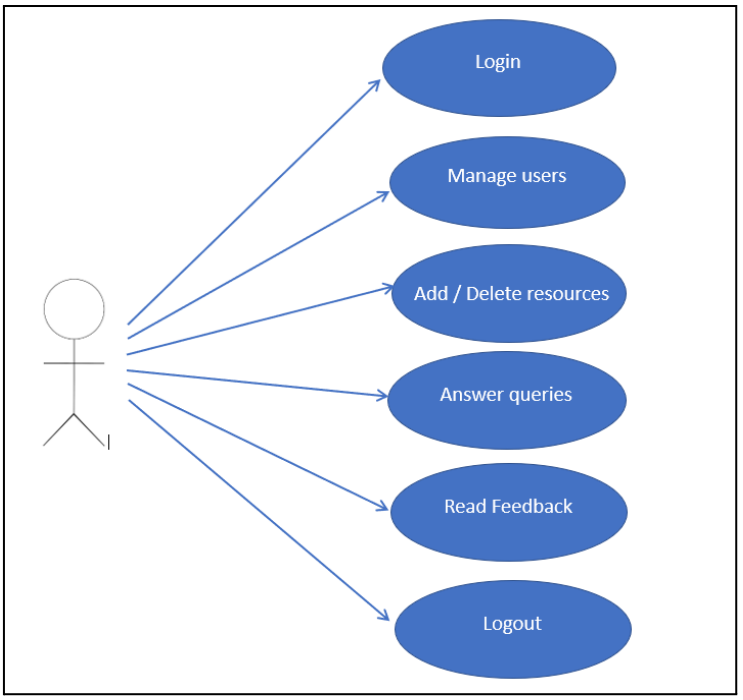


3. UML Diagram :

Use case after login page for user :



Use Case after login page for admin :



Chapter 6

Unique Features

- There is currently no platform available that combines academic resources and placement resources in a single location for college students.

- Students' efforts will be made effective and efficient by the PYQ and PPT division of the Academics head, which will also manage time and quality.

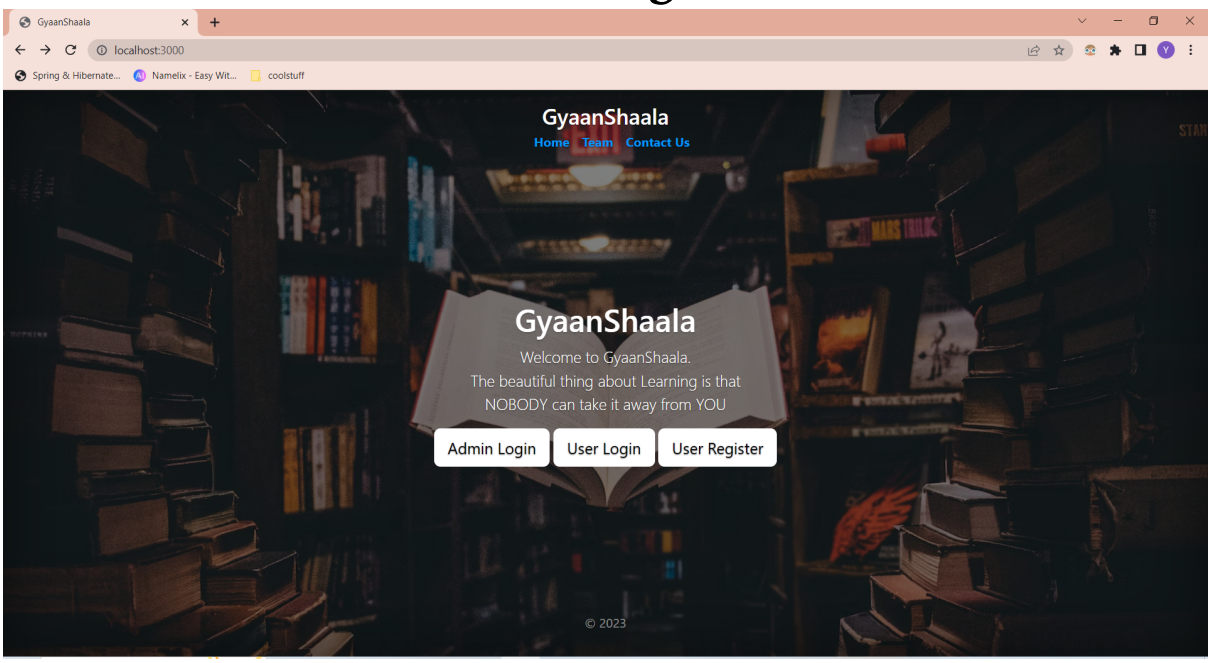
- The DSA area is meticulously organised and created to aid simple preparation, acting as a safeguard against pupils being overloaded with resources.

- The website is highly scalable, as enormous amount of resources can be added/updated with respect to technology trends.

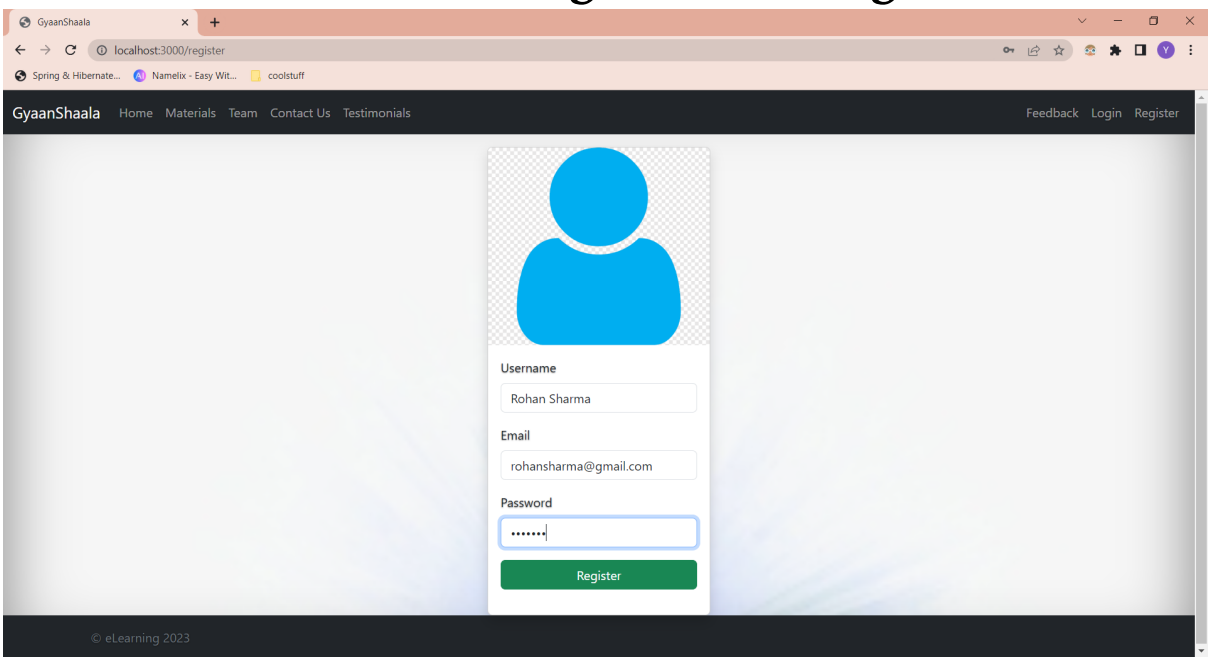
Chapter 7

Screenshots

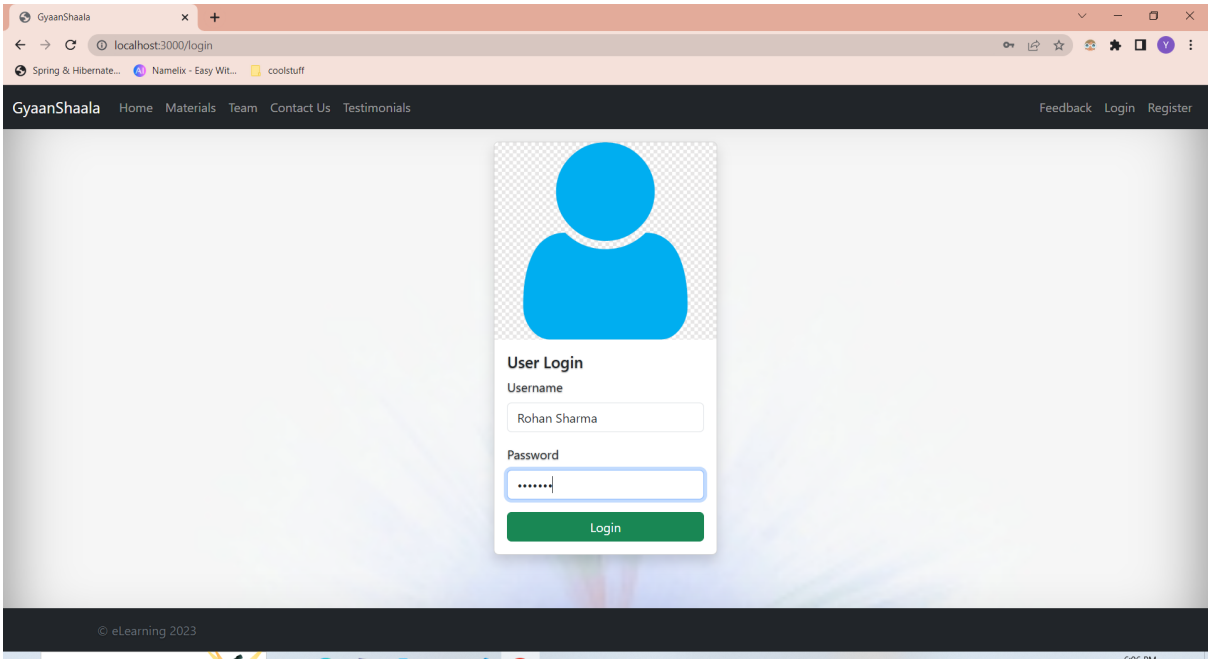
Home Page



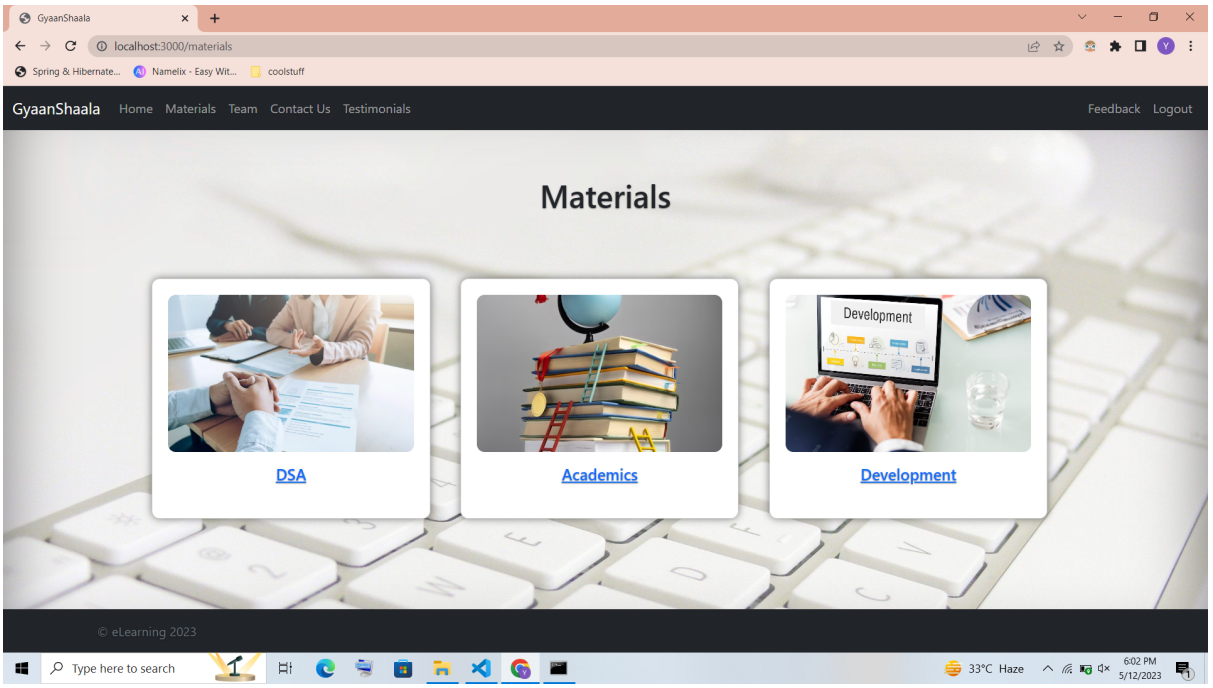
User Registration Page



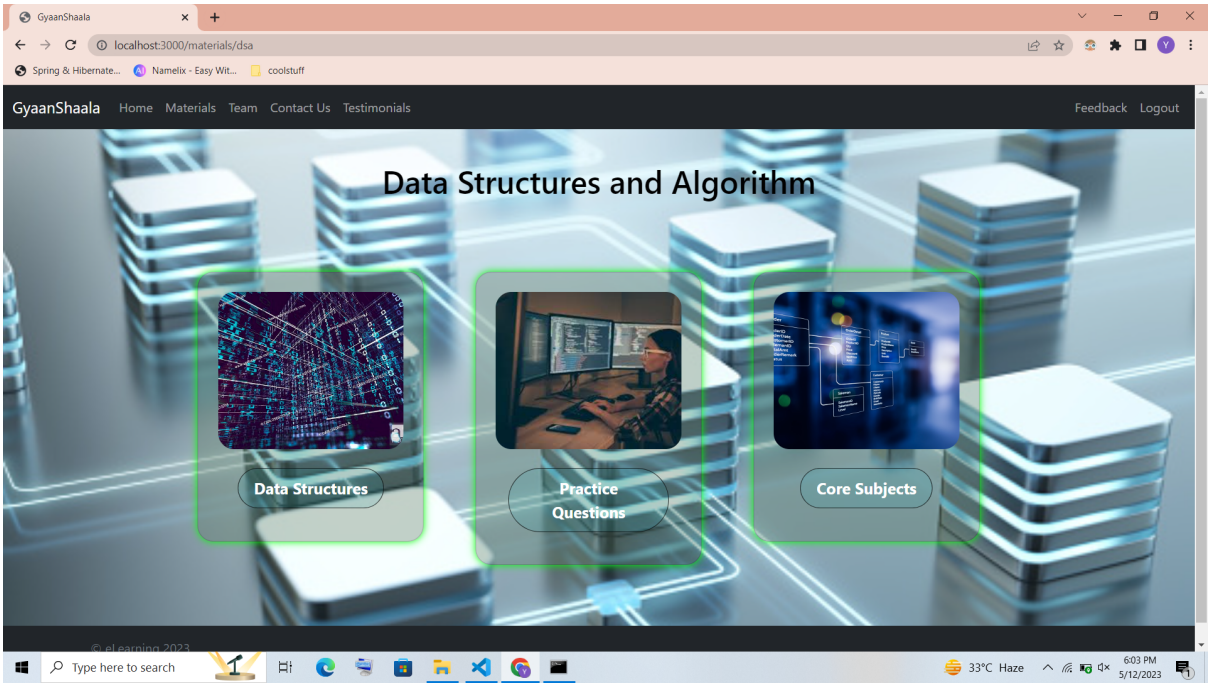
User Login



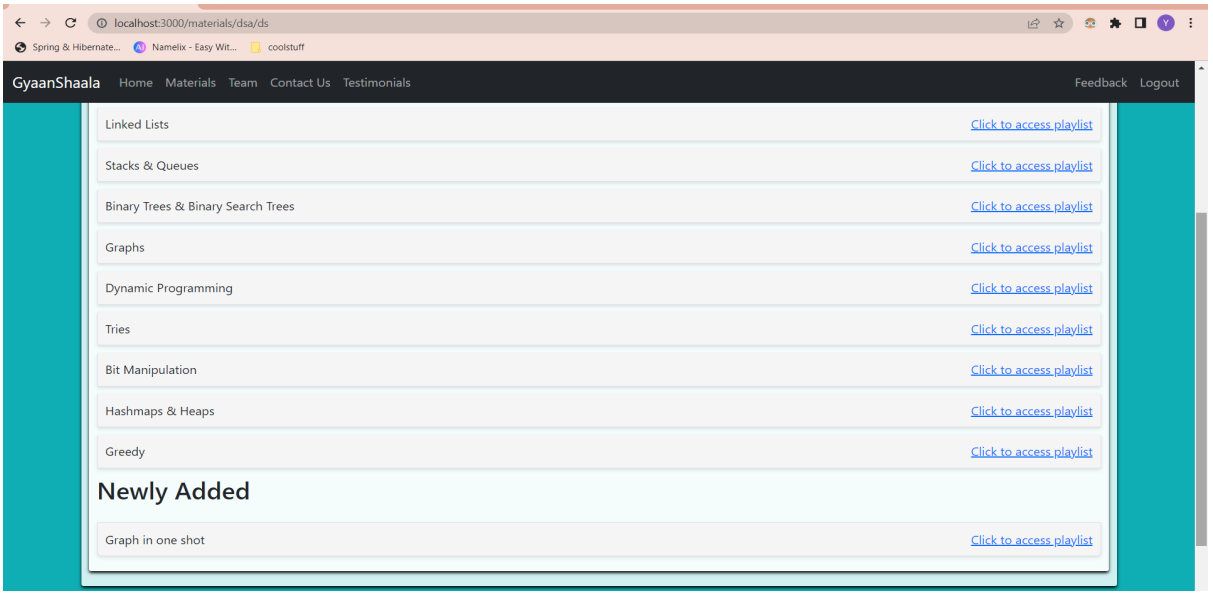
Materials Section



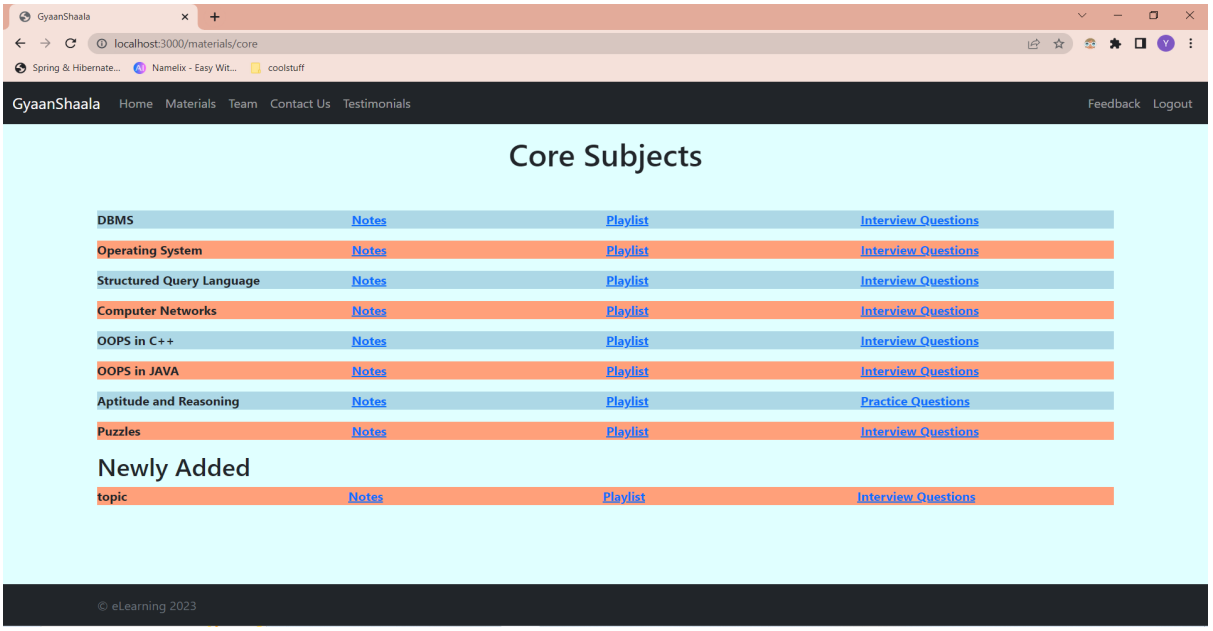
Data Structures & Algorithm Resources Page



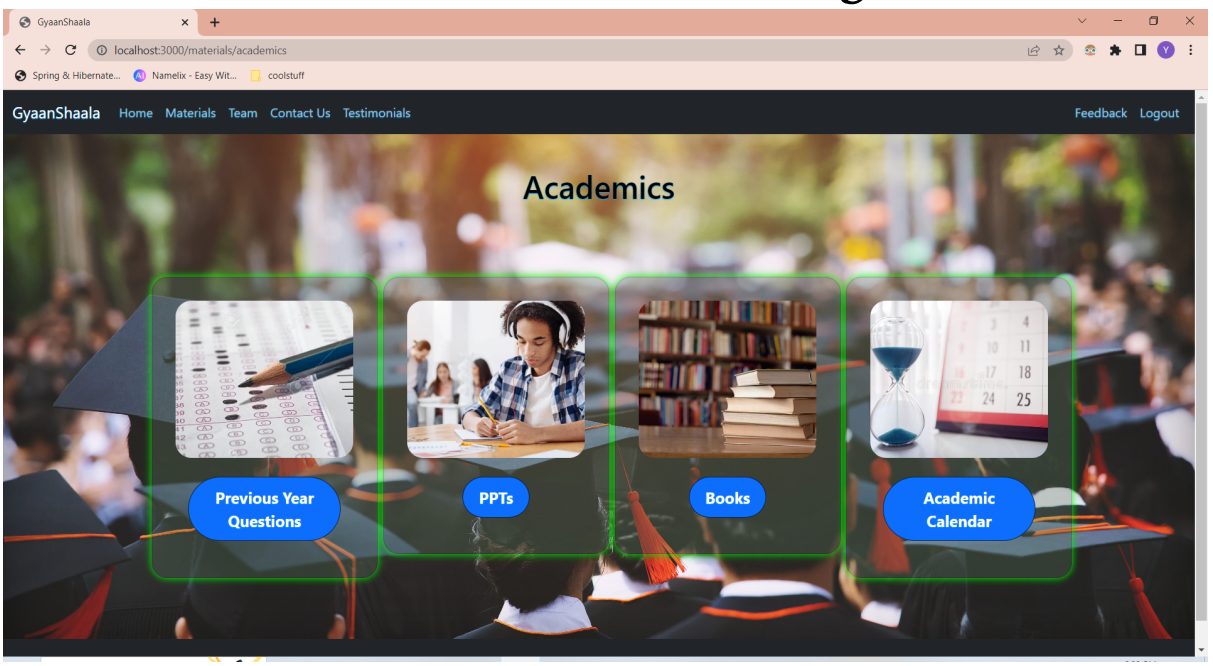
Data Structure Page



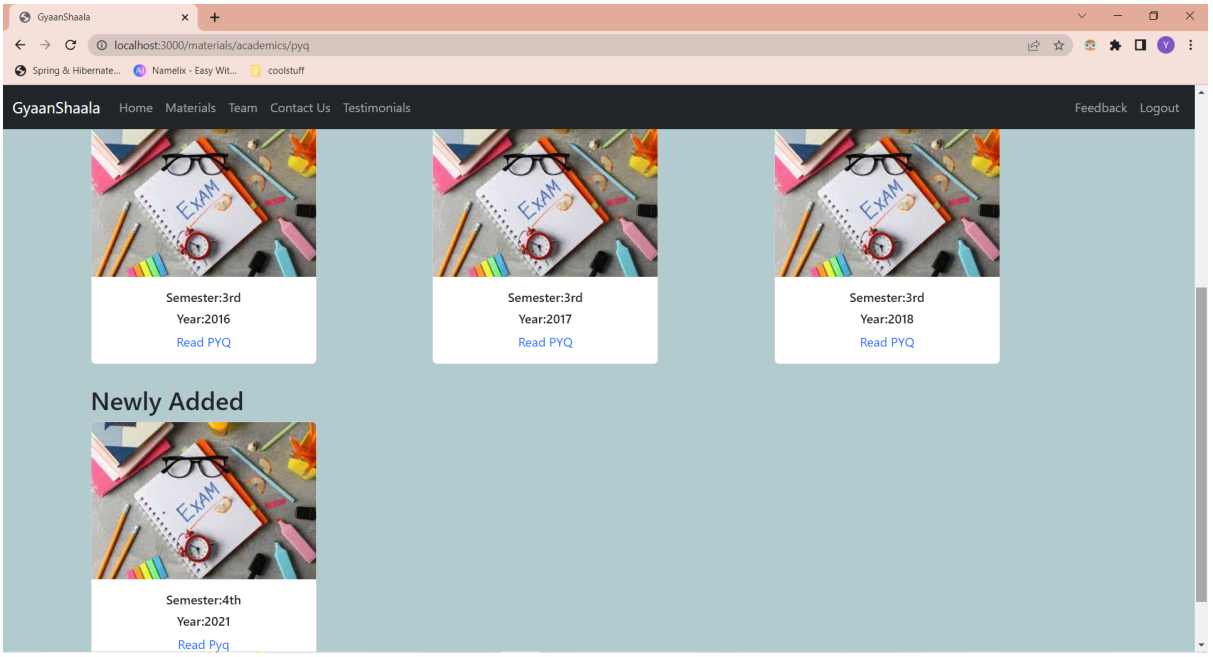
Core Subjects Page



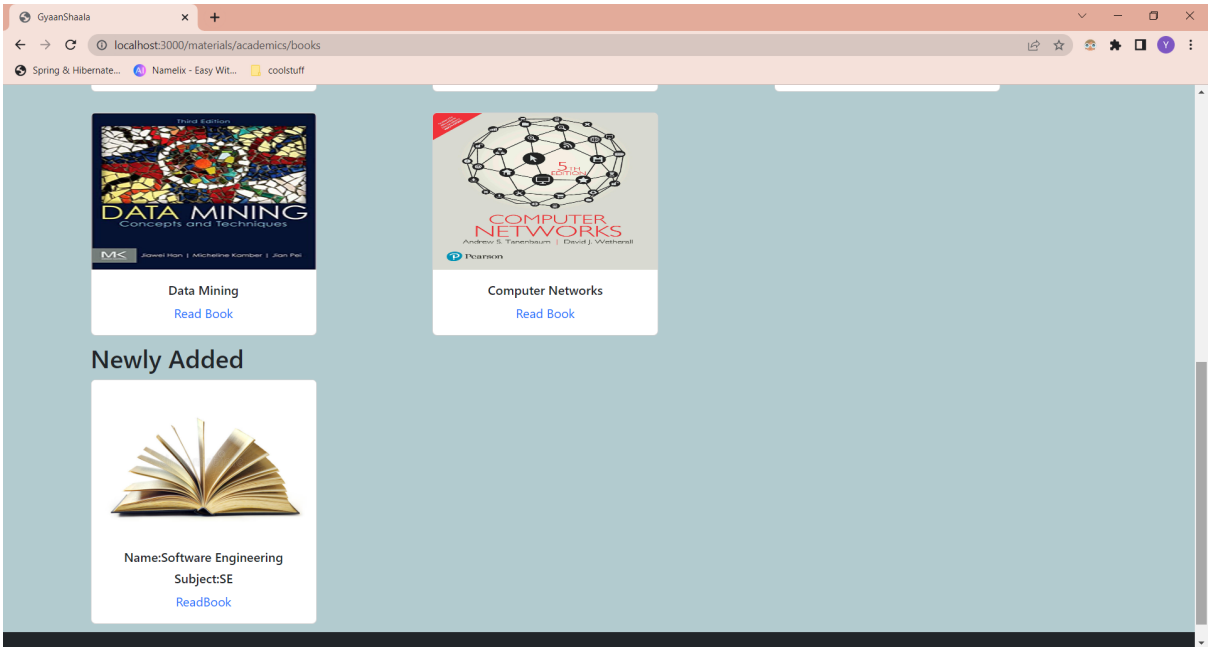
Academics Resources Page



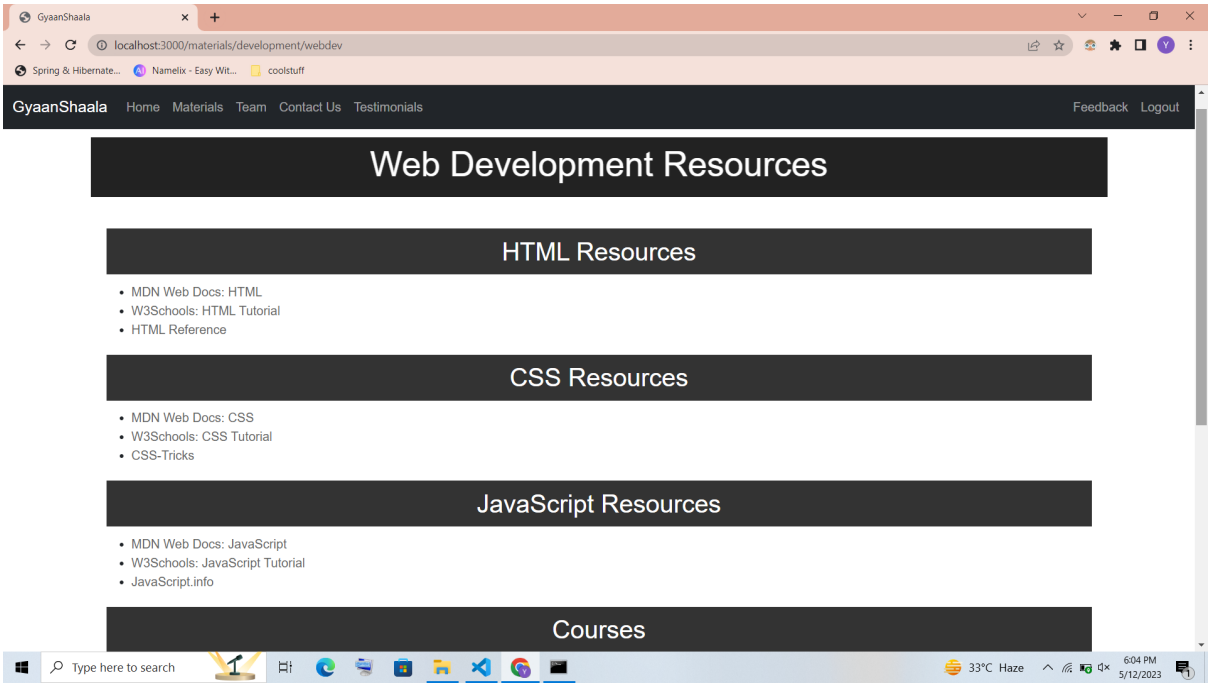
PYQs Page



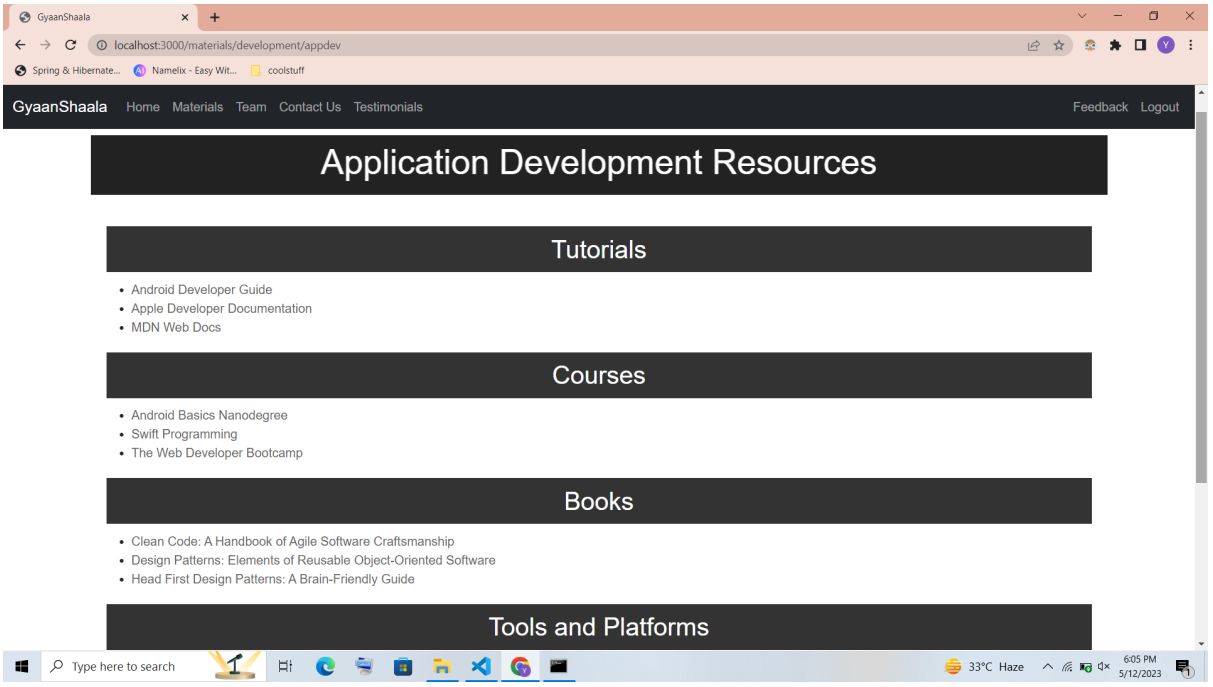
Books Page



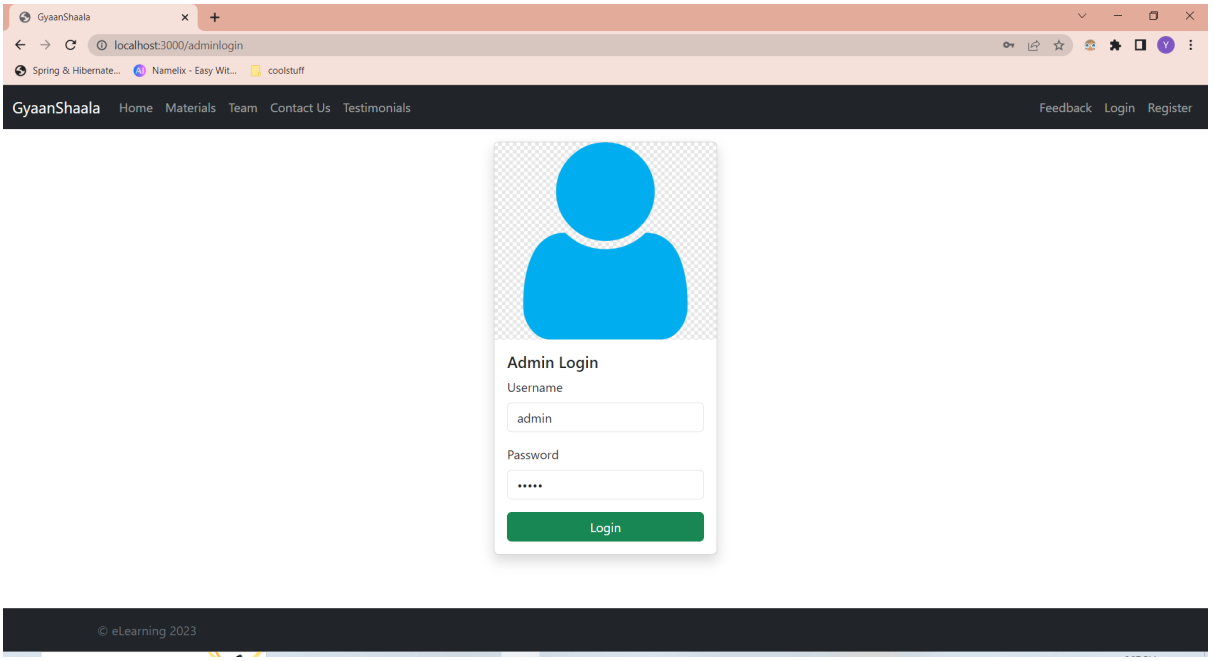
Web Development Resource Page



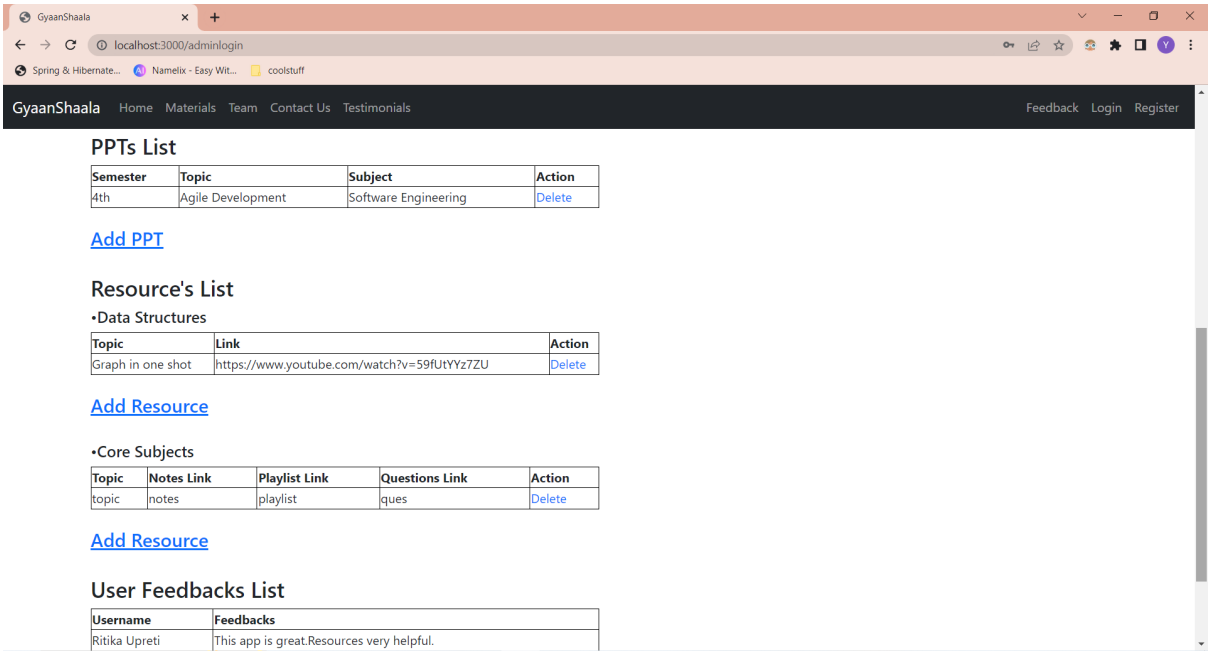
App Development Resources Page



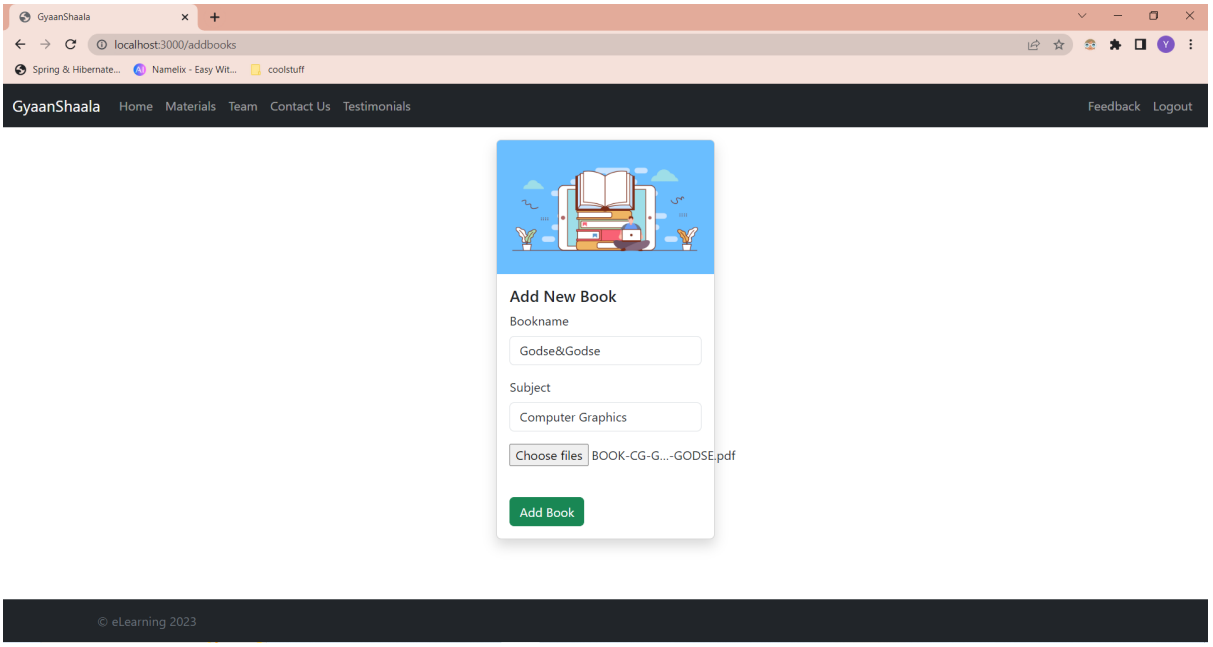
Admin Login



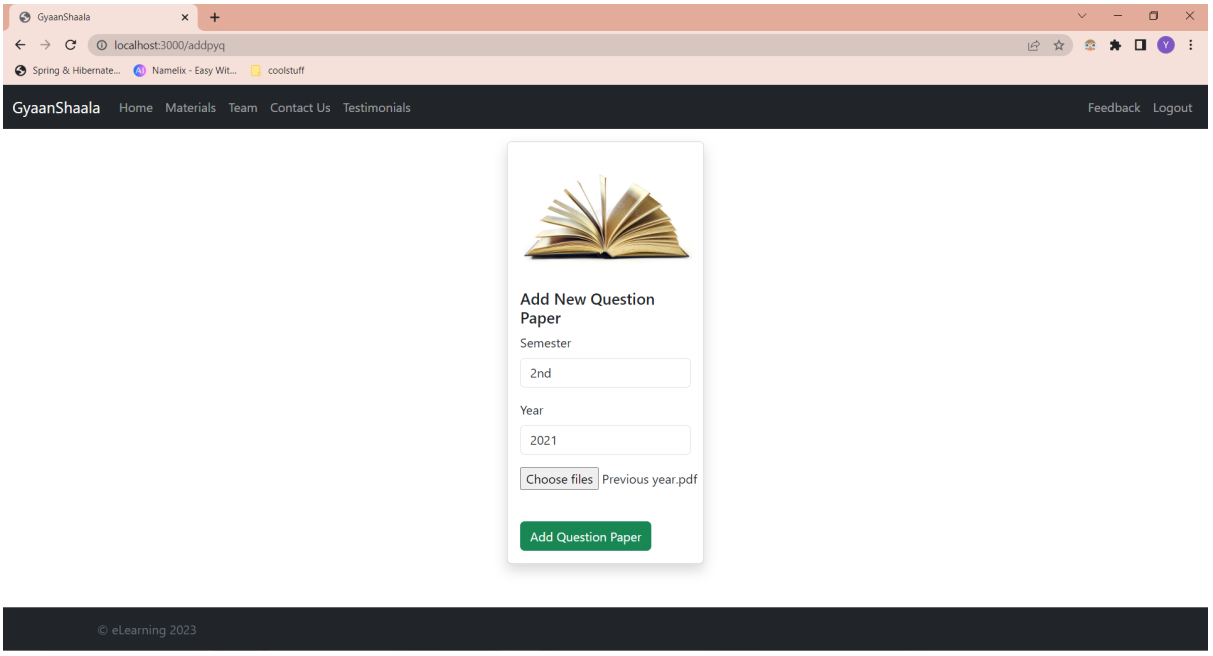
Admin Page



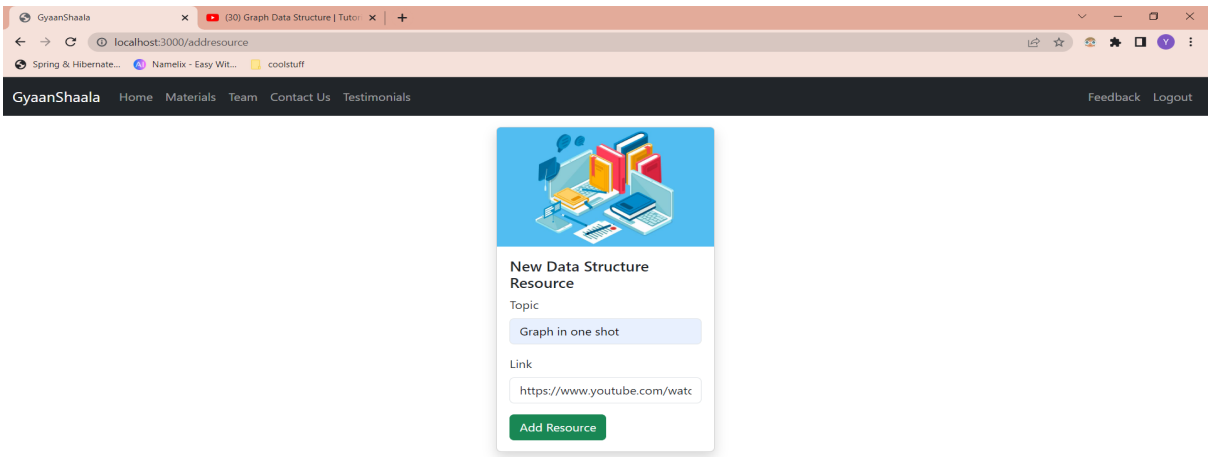
Add New Book



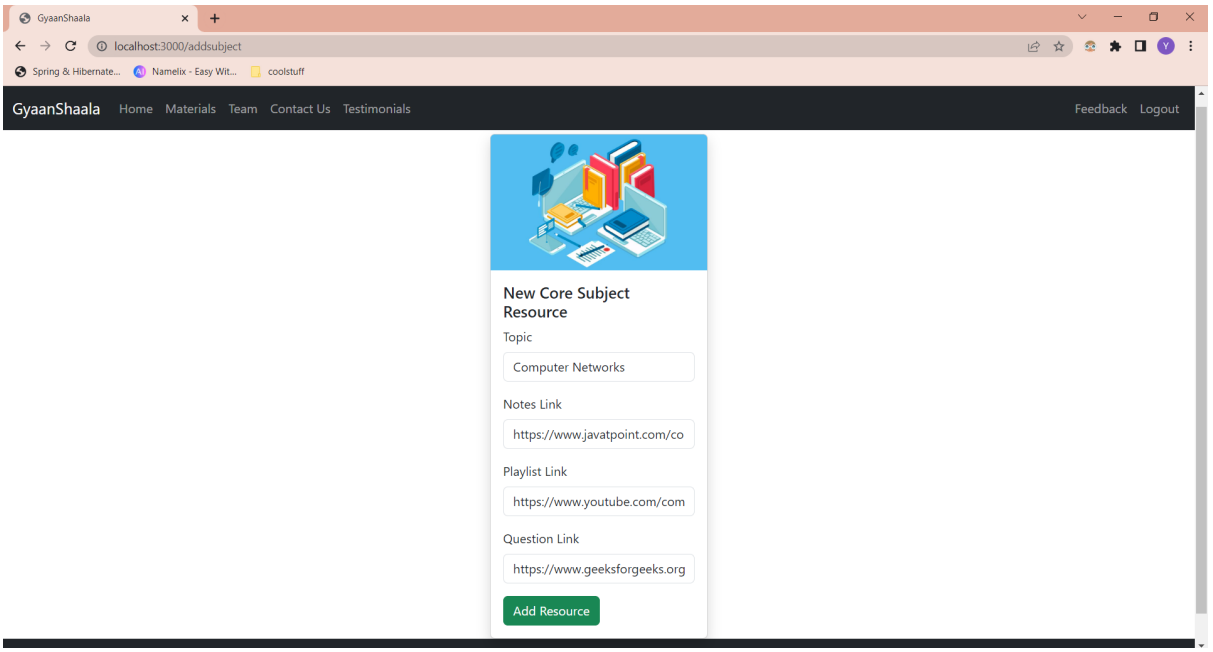
Add new PYQ



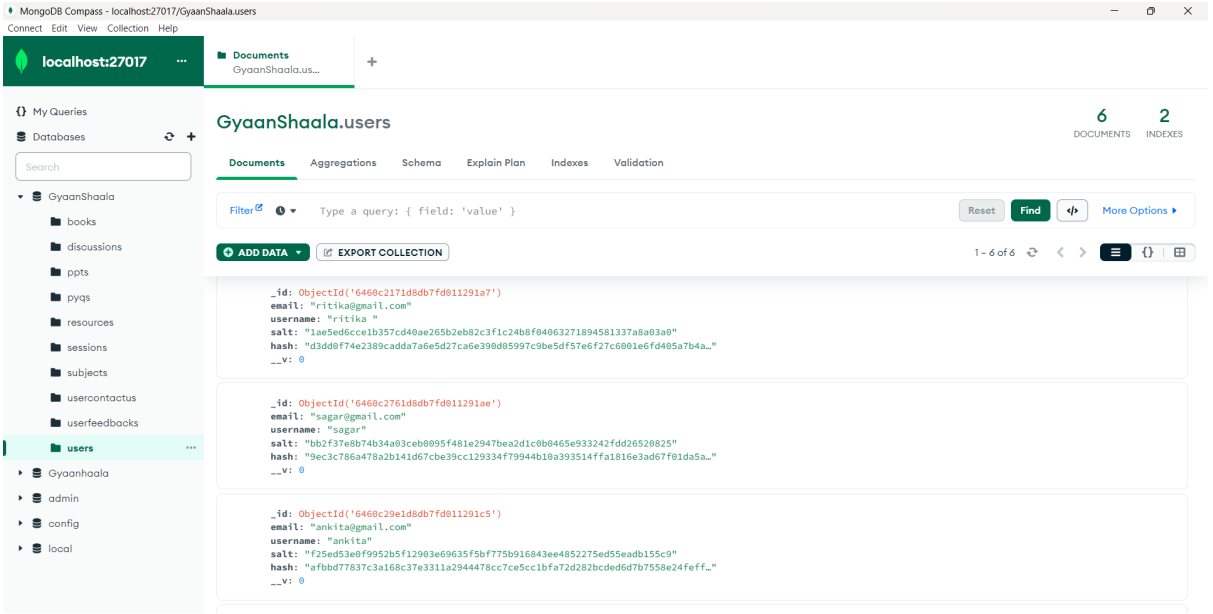
Add New Data Structure Resource



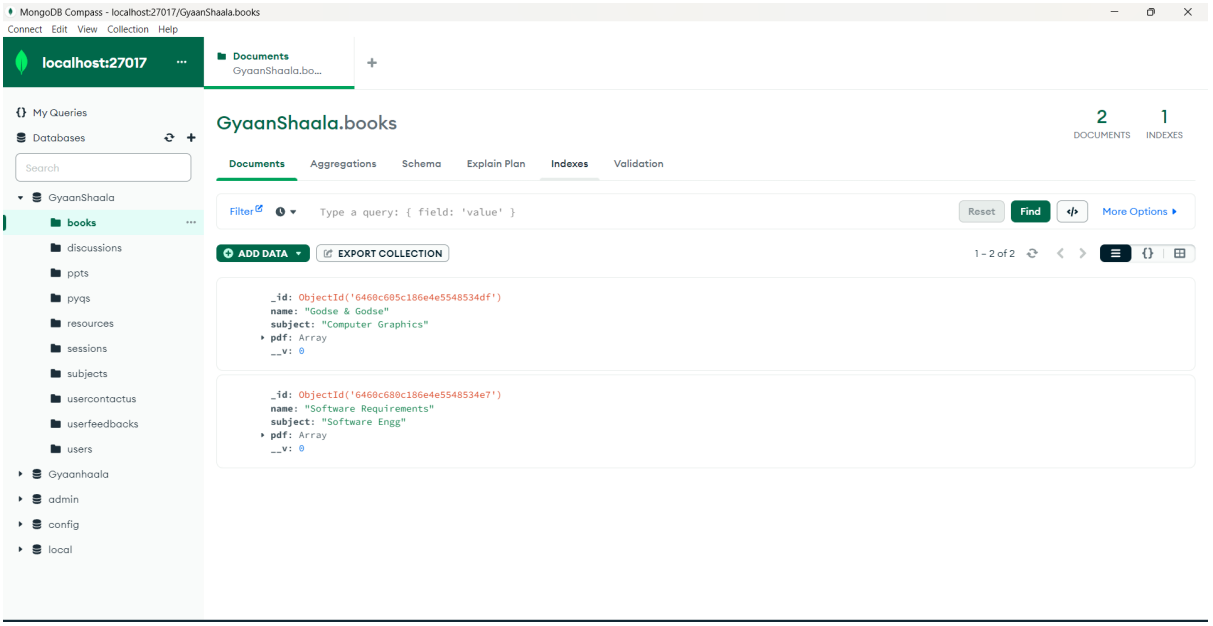
Add Core Subject Material



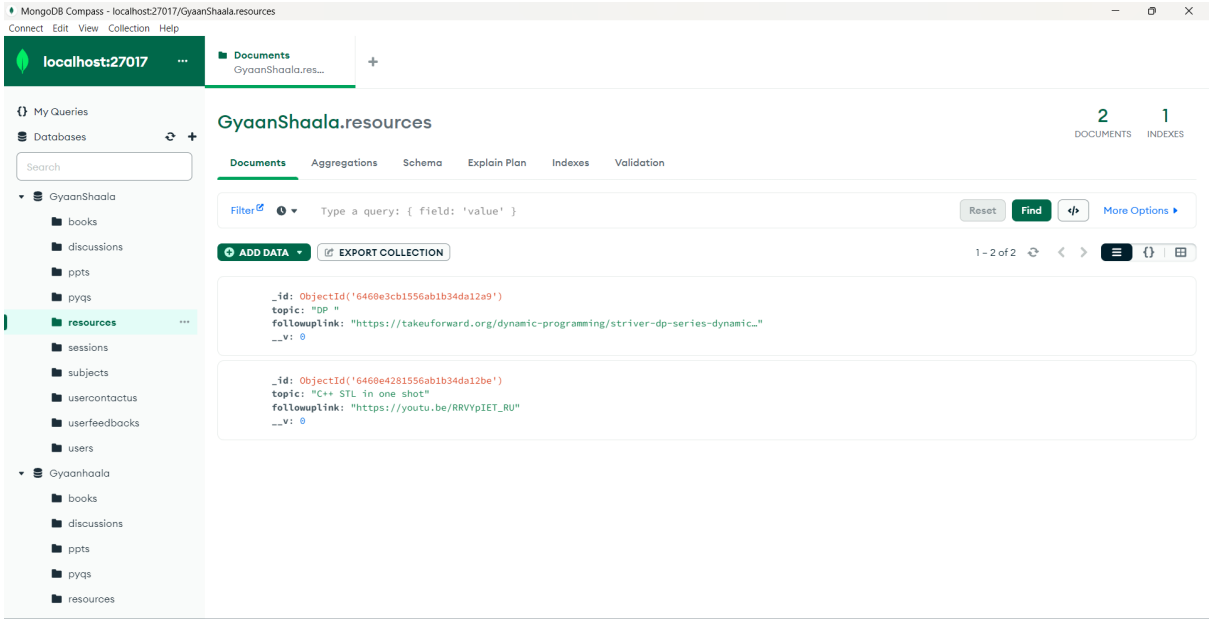
Registered Users



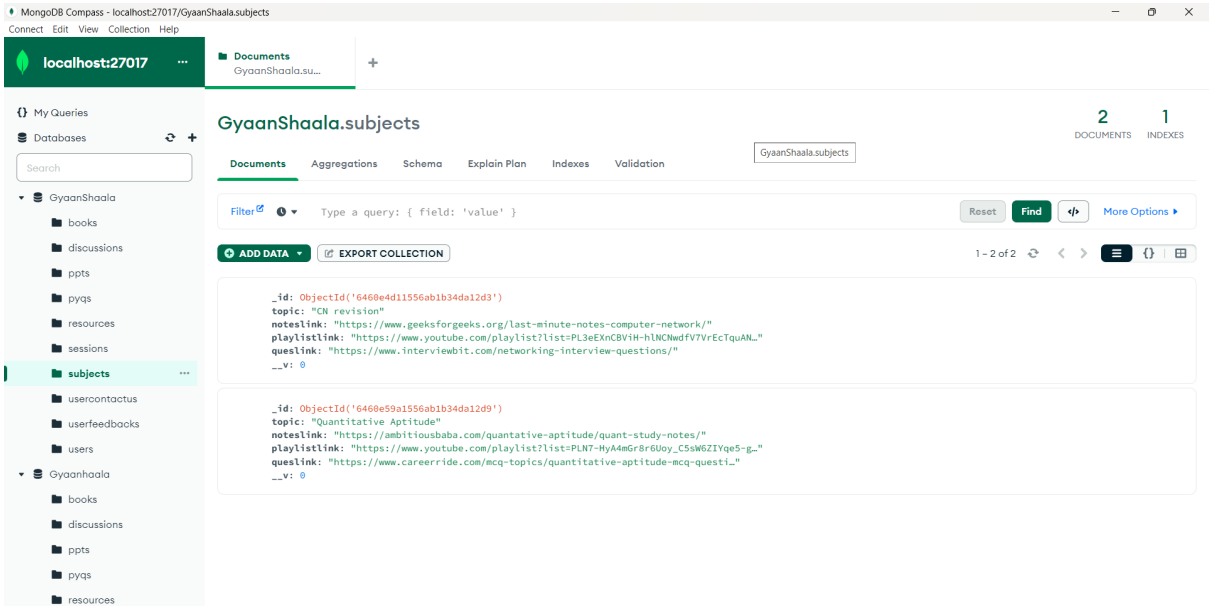
Newly added Books database



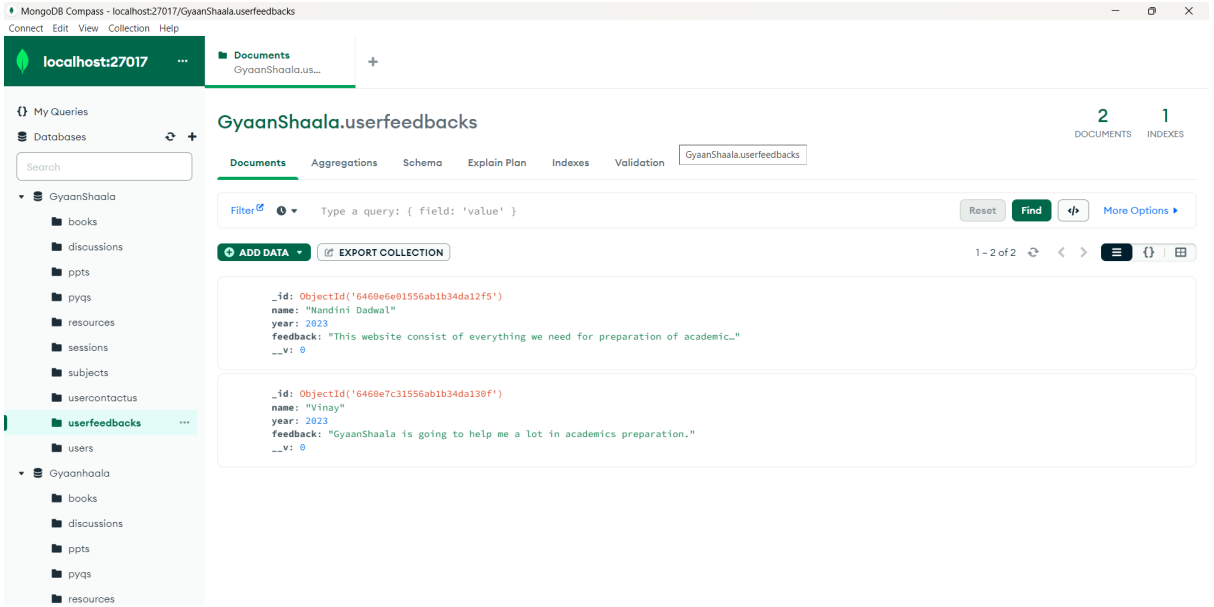
Newly added resources



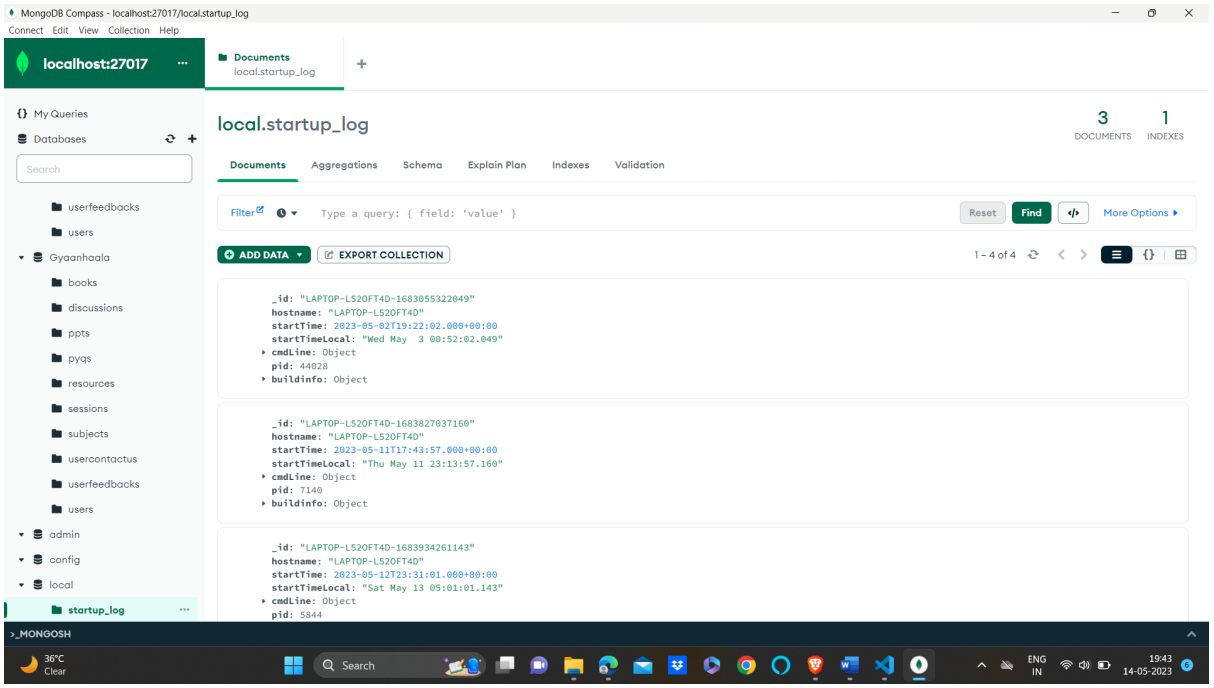
Newly added Playlists



Feedbacks



Startup log



Chapter 8

Conclusion

Our project is only a humble venture to satisfy the needs to manage their project work. Several user-friendly coding have also been adopted. This package shall prove to be a powerful package in satisfying all the requirements.

GyaanShaala can help students meet challenges of the increasing competition in the software engineering field.The main aim is to create a comprehensive online platform that provides students with valuable resources and information related to academics and placements.

The project is an effort to reduce the confusion among students, especially freshers about the several resources that are accessible, but are all dispersed and collecting them all at once individually leads to the waste of time.

Limitations

The limitations we encountered in the implementing project:

•**Database Size**:The size of the database grows by the day, putting more strain on the database backup and data maintenance activities.

•**Quality and Authenticity**:The quality, correctness, and validity of e-resources might vary. It is critical to guarantee that the sources of e-resources are trustworthy, peer-reviewed, and reputable.

•**Access and Connectivity**: The availability of e-resources is determined by the quality of internet connectivity and the availability of electronic devices. The number of users who can access e-resources may be limited due to a lack of connectivity or inadequate access.

•**Technical Issues**: Users of e-resources must have personal computers or laptops. System failures, sluggish loading times, and compatibility concerns can all have an impact on the accessibility and use of e-resources.

Future Scope

These are the areas in which further work can be added :

- Self-Assessment section can be added.
- Make it highly scalable by adding resources for more courses.
- Integration of POTD and various contests to the website.
- Feature of Video Chat integration, which helps to solve doubts one on one with more understanding.

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