

Dhirubhai Ambani Institute of Information and Communication Technology



PC-641 M.Sc. (IT) WINTER INTERNSHIP PROJECT REPORT 2023

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1. Introduction

I am currently undergoing a four-month internship under the mentorship of Prof. Lavneet Singh, where I have been actively engaged in developing a comprehensive College Management System (CMS) while immersing myself in full-stack development practices.

During the first two months of my internship, I dedicated my time to acquiring the necessary technical expertise required for the successful execution of the CMS project. This learning phase involved mastering a variety of technologies essential for full-stack development. Specifically, I focused on honing my skills in Java, Spring MVC, Spring, SQL, Ajax, and JavaScript, among others. Additionally, I familiarized myself with indispensable tools such as GitHub for version control, Eclipse, and VS Code for coding environments, and Postman for API testing.

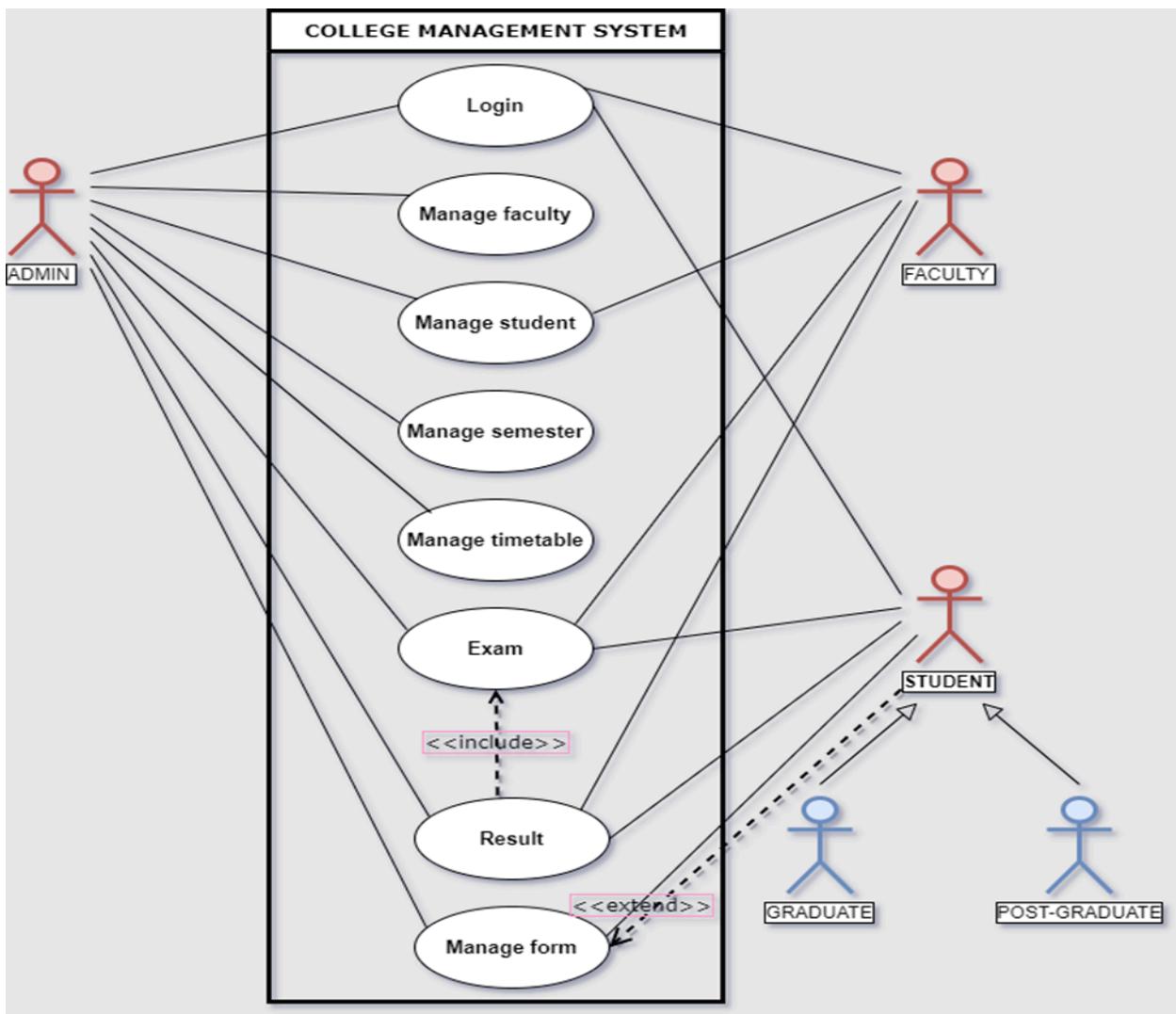
Having gained proficiency in these foundational technologies and tools, I transitioned into the development phase of the College Management System project during the subsequent two months. This period was marked by the practical application of my newly acquired knowledge and skills towards creating a robust and feature-rich CMS.

The College Management System serves as a centralized platform to optimize various administrative and academic processes within educational institutions. It encompasses various functionalities tailored to meet the diverse needs of students, faculty, and administrative staff alike.

2. Scope Statement.

The College Management System (CMS) encompasses a comprehensive range of administrative and academic functionalities tailored to streamline operations within educational institutions. This includes student management, and facilitating processes such as registration, record maintenance, Course management features to enable efficient scheduling, syllabus management, and enrollment tracking. Continuous support, maintenance, and training programs further enhance the system's usability and effectiveness in meeting the evolving needs of educational institutions.

3. Detailed Use cases that have been implemented.



4. Project Contributions:

Standard Functionality in All Modules:

1. Login:

The login functionality of the system allows users, including admins, faculty, and students, to access their accounts by providing their credentials. Authentication mechanisms are in place to verify the identity of users and grant access to functionalities based on their assigned roles within the system.

2. Forget Password:

In the event of a forgotten password, users can reset it through a password recovery process. This process involves providing verification details, such as registered email or phone number. Upon submission, the system generates and sends a One-Time Password (OTP) to the registered contact information, which users can use for password reset verification.

3. Change Password:

For enhanced security, users can change their passwords through the provided functionality. This process includes validation and confirmation steps to ensure the accuracy of the new password. Users can proactively manage their account security within the system by offering the option to change passwords.

Admin Module

1. Dashboard Development:

For the Admin Module, I commenced by developing a dynamic dashboard, serving as the central hub for administrators to gain insights into the college's key metrics. Leveraging Spring Boot MVC structure, I designed and implemented the dashboard interface to showcase real-time data, including the total count of students, courses, and faculty members. The dashboard provides a visually appealing and intuitive overview, facilitating informed decision-making for administrators.

2. Student Management:

Admins can manage student records efficiently. I crafted user-friendly interfaces for adding, updating, and deleting student details. Leveraging Spring Boot's RESTful capabilities, I designed backend APIs and controllers to handle CRUD operations seamlessly. Admins can input and update student information such as name, email, address, and enrollment status, ensuring accurate and up-to-date records.

3. Student Result Management:

In addition to student records, admins can manage student result data effortlessly. I implemented functionality allowing admins to View student grades Uploaded by faculty. I developed robust backend logic using Spring Boot MVC to handle result data securely and efficiently. The frontend interfaces provide admins with intuitive forms for result management, ensuring precision and reliability in academic record-keeping.

4. Faculty Management:

Admins can oversee faculty members' information within the system. I created interfaces for adding, updating, and deleting faculty profiles, incorporating validation mechanisms to ensure data integrity. I facilitated seamless communication between the front end and the data repository through backend APIs and controllers, enabling admins to manage faculty details effectively.

5. Course Management:

Course information can be managed comprehensively within the Admin Module. Leveraging Spring Boot MVC architecture, I developed functionalities for adding, updating, and deleting course details. Admins can input course descriptions, schedules, and other relevant information, providing students with accurate and up-to-date course offerings.

6. Subject Management:

Admins can manage subjects offered in each semester for every course. I designed frontend interfaces enabling admins to add, update, and delete subject details. Using Spring Boot's RESTful capabilities, I implemented backend APIs and controllers to handle subject data efficiently, ensuring coherence and consistency in course offerings across semesters.

7. Academic and Exam Notice Management:

Administrators can create and manage academic and exam notices seamlessly. I developed intuitive interfaces for admins to input notice details, including titles, descriptions, and publication dates, & Upload Pdf Files Also. Through backend APIs and controllers, I facilitated CRUD operations on notice data, ensuring the timely dissemination of critical information to students and faculty members.

8. Form Management:

Various forms used in administrative processes can be managed within the Admin Module. Leveraging Spring Boot MVC structure, I developed functionalities for adding, updating, and deleting forms. Admins can efficiently handle admission forms, feedback forms, and other administrative documents, enhancing the overall administrative workflow.

Faculty Module

1. Upload Assignments:

With the upload assignments feature, faculty can effortlessly distribute assignment materials to students. They can specify assignment details like titles, descriptions, and due dates while also attaching supplementary resources. The system supports various file formats, and instructors may set submission parameters for consistency and ease of grading.

2. Manage Student& Results:

In the "Manage Students" feature, faculty members can upload student lists organized by degree programs and semesters. This allows instructors to easily categorize and access student records based on academic progression, streamlining administrative tasks and facilitating targeted communication and support. And Faculty Add Student results according to the subject

Student Module:

1. Home:

The home page is the central hub for students, providing convenient access to various features and essential information. Upon logging in, it serves as the landing page, offering a user-friendly interface that caters to students' diverse needs and interests. Through intuitive navigation and a straightforward layout, students can seamlessly explore various platform sections after logging successfully, including course details, academic notices, faculty information, and more. The home page aims to enhance the overall student experience by serving as a comprehensive gateway to relevant resources and services offered by the college or educational institution.

2. Course Details:

The course details section offers students comprehensive information about courses the college offers, empowering them to make informed decisions about their academic pursuits. It includes detailed course descriptions highlighting key topics, learning objectives, prerequisites, and credit. The course details section serves as a valuable resource for students seeking to explore different academic disciplines and plan their course load.

3. Notices & Academic Details:

Students rely on the notices and academic details section to stay informed about important updates, announcements, and academic milestones. This section provides access to a wide range of academic notices, including exam schedules, registration deadlines, course announcements, and campus events. By centralizing critical information in one easily accessible location, students can stay organized and prepared for upcoming academic tasks and responsibilities.

4. Faculty Details:

The faculty details feature offers students valuable insights into the college's faculty members, facilitating meaningful interactions and collaborations. Students can explore faculty profiles showcasing academic credentials, research interests, teaching experience, and contact information. Additionally, the feature may include faculty office hours, enabling students to schedule appointments or seek academic guidance and mentorship.

5. Results & Semester Details:

Students utilize the results and semester details section to track their academic progress and review past performance. This feature provides access to comprehensive semester-wise academic results, including grades for individual subjects and cumulative grade point averages (GPAs). Additionally, students can explore semester details outlining subjects offered, credit hours, and faculty members. The results and

semester details section empowers students to assess their strengths, identify areas for improvement, and set academic goals for future semesters.

6. Assignment Viewing & Download:

The assignment viewing and download feature enables students to access and download assignment materials uploaded by faculty members. Students can view assignment instructions, guidelines, and any accompanying resources provided by instructors. Additionally, they can download files or documents necessary for completing assignments, ensuring easy access and reference.

5. Tools, Technologies, APIs, and Libraries used.

- *Java*: Java is the programming language for coding everything from Web apps and enterprise software to big data applications and server-side technologies.
- *SpringBoot*: Spring Boot Is a Framework For Java that provides To create e Stand stand-alone web Applications.
- *Spring*: Spring Is Also a Framework For Java That Provide Infrastructure Support For developing Java Applications.
- *Jsp*: Jsp(Java Server Pages) Is Web-Based Technology For Creating Dynamic Web Pages.
- *Html-Css*: For Creating Web Pages
- *JavaScript*: This is a programming language used for developing the web application.
- *Eclipse*: Eclipse is Java based application For Creating Web Applications
- *SQL Yog*: SqlYog is the Best Mysql Gui For Developers To Maintain Databases
- *Postman*: This is a collaboration platform for API development and testing and documenting API.
- *GitHub*: This is a web-based platform used for version control and collaboration.
- *VS-Code*: This is a source code editor used for developing web applications.

6.SnapShorts

The screenshot displays two pages from a university website.

Top Page: The title is "Welcome to University". It features a grid of six course boxes under the heading "Our Courses". Each box includes a graduation cap icon, the course name, a brief description, and a "READ MORE" button.

Course	Description	Duration
M.SC(CA and IT)	Master of computer & science	Duration : 2 Year
B.SC(CA and IT)	Bachelor of computer & Science	Duration : 3 Year
M.com	Master of commerce	Duration : 2 Year
B.com	Bachelor of commerce	Duration : 3 Year
MBA	Master of business administration	Duration : 2 Year
BBA	Bachelor of business administration	Duration : 3 Year

Bottom Page: The title is "COACHING & TRAINING BY PROFESSIONAL". It lists four coaching services with icons: "Assignment", "Timetable", "Teacher", and "Result". Below this is a large background image of a smiling student. At the bottom, it says "Bright Future College".

Login Page:



--- Bright Future ---

Login

Username

Password

LOGIN

[Forgot Password ?](#)



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Forget PassWord Page

Your Registered Email

Email

SEND OTP

Admin Panel:

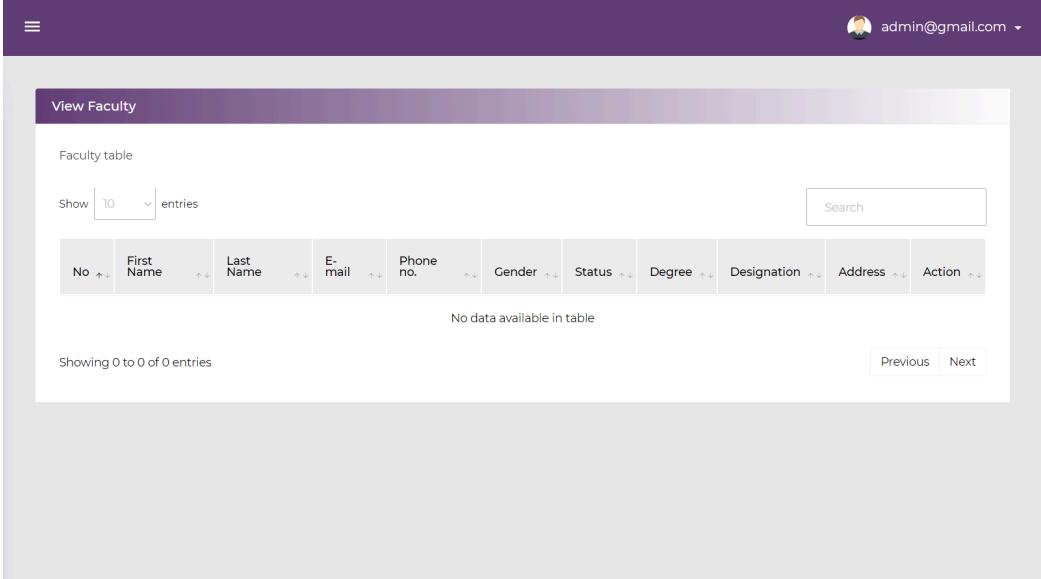
Home Page:

The screenshot shows the 'Bright Future' admin panel. On the left is a sidebar with a logo and navigation links: Home, Manage Faculty, Manage Degree, Manage Student, Manage Semester, Manage Subject, Academic TimeTable, Exam TimeTable, Manage Form, Manage Result, Change Password, and Logout. The main area has a purple header with the logo and 'admin@gmail.com'. Below the header is a dashboard section with four cards: 'Courses' (8), 'Faculties' (6), 'Students' (72), and icons for each. A bar chart titled 'Student count per degree' shows the number of students for various degrees: M.SC(CA and IT) (approx. 30), B.SC(CA and IT) (approx. 7), M.com (approx. 5), B.com (approx. 6), MBA (approx. 5), BBA (approx. 7), BE (approx. 8), and B.Tech (approx. 8). The chart is created using Highcharts.com.

Manage Faculty:

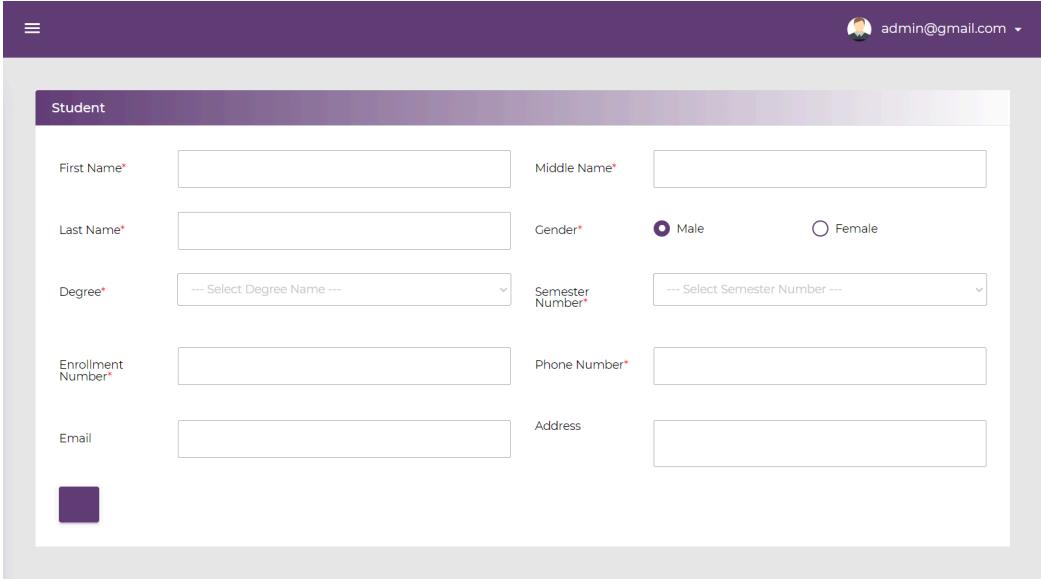
The screenshot shows the 'Faculty' management page. The sidebar includes 'Add Faculty' and 'View Faculty' under 'Manage Faculty'. The main form fields are: First Name*, Last Name*, Email, Phone No*, Gender (Male or Female selected), Status (Tenure or Permanent selected), Degree*, Designation*, Address, Notes, and an 'Upload Your Photo*' section with a file input and 'Upload' button. The background features a dark purple header and sidebar.

View Faculty:



The screenshot shows a web-based application interface for managing faculty. On the left, a sidebar menu lists various administrative functions: Home, Manage Faculty (Add Faculty, View Faculty), Manage Degree, Manage Student, Manage Semester, Manage Subject, Academic TimeTable, Exam TimeTable, Manage Form, Manage Result, and Change Password. The main content area is titled "View Faculty" and contains a table header with columns: No, First Name, Last Name, E-mail, Phone no., Gender, Status, Degree, Designation, Address, and Action. Below the table, a message says "No data available in table". At the bottom right of the content area, there are "Previous" and "Next" buttons.

Manage Student:



The screenshot shows a "Student" form page. The sidebar menu is identical to the "View Faculty" page. The main form has fields for First Name*, Middle Name*, Last Name*, Gender* (with radio buttons for Male and Female), Degree* (dropdown menu for Select Degree Name), Semester Number* (dropdown menu for Select Semester Number), Enrollment Number*, Phone Number*, Email, and Address. There is also a small purple square icon near the bottom left of the form area.

Manage Semester:

Semester

Degree Name*

--- Select Degree Name ---

Semester No.*

Semester Time (Months)*

+

Manage Subject :

Subject

Degree Name*

--- Select Degree Name ---

Semester Number*

--- Select Semester Number ---

Subject Name*

Subject Code*

Subject Credit*

+

Academic Table:

The screenshot shows a web application interface for managing academic timetables. The header features a logo with a graduation cap and the text "Bright Future". On the right, there is a user profile icon and the email "admin@gmail.com". The left sidebar contains a navigation menu with the following items:

- Home
- Manage Faculty
- Manage Degree
- Manage Student
- Manage Semester
- Manage Subject
- Academic TimeTable
 - Add TimeTable
 - View TimeTable
- Exam TimeTable
 - Add Exam TimeTable
 - View Exam TimeTable
- Manage Form
- Manage Result
- Change Password

The main content area is titled "AcademicTime-Table" and includes the following fields:

- Degree Name* (dropdown menu: --- Select Degree Name ---)
- Semester Number* (dropdown menu: --- Select Semester Number ---)
- Academic Start Date* (date input field: dd-mm-yyyy)
- Academic End Date* (date input field: dd-mm-yyyy)
- Upload Academic Timetable* (file input field: Upload Pdf) with an "Upload" button.

Exam Timetable:

The screenshot shows a web application interface for managing exam timetables. The header features a logo with a graduation cap and the text "Bright Future". On the right, there is a user profile icon and the email "admin@gmail.com". The left sidebar contains a navigation menu with the following items:

- Home
- Manage Faculty
- Manage Degree
- Manage Student
- Manage Semester
- Manage Subject
- Academic TimeTable
- Exam TimeTable
 - Add Exam TimeTable
 - View Exam TimeTable
- Manage Form
- Manage Result
- Change Password

The main content area is titled "Exam" and includes the following fields:

- Exam* (dropdown menu: --- Select Exam Type ---)
- Degree Name* (dropdown menu: --- Select Degree Name ---)
- Semester Number* (dropdown menu: --- Select Semester Number ---)
- Upload Exam Timetable* (file input field: Upload Pdf) with an "Upload" button.

Student Result:

The screenshot shows the 'View Result' section of the Bright Future application. On the left, there is a sidebar with a graduation cap icon and the text 'Bright Future'. The sidebar contains the following navigation items:

- Home
- Manage Faculty
- Manage Degree
- Manage Student
- Manage Semester
- Manage Subject
- Academic TimeTable
- Exam TimeTable
- Manage Form
- Manage Result
- Change Password
- Logout

The main content area has a purple header bar with the text 'View Result'. Below it, there are three dropdown menus with asterisks indicating required fields: 'Exam*' (with options '--- Select Exam Type ---'), 'Degree Name*' (with options '--- Select Degree Name ---'), and 'Semester Number*' (with options '--- Select Semester Number ---'). To the right of these is a 'search' button. Below this is another purple header bar with the text 'Student Result'. Underneath it is a button labeled 'Lock marks'. At the bottom of the page, the text 'Bright Future College' is visible.

Change Password:

The screenshot shows the 'Change Password' page of the Bright Future application. On the left, there is a sidebar with a graduation cap icon and the text '... Bright Future ...'. The main content area has a purple header bar with the text 'Change Password'. Below it is a form with three input fields, each preceded by a lock icon:

- Enter Old Password
- Enter New Password
- Confirm Your Passsword

Below the form is a large purple button labeled 'Update'. To the right of the form is a stylized illustration of a woman sitting at a desk, working on a laptop. The background is purple, and there is a small potted plant on the desk. At the bottom of the page, the text 'Copyright © 2022 Bright Future College. All rights reserved' is visible.

Faculty Side

Home Page:

About Faculty Portal

Performance evaluation of faculty members in higher education is a serious challenge for management. Several qualitative and quantitative factors are considered leading to targeted professional growth of an organization to evaluate the performance of faculty in acquiring research grants, research profile, student evaluation, publications, academic responsibilities etc. However, to quantify such information is a difficult task. We use faculty portal to overcome this hurdle. The performance based evaluation system is made available to all faculty member to upload there academic activities done throughout the academic year.

Bright Future College

Student Add According to the faculty:

Student

Degree Name*

... Select Degree Name ...

Semester Number*

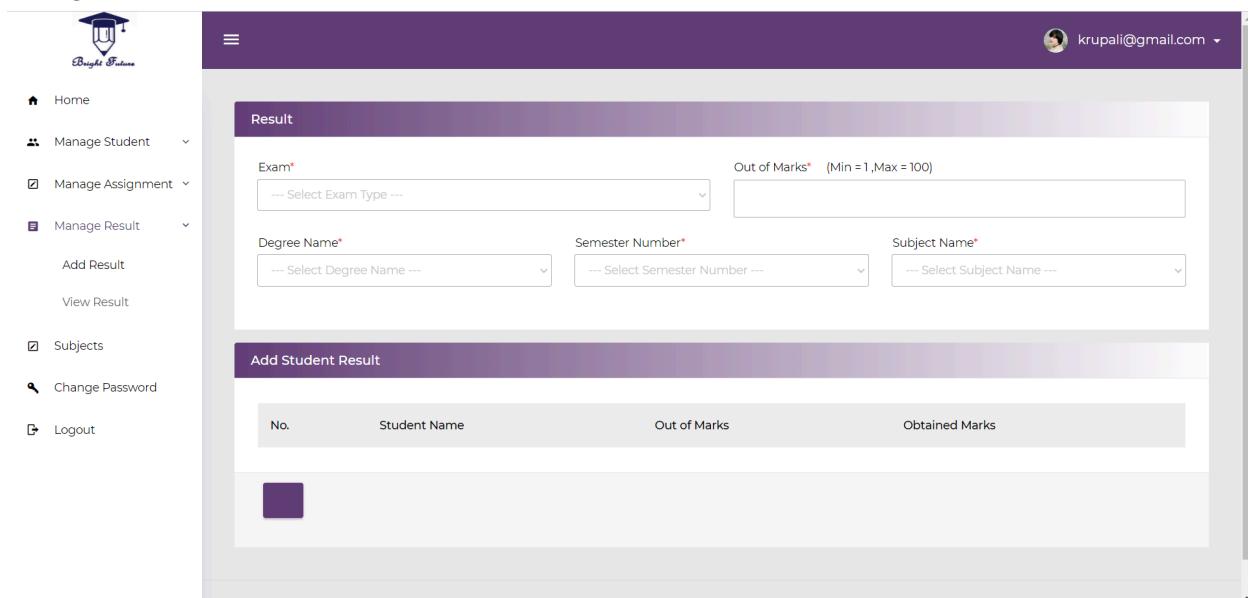
... Select Semester Number ...

Upload Student List*

Upload Pdf Upload

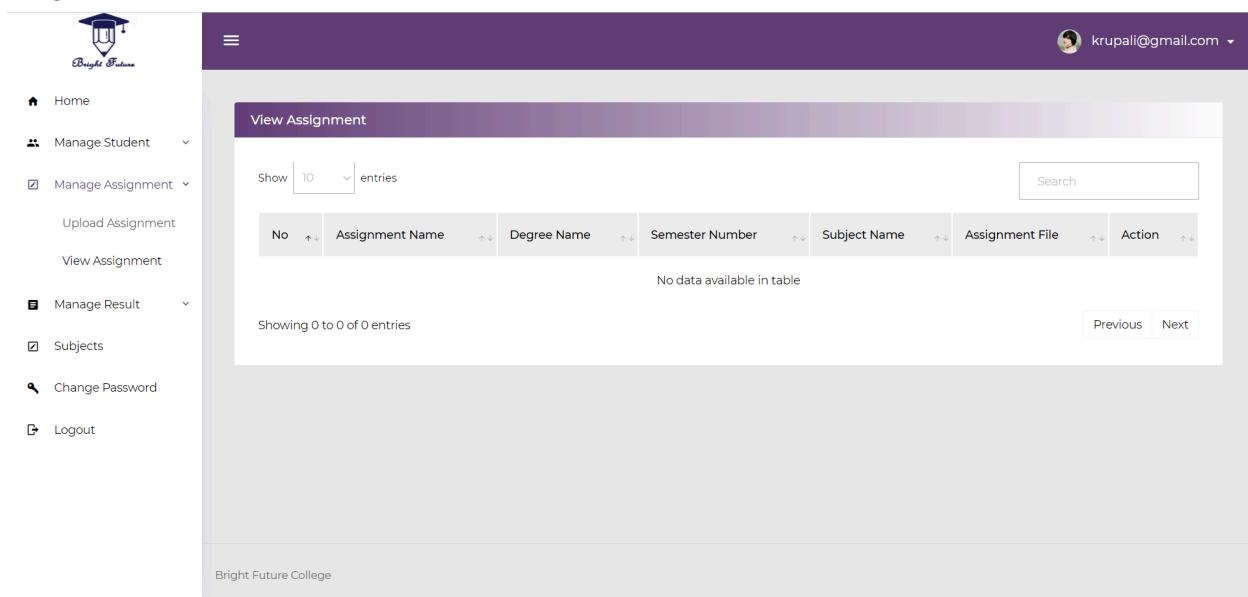
Bright Future College

Manage Student Result



The screenshot shows the 'Result' section of the application. It includes fields for Exam Type (dropdown), Out of Marks (text input), Degree Name, Semester Number, and Subject Name (all dropdowns). Below this is a table header for 'Add Student Result' with columns: No., Student Name, Out of Marks, and Obtained Marks.

Assignment Details:



The screenshot shows the 'View Assignment' section. It features a table with columns: No., Assignment Name, Degree Name, Semester Number, Subject Name, Assignment File, and Action. A search bar and pagination controls (Previous, Next) are also present. The message 'No data available in table' is displayed.

Subject Details

The screenshot shows a web application interface for managing subject details. The header features a logo for "Bright Future" with a graduation cap icon, and a user profile with the email "krupali@gmail.com". The left sidebar includes links for Home, Manage Student, Manage Assignment, Manage Result, Subjects, Change Password, and Logout. The main content area has a purple header "Find Subject" with dropdowns for "Select Degree" and "Select Semester", and a "Find" button. Below this is a table header "Subject Details" with columns: NO., Subject Name, Subject Code, and Credit. A search bar and a "Show 10 entries" button are also present. The message "No data available in table" is displayed. At the bottom, it says "Showing 0 to 0 of 0 entries" and includes "Previous" and "Next" buttons. The footer reads "Bright Future College".

Student Module

Result :

The screenshot shows the 'Result' section of the Bright Future student module. At the top, there's a navigation bar with links for Home, Courses, Teachers, Assignment, Timetable, Result, Form, Logout, and Change-Password. Below the navigation is a red banner with the email address 'prachishah1211@gmail.com..!!'. A breadcrumb navigation bar shows 'Home > Result'. The main content area has three dropdown menus: 'Select Exam', 'Select Degree', and 'Select Semester', followed by a 'SEARCH' button. At the bottom of the page, a dark footer bar displays the college name 'Bright Future College' and the URL 'localhost:8080/user/teacher'.

Timetable:

The screenshot shows the 'Timetable - Academic' section of the Bright Future student module. The top navigation bar includes links for Home, Courses, Teachers, Assignment, Timetable, Result, Form, Logout, and Change-Password. A red banner at the top displays the email address 'prachishah1211@gmail.com..!!'. A breadcrumb navigation bar shows 'Home > Timetable - Academic'. The main content area features two dropdown menus for 'Degree Name' and 'Semester Number', each with a 'SEARCH' button below them. Below these is a table header with columns for No., Degree, Semester, Academic Start Date, Academic End Date, and Action. At the bottom of the page, a dark footer bar displays the URL 'localhost:8080/user/index'.

Exam Timetable

Bright Future Home Courses Teachers Assignment Timetable Result Form Logout Change-Password
prachishah2211@gmail.com..!!

Home Timetable-Exam

Exam Type Degree Name Semester Number

— Select Exam — — Select Degree Name — — Select Semester Number —

SEARCH

No.	Exam Type	Degree	Semester	Action
-----	-----------	--------	----------	--------

localhost:8080/user/index

Forms:

Bright Future Home Courses Teachers Assignment Timetable Result Form Logout Change-Password
prachishah2211@gmail.com..!!


Fee
Notes : Bring 9050/- with you
[Download](#) 


I-Card
Notes : Bring 25/- with you
[Download](#) 


Scholarship Form
Notes : Bring Caste Certificate with you
[Download](#) 




Assignment:

The screenshot shows a web application interface for 'Bright Future'. At the top, there is a navigation bar with links: Home, Courses, Teachers, Assignment, Timetable, Result, Form, Logout, and Change-Password. A user's email address, 'prachishah1211@gmail.com..!!', is displayed prominently. Below the navigation bar, a breadcrumb navigation shows 'Home > Assignments'. The main content area is titled 'Assignments' and contains three separate sections for different courses: 'BBA', 'M.com', and 'BE'. Each section features a circular icon with a book and pen, a course name, a list of semester options (radio buttons), and a 'VIEW ASSIGNMENT' button.

Bright Future

prachishah1211@gmail.com..!!

Home Assignments

Assignments

BBA

Semester : 1
 Semester : 2
 Semester : 3
 Semester : 4
 Semester : 5
 Semester : 6

M.com

Semester : 7
 Semester : 8
 Semester : 9
 Semester : 10

BE

Semester : 1
 Semester : 2
 Semester : 3
 Semester : 4
 Semester : 5
 Semester : 6
 Semester : 7
 Semester : 8

localhost:8080/user/index

7. Lessons learned

During my internship, I acquired several key learnings that will shape my career as a software engineer:

- Deepened understanding of development concepts, including server-side programming, databases, APIs, and system architecture & rendering Server-side Pages. Learnt Frontend Part Also.
- I Gained practical experience in working technologies such as Java, SpringBoot, SQL, etc.
- It enhanced the need for problem-solving and debugging skills through real-world development challenges.