



# MERN Based Placement Management Portal

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**Abstract:** The MERN-based placement Management Portal is a web-based placement management system developed using the MERN stack technologies, designed to streamline and simplify the placement process for educational institutions. This tool enables placement officers, students and administrators to provide a centralized platform for effective communication and data management regarding the placements. With the MERN-based placement management portal, students can easily access and store detailed information about their skills and academic details, eliminating the need for manual paperwork and saving important time. Through the application, students can choose companies based on personal interests, skills and qualifications. Along with that, students can submit their certificates. And the important thing about our portal is that it includes a DSA Tracker where students can solve problems and check their progress. The system uses the MERN stack (MongoDB, Express.js, React.js and Node.js) to ensure a robust outcome. MongoDB serves as the database to store student information, details, certificates while Express.js and Node.js handle the backend. React.js, takes care of the front end, providing a user-friendly interface.

**Index Terms** – MERN stack, DSA Tracker.

## I. INTRODUCTION

The MERN-based placement management portal is a web-based system that uses MERN technologies to simplify the placement process in educational institutions by eliminating the manual work. This portal provides a platform for seamless communication and data management between placement officers and students. Students benefit from easy access and storage of their information about their skills and academic details, eliminating the need for manual work. The portal provides an approach, allowing students to choose companies based on their personal interests, skills and qualifications that are posted by the placement officer. The feature of DSA Tracker allows students to actively improve their skills in data structures and algorithms, thereby promoting continuous development. The technologies of the MERN stack helps in the outcome, MongoDB helps in storing the student's data, Express.js and Node.js handling in the backend, and React.js framework creating a user-friendly and attractive interface for the users.

Our MERN-based placement management portal is proven to be innovative solution for educational institutions, technology to eliminate manual processes. Providing a seamless platform for communication and data management not only simplifies administrative tasks but also allows students to easily access academic and competency-related information. This software helps students to select companies that are posted by the placement officers based on their preferences provides an easy and meaningful placement experience. The feature of the DSA tracker in the portal helps in continuous skill development student's careers. The MERN stack's architecture delivers reliable results with MongoDB protecting student data, Express.js and Node.js orchestrating the backend, and React.js creating an intuitive user interface.

## II. LITERATURE SURVEY

The first paper of this paper's is "Placement support system" [1]. Placement support focuses on the automation of the placement cell. Authorizing the resumes, communicating about the varied job openings to the scholar community, managing the company relationship for inviting them for the placements, creating the location metrics, monitoring the progress of the choice process and communicating with different users. This system is often used as an application by the college to manage the student information concerning placements. Also helps companies coming for campus recruitment to ascertain student details. Before coming for the campus, companies can get information about eligible students alongside interested students.

The second paper is “Online Training and Placement System” [2]. This system gives a very efficient way of placement for students. In this system, the student does their registration in a very simple manner and the placement officer can easily get the information of students. The system can thus easily access the eligible students. In this system, information regarding the campus is sent to the student automatically. In overall architecture, data is stored and then as per rules and condition data is obtained and processing is applied on it such as making the report and sending mail to the student. The developed System can guarantee to keep the records safe and private which is stored in the database. It converts unstructured data into structured data and sorted format. All these are contributing to the control of the system. The TPO is the main admin of the system. Other important users of the training and placement system are student, company, and forum for which the system designed. In the existing Placement system, maximum work goes manually and is an error-prone system, takes time for any changes in the system. This big problem is the searching; sorting and updating of the student data and no any notification method available for giving information to the student except the notice board. The proposed system gets automated in the online registration all the user, activation of the user and deactivation of the user, personalization to the user, resources to be provided online, communication between the users, and gives online feedback. The admin can see the user information and will validate it, generate the student list based on company criteria; company details can be provided to the user, searching and sorting can be done, and reports to be generated. Alumni data to be maintained. Overall, all the process of the training and placement department is automated

### III. METHODOLOGY

#### 1.Technologies Used

“MERN-based placement management portal” leverages the MERN stack and includes the following technologies:

1. MongoDB: A MongoDB function can be used to read, insert, update, or delete data from your MongoDB data database. When you connect your database to Internal, the basic functions corresponding to each collection in the database are automatically created for you.
2. Express.js: Express is a Node.js web application framework that provides extensive functionality for building web and mobile applications. It is used to create single-page, multi-page and hybrid web applications. This is a layer built on top of Node.js that helps manage servers and routes.
3. React.js: React essentially allows developers to use individual parts of their application on both the client and server side, which ultimately increases the speed of the development process development.  
Simply put, different developers can write individual parts and any changes made will not affect the application logic.
4. Node.js: Functions in Node.js is used directly in the code. Using Node.js allows you to get the desired action from your application in a single process, i.e. you don't need to create a new thread for each new request.

#### STUDENT MODULE:

Every student has a unique ID given by the college and the students can login through their ID along with their password. Academic details of the students are entered by default. It contains the following:

- Profile Building: The students can add their skills and improve their candidature.
- Certifications: Provide a section for students to upload their skillset certifications.
- Resume: Upload your resume for placement officer's reference.
- Projects: Students can upload the description and link of their projects.
- Dream Company Selection: Provides a platform for students to explore job postings, view company details and apply for interested companies.
- Check Approval Status: The students can check the approval status of the dream company application.
- DSA Problem Solving: Implements a coding practice section where students can solve Data Structures and Algorithms (DSA) Problems.

#### ADMIN MODULE:

The Placement Officer is the admin of the portal. The admin can login through his login credentials. It contains the following:

- Job Posting: Enable the admin to post job openings on behalf of companies. Include fields for job descriptions, eligibility criteria, and other relevant information.
- Access Students Details: The admin can access student's details.
- Access Students Documents: Placement officer can access the documents that are uploaded by the students such as certificates, resume.
- View Students Company Interests: Provides a feature for the admin to view the companies that the students are interested in. This can help in coordinating and facilitating the placement process.
- View Leaderboard: Placement officer can check the leaderboard and observe the student's performance.

#### 4.Implementation Block Diagram

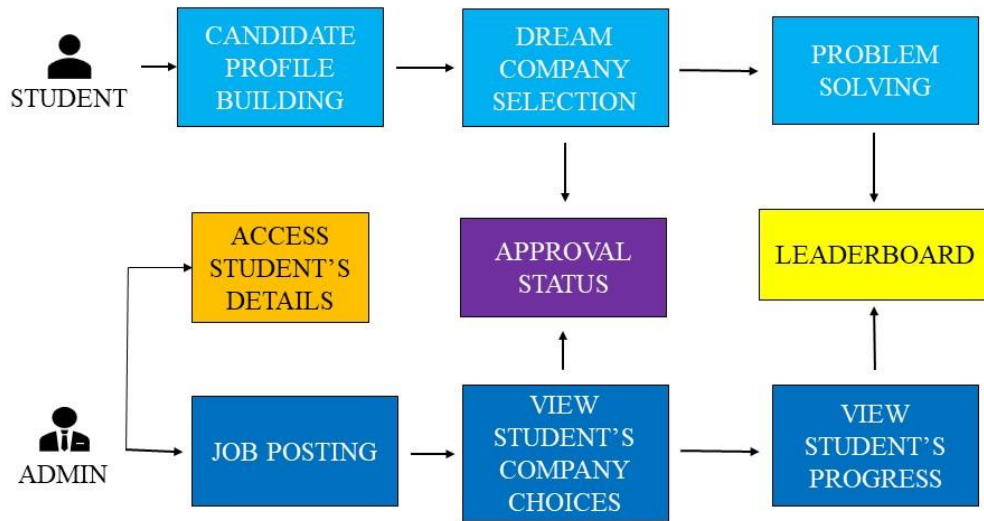


Fig 1. Flow Diagram

## IV.RESULTS AND DISCUSSION

### 1.Figures

Login page of the MERN based placement management portal where we can shift between student login and admin login as per the requirement.



## Welcome To College Placement Management Portal

The 'Student Login' form is a light gray box with a dark gray header. It contains the following elements: a title 'Student Login', a label 'Roll No' above a white input field, a label 'Password' above a white input field with a toggle icon, a blue link 'Forgot Password', a dark blue 'Login' button, and a green 'Switch to Admin Login' button.

Fig 1. Student Login Page

Then the launch page contains all the basic academic details, skills and other details of the specific details.

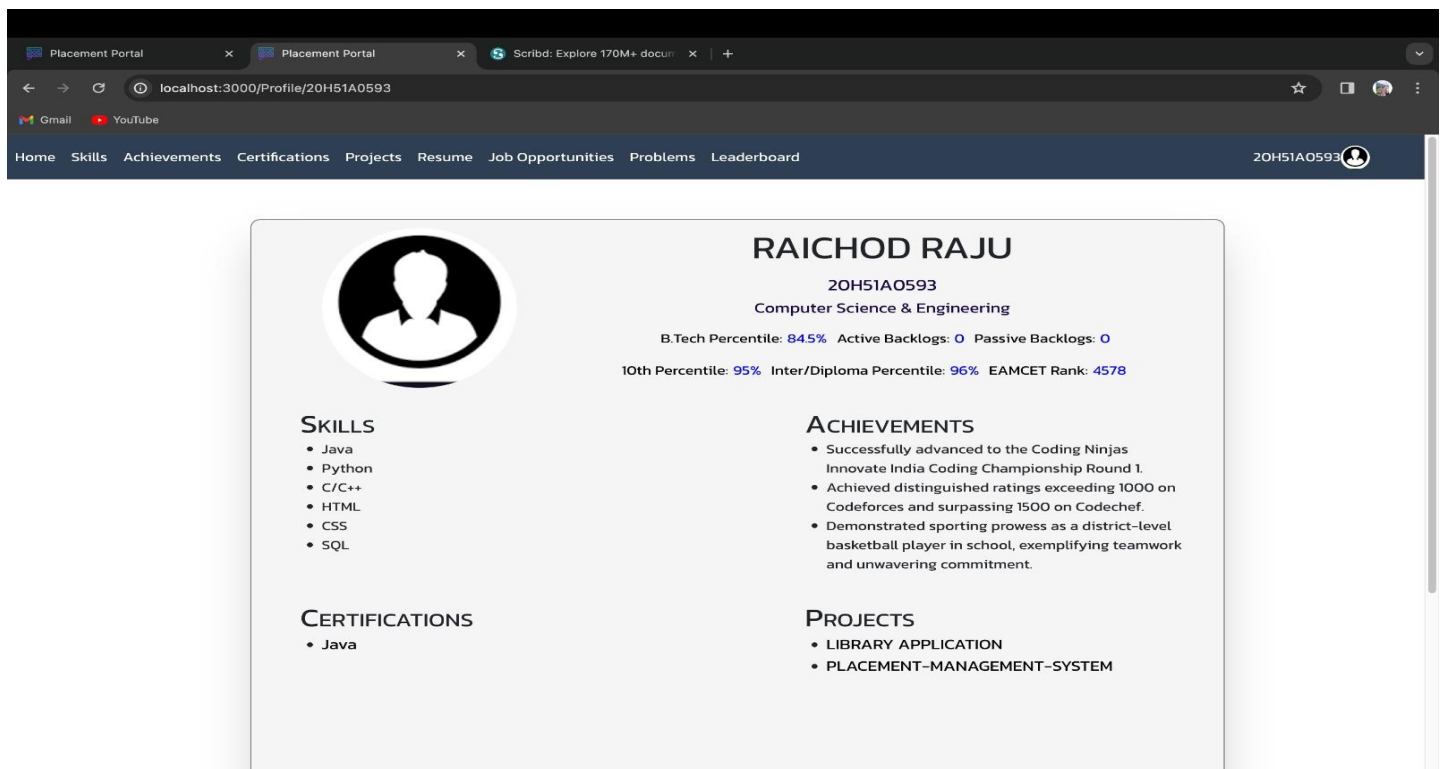
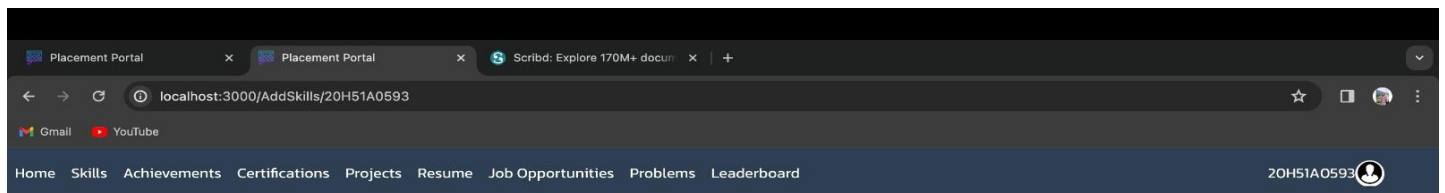


Fig 2. Home Page

In the navbar , we can shift between different pages of the website such as Skills , Achievements , Certifications , Projects , Job postings and Leaderboard.



## Add Skills To Know How Much Skilled You Are

Your Skills

Java

Python

C/C++

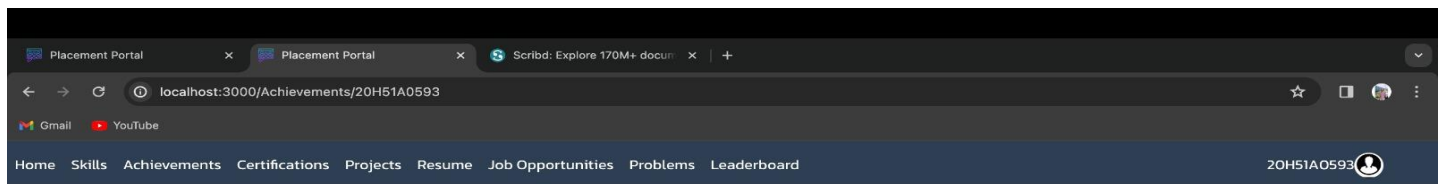
HTML

CSS

SQL

Add Skill

Fig 3. Skills Page



## Mention Your Achievements

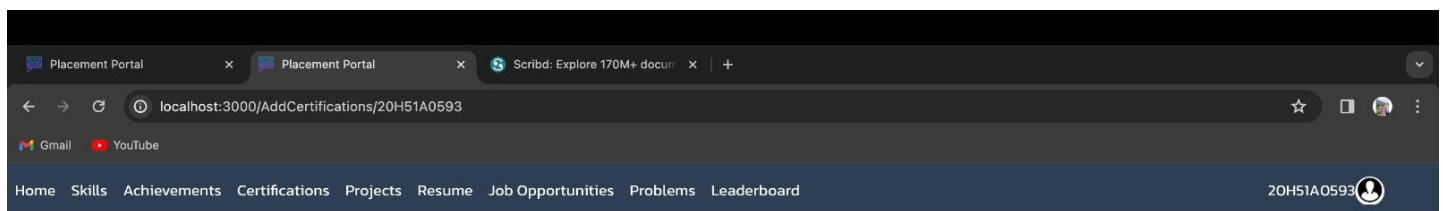
Your Achievements

- Successfully advanced to the Coding Ninjas Innovate India Coding Championship Round 1.
- Achieved distinguished ratings exceeding 1000 on Codeforces and surpassing 1500 on Codechef.
- Demonstrated sporting prowess as a district-level basketball player in school, exemplifying teamwork and unwavering commitment.

Add Achievement

Add Achievement

Fig 4. Achievements



Add a Certification

1. Java

Enter Certification Name

Choose file

No file chosen

Add Certification

Fig 5. Certifications

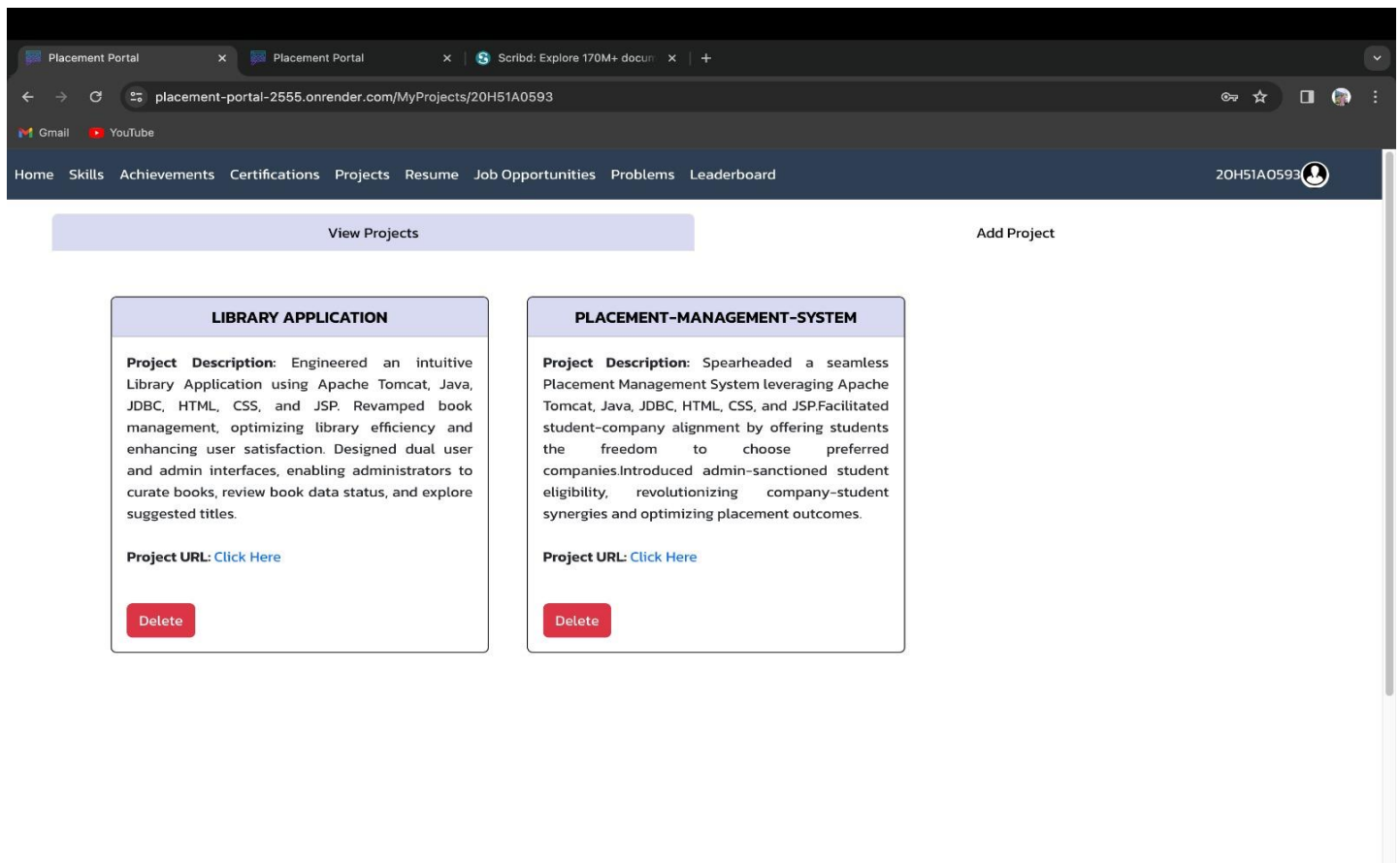


Fig 6. Projects

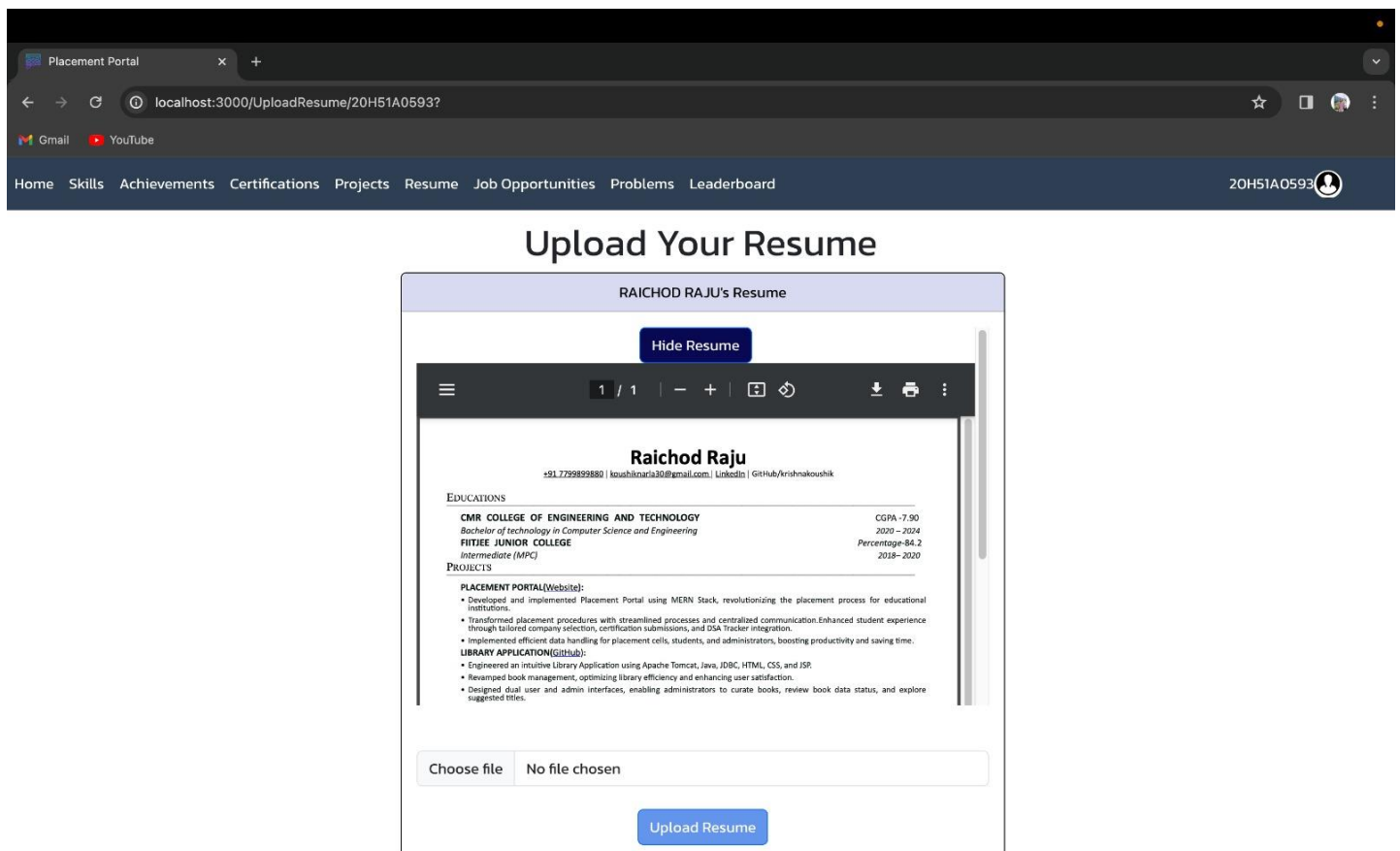


Fig 7. Resume Upload

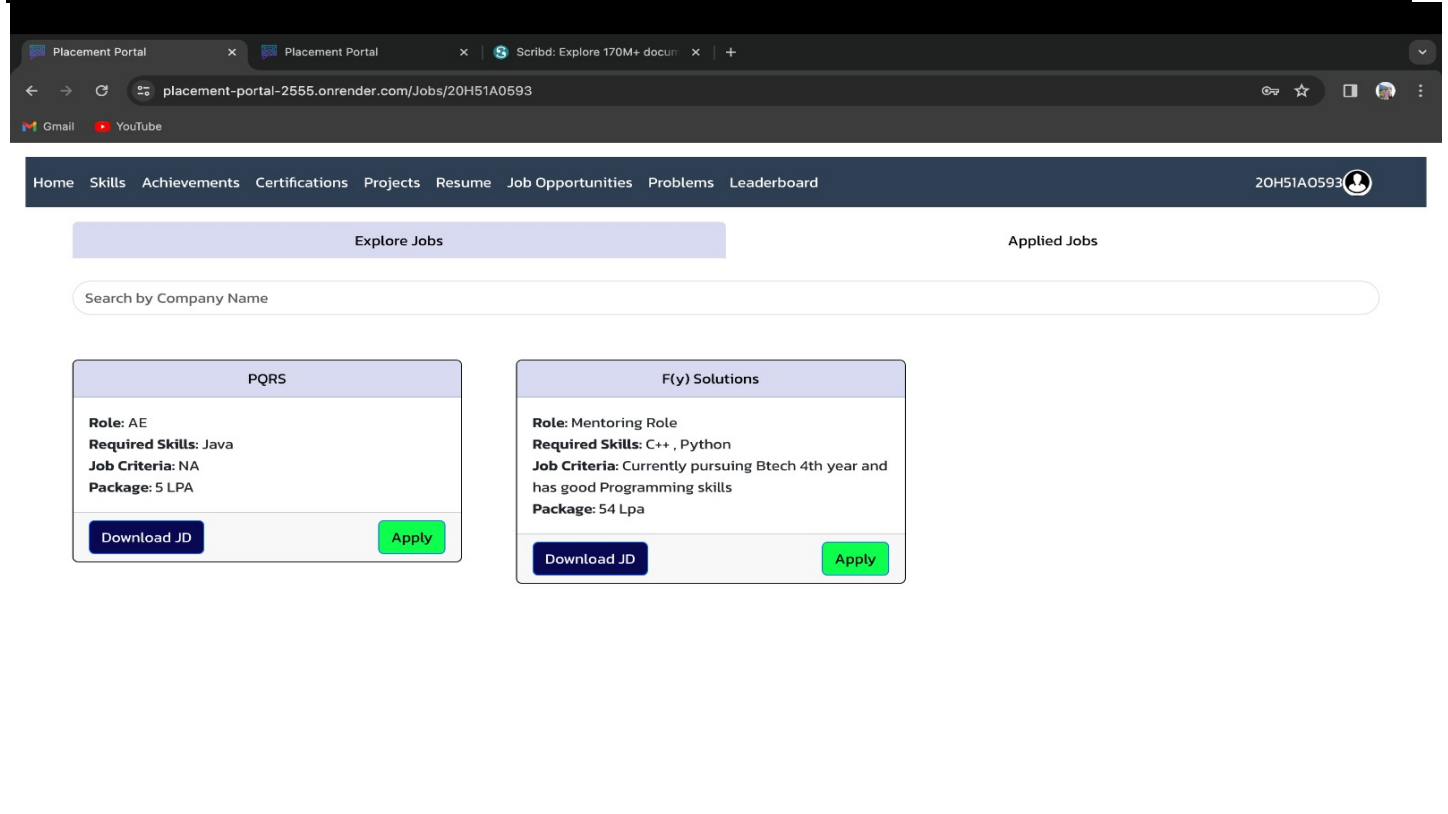


Fig 8. Job Postings

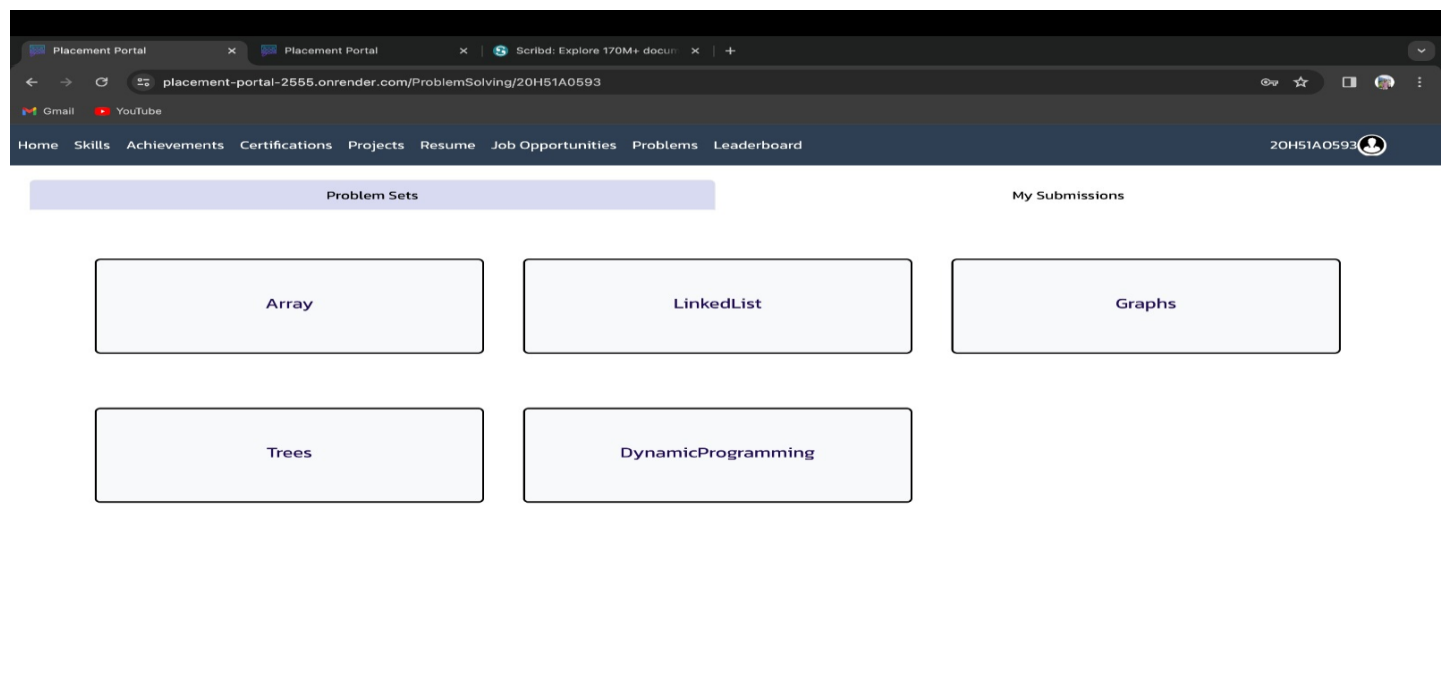
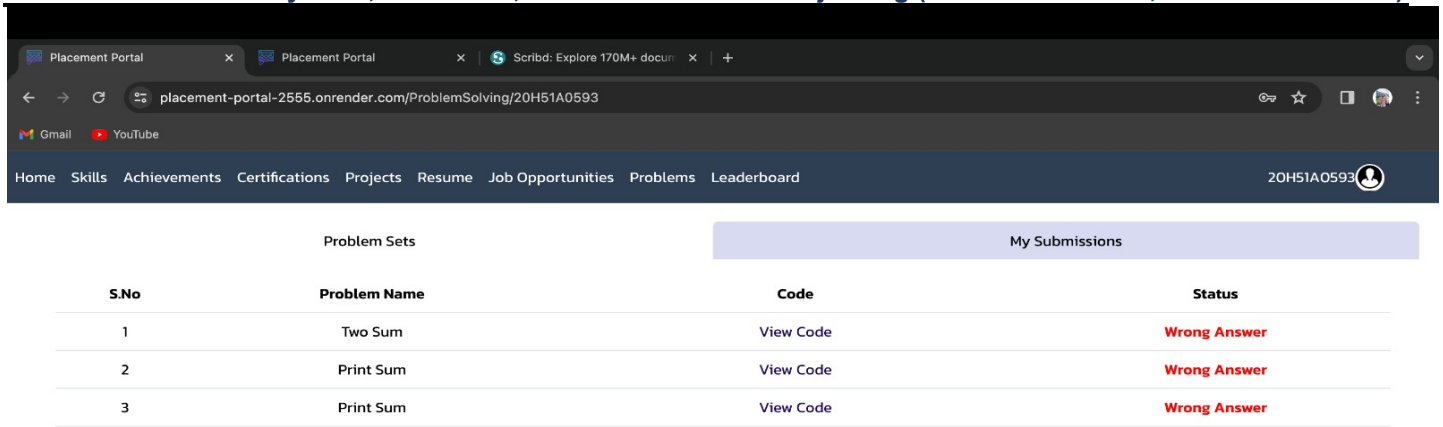


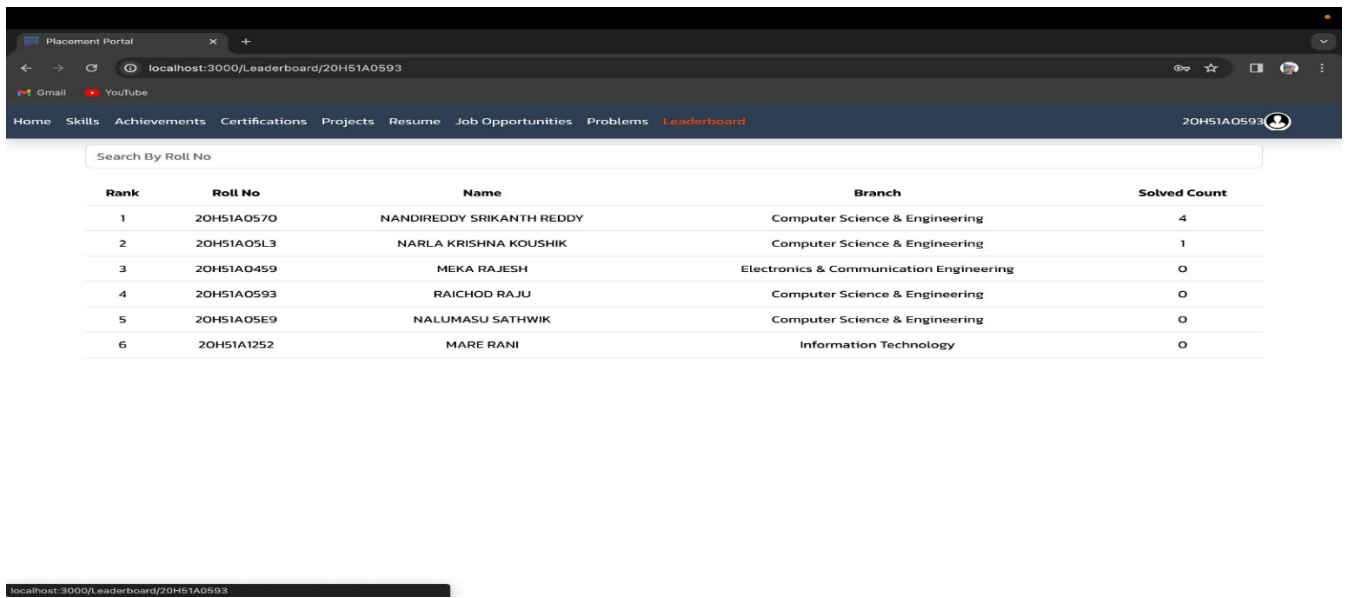
Fig 9. Problems Page





S.No	Problem Name	Code	Status
1	Two Sum	<a href="#">View Code</a>	Wrong Answer
2	Print Sum	<a href="#">View Code</a>	Wrong Answer
3	Print Sum	<a href="#">View Code</a>	Wrong Answer

Fig 10. Submissions Page



Rank	Roll No	Name	Branch	Solved Count
1	20H51A0570	NANDIREDDY SRIKANTH REDDY	Computer Science & Engineering	4
2	20H51A05L3	NARLA KRISHNA Koushik	Computer Science & Engineering	1
3	20H51A0459	MEKA RAJESH	Electronics & Communication Engineering	0
4	20H51A0593	RAICHOD RAJU	Computer Science & Engineering	0
5	20H51A05E9	NALUMASU SATHWIK	Computer Science & Engineering	0
6	20H51A1252	MARE RANI	Information Technology	0

Fig 11. Leaderboard



### Admin Login

User ID

Password

[Login](#)

[Switch to Student Login](#)

Fig 12. Admin Login Page





Fig 13. Admin Home Page

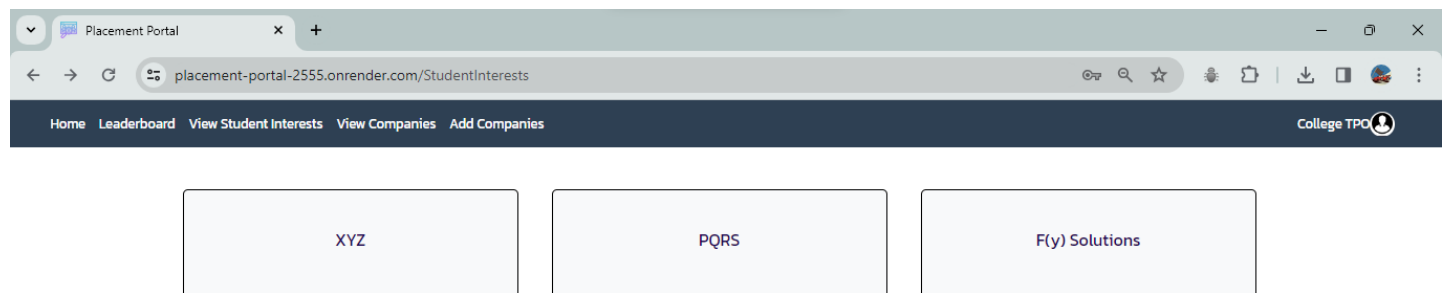


Fig 14. Student Interests

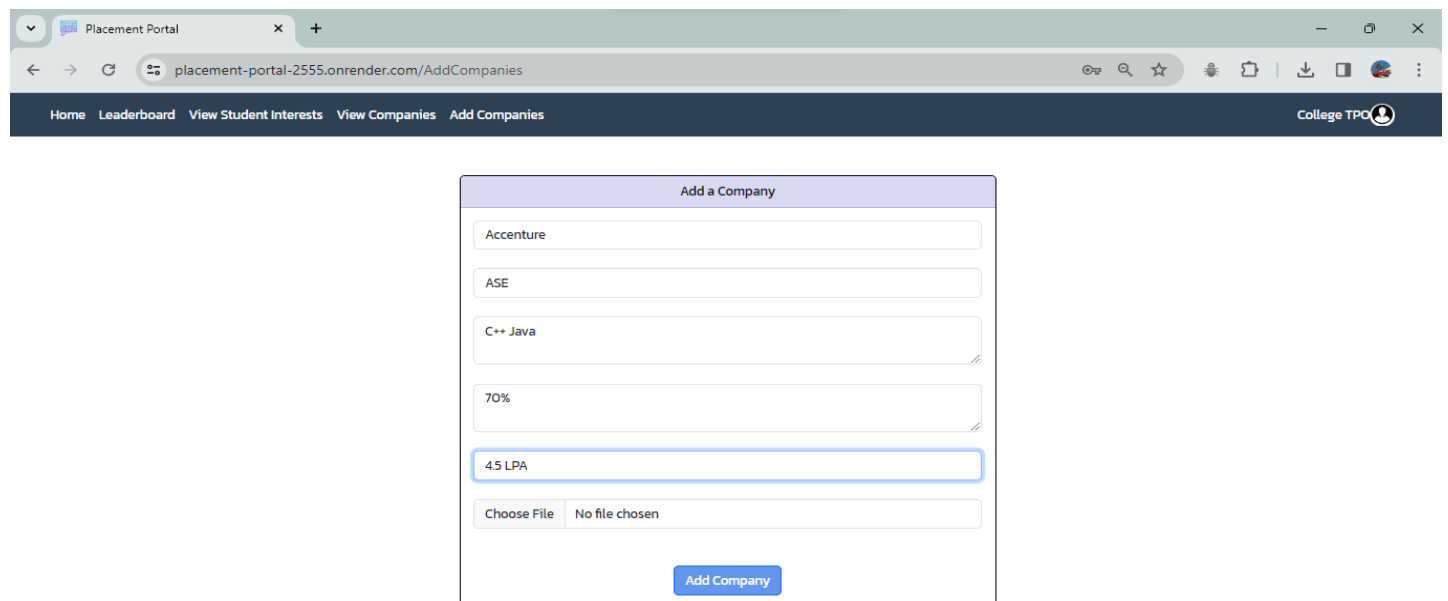


Fig 15. Add Job postings

The screenshot displays a web application titled "Placement Portal" with a navigation bar including "Home", "Leaderboard", "View Student Interests", "View Companies", and "Add Companies". The main content area is divided into three sections:

- COMPANY DETAILS:**
  - COMPANY NAME: XYZ
  - JOB TITLE: SDE
  - REQUIRED SKILLS: NA
  - JOB CRITERIA: NA
  - PACKAGE: 4 LPA
  - Download JD: [Click Here](#)
  - Buttons: [Approve](#) (green) and [Reject](#) (red)
- STUDENT DETAILS:**
  - RAICHOD RAJU**
  - 20H51A0593
  - Computer Science & Engineering
  - B.Tech Percentile: 84.5% Active Backlogs: 0 Passive Backlogs: 0
  - 10th Percentile: 95% Inter/Diploma Percentile: 96% EAMCET Rank: 4578
  - [View Resume](#) (green)
- SKILLS:**
  - Java
  - Python
  - C/C++
  - HTML
  - CSS
  - SQL
- CERTIFICATIONS:**
  - Java
- ACHIEVEMENTS:**
  - Successfully advanced to the Coding Ninjas Innovate India Coding Championship Round 1.
  - Achieved distinguished ratings exceeding 1000 on Codeforces and surpassing 1500 on Codechef.
  - Demonstrated sporting prowess as a district-level basketball player in school, exemplifying teamwork and unwavering commitment.
- PROJECTS:**
  - LIBRARY APPLICATION
  - PLACEMENT-MANAGEMENT-SYSTEM

Fig 16. Comparing Student skills and Company's required skills

## V.CONCLUSION

In summary, "MERN-based Placement Management Portal" is a comprehensive solution that provides students with an easy-to-use platform to efficiently manage their data, search for jobs, and seamlessly apply to their desired companies. Incorporating a DSA tracker accelerates student's professional development by providing a dedicated space to improve their Data Structures and Algorithms (DSA) skills.

However, it is important to be aware of certain limitations, this portal is specifically designed for educational institutions and its scope is limited to the university placement process. Additionally, reliance on internet connectivity can pose challenges in areas where access is unreliable or limited.

Furthermore, regular maintenance and updates are essential to maintain efficiency and security requires dedicated resources and attention. Despite these limitations, the portal remains a valuable tool for streamlining the employment process, reducing manual workload, and generally improving students career prospects. Institutions using this platform must be aware of their unique circumstances and ensure ongoing support to maximize benefits.

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