Bapuji Institute of Engineering and Technology
Davangere – 577004

Department of Computer Science and Engineering

CERTIFICATE

This is to certify that **Akash B Naik , Amrutha M Banakar** , **Anushree Basavaraj Kuppast and Bhavana S** bearing USN **4BD21CS007,4BD21CS010 ,4BD21CS020, and 4BD21CS023** respectively of Computer Science and Engineering department have satisfactorily submitted the Mini Project report entitled **"Departmental Alumni Network Platform"** in the partial fulfilment of the requirements for the award of Degree of Bachelor of Engineering (B.E.) in Computer Science and Engineering, under the VTU during the academic year 2023-24**.**

_____   _____

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Date: 19-07-2024

Place: Davangere

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Salutations to our beloved and highly esteemed institute, **"BAPUJI INSTITUTE OF ENGINEERING AND TECHNOLOGY"** for having well-qualified staff and labs furnished with the necessary equipment.

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Bapuji Institute of Engineering and Technology, Davangere-577004

Vision and Mission of the Computer Science and Engineering Department

Vision

"To be a centre-of-excellence by imbibing state-of-the-art technology in the field of Computer Science and Engineering, thereby enabling students to excel professionally and be ethical."

Mission

1.	Adapting best teaching and learning techniques that cultivates Questioning and Reasoning culture among the students.
2.	Creating collaborative learning environment that ignites the critical thinking in students and leading to the innovation.
3.	Establishing Industry Institute relationship to bridge skill gap and make them industry ready and relevant.
4.	Mentoring students to be socially responsible by inculcating ethical and moral values.

Program Educational Objectives (PEOs):

PEO1	To apply skills acquired in the discipline of computer science and engineering for solving Societal and industrial problems with apt technology intervention.
PEO2	To continue their carrier ion industry /academia or pursue higher studies and research.
PEO3	To become successful entrepreneurs, innovators to design and develop software products and services that meets societal, technical and business challenges.
PEO4	To work in the diversified environment by acquiring leadership qualities with effective communication skills accompanied by professional and ethical values.

Program Specific Outcomes (PSOs):

PSO1	Analyse and develop solutions for problems that are complex in nature but applying the knowledge acquired from the core subjects of this program.
PSO2	To develop secure, scalable, resilient and distributed applications for industry and societal Requirements.
PSO3	To learn and apply the concepts and contract of emerging technologies like artificial intelligence, machine learning, deep learning, big-data analytics, IOT, cloud computing etc for any real time problems.

ABSTRACT

Alumni portal is providing common platform for every institute. This project is aimed at developing an interactive system for the alumni of particular college. The proposed system will help alumni and the concern institution to create strong bounding through sharing their experiences, views, ideas, guidance, motivation inputs and strategies. A system that will be able to manage alumni data of an institution and provide easy access to secure information at both ends. This portal highlights the feature of communication, which will enable the current students to have interaction with the alumni of the college for getting various updates regarding job opportunities like industrial trends and industrial events etc. The proposed system will be developed with an open source platform on web. This will help the user to access the portal from any location. Few of the required web design packages will be developed for better understanding. Various reporting formats can be generated based on filtering strategies. The admin panel will has all the rights to control the complete operation of system and implement addons if required in future. The system will automatically list all alumni information their graduation and their status will be transferred from the student module to the alumni module.

Keywords: Alumni portal

CONTENT

LIST OF FIGURES AND TABLES

CHAPTER 1: INTRODUCTION

The College Alumni Management System project, an innovative and purposedriven platform that aims to establish and nurture a strong bond between our esteemed educational institution and its esteemed alumni community. With a vision to create a thriving ecosystem for graduates, this system offers a seamless and user-friendly interface, empowering our alumni to remain connected, share their achievements, and actively participate in the college's continued growth and success. The College Alumni Management System project is built on the foundation of fostering meaningful relationships, knowledge sharing, and professional opportunities among our graduates. Through inspiring galleries, interactive forums, and engaging events, this project serves as a conduit for alumni to showcase their accomplishments, provide mentorship, and collaborate with each other and current students. Our mission is to create a dynamic and vibrant alumni community, where every graduate can take pride in their alma mater, stay updated with the latest developments, and embark on a journey of lifelong learning. We believe that by leveraging modern technologies and user-centric design, our alumni management system will become a valuable resource for both alumni and the college, strengthening our ties and collectively contributing to a brighter future.

1.1 OVERVIEW OF THE PROJECT

Alumni associations play an essential role in higher education institutions, as they provide networking opportunities and contact between the university and the alumni or among the alumni. However, the lack of communication between the alumni, faculty and the department as a whole leading to the lack of updated data of alumni hinders the effective development of an alumni association. The lack of data update can be tied to disinterest or ignorance of the alumni about the potential of an alumni association to promote a professional network, academic and even personal relationships. Similarly, the need for an effective system to maintain these records and to update them frequently becomes increasingly pressing as the number of students enrolled in the campus continues to increase. One of the ways to consolidate the relationship between alumni and educational institutions is to create a virtual and interactive portal to provide useful information to the alumni to help extend the contact between the alumni and the university to beyond the period of course completion, regardless of geographic location or time.

1.2 PROBLEM STATEMENT

Many academic departments face challenges in maintaining strong connections with their alumni, resulting in missed opportunities for networking, mentorship, and collaboration. Current engagement methods, such as sporadic events and informal social media interactions, are insufficient for fostering a cohesive community. To address this, a centralized alumni network platform is needed to enhance connectivity and promote professional development. The platform should include features like networking opportunities, job postings, mentorship programs, and event organization tools. By facilitating regular communication and engagement, this platform will strengthen alumni ties and support departmental initiatives, ultimately benefiting both alumni and the department.

1.3 OBJECTIVES

The main objective of this Alumni Network Platform is :

1   To encourage alumni to connect with each other, fostering a sense of community and lifelong relationships.

2   To assist students and recent graduates in job placements through alumni referrals and job postings.

3   To organize webinars, workshops, and seminars led by alumni to share industry insights and expertise.

1.4 SCOPE OF THE PROJECT

- Connect Alumni: Facilitate networking among department alumni.
- Career Development: Provide a platform for alumni to mentor current students.
- Resource Sharing: Enable sharing of job opportunities, resources, and industry insights.
- Event Coordination: Organize and promote department-specific events, reunions, and webinars.
- Database Management: Maintain a comprehensive database of alumni for communication and collaboration.
- User Registration and Authentication: Secure login for alumni and students.
- Profile Management: Allow users to create and update their profiles.
- Networking Tools: Messaging, forums, and groups to facilitate communication.
- Job Board: A section for posting and browsing job opportunities.

- Mentorship Program: Tools for alumni to offer mentorship and for students to seek mentors.

- Event Calendar: Schedule and promote departmental events.

- Search and Filter: Search alumni by name, batch, company, or industry.

- Notification System: Alerts for new messages, job postings, and events.

- Technical Requirements:

- Database Management System: Robust backend for managing user data.

- Security: Encryption, secure login, and data protection measures.

- User Interface: Intuitive and user-friendly interface.

- Global Networking: Connect with alumni from other departments or institutions.

CHAPTER 2: METHODOLOGY

2.1 METHODS AND TECHNIQUES

The Alumni Management System has been developed with the following key features:

- 👶💼 **Admin Side**

  o **Login Page**: The page where system admin will submit their system credential to access and manage the system data.

  o **Home Page**: The page where the admin user will be redirected by clicking on the navbar dropdown after logging into the alumni management system admin side. This page displays the summary or total counts of alumni, posted jobs, forum topics, and upcoming events.

  o **Gallery Page**: The page where the admin user will manage the gallery images and data for the website.

  o **Course List**: The page where the admin will populate and manage the university or college school's courses.

  o **Alumni List**: The page where the alumni list in the system are listed and this the page where can the admin verify the alumnus/alumna's account.

  o **Jobs Page**: The page where all posted jobs are listed and can be managed by the admin.

  o **Events Page**: The page where an admin manages or posts an upcoming event of the school where can alumni can participate.

  o **Forum Page**: The page where all forum topics are listed along with the count of comments if this topic is being shown.

  o **User Page**: The page where an admin user manages the system users.

- 🎓 **Alumni Side**

  o **Home Page**: The default page where the user will be redirected when browsing the website and after logging in. This page shows the list of upcoming events.

  o **Signup Page**: The page where the unregistered alumnus/alumni submit their credentials.

  o **Login Page**: The page where the user submits their system credential in order to access and manage the other feature or functionalities of the system.

  o **Gallery Page**: The page where the images posted by the institute's management is being shown.

  o **About Page**: The page where the page about content is being shown.

- o **Job Page**: The page where all posted job opportunities are listed.
- o **Forum Page**: The page where that forum topics are listed and the user can join or read the comments by selecting and viewing a topic.
- o **Account Management Page**: The page where can the user update his/her system credentials and information.
- o **Edit profile** :Allows the user to edit their profile based on their development and requirements.

- • 🎓 **Student Side**

- o **Home Page**: The default page where the user will be redirected when browsing the website and after logging in. This page shows the list of upcoming events.
- o **Signup Page**: The page where the unregistered alumnus/alumni submit their credentials.
- o **Login Page**: The page where the user submits their system credential in order to access and manage the other feature or functionalities of the system.
- o **Gallery Page**: The page where the images posted by the institute's management is being shown.
- o **About Page**: The page where the page about content is being shown.
- o **Job Page**: The page where all posted job opportunities are listed.
- o **Forum Page**: The page where that forum topics are listed and the user can join or read the comments by selecting and viewing a topic.
- o **Account Management Page**: The page where can the user update his/her system credentials and information.

2.2 TOOLS AND TECHNOLOGIES

- • HARDWARE REQUIREMENTS

The Hardware required for the development of this project is:

● Processor: Intel Core i5

● System type : 64-bit operating system

● RAM : 16 GB RAM

● Version : Windows 11 Pro

SOFTWARE REQUIREMENTS The Software required for the development of this project is:

• Backend: My SQL(Database).

• User Interface Design : HTML, CSS, Bootstrap, ReactJs, Javascript.

• Web Browser : Google ,Chrome, Firefox

• Server : XAMPP

2.3 PROJECT TIMELINE

Project Timeline: **Alumni Network Platform for Academic Queries**

Week 1: Planning and Research

- Day 1-2: Define project objectives and scope.

- Day 3-4: Research on available online platforms

- Day 5-7: Finalize the platform to use and gather initial requirements for the Alumni Network Platform (types of queries, structure, etc.).

Week 2: Design and Development

- Day 8-10: Design the conversation flow and rule-based logic for the Alumni Network Platform. Alumni Network Platform

- Day 11-13: Start developing the Alumni Network Platform using Botpress or Conferbot.

- Day 14: Review and refine the initial version of the Alumni Network Platform based on preliminary tests.

Week 3: Implementation and Testing

- Day 15-17: Continue development and integrate more academic queries.

- Day 18-19: Deploy the initial version of the to the official college website.

- Day 20-21: Conduct user testing with a small group of students and gather feedback.

Week 4: Refinement and Finalization

- Day 22-24: Refine and improve the Alumni Network Platform based on user feedback.

- Day 25-26: Perform final testing to ensure stability and reliability.

- Day 27-28: Prepare project documentation (user guide, technical details, etc.).

- Day 29-30: Final review, polish the report, and prepare for submission.

CHAPTER 3 : SYSTEM DESIGN AND IMPLEMENTATION

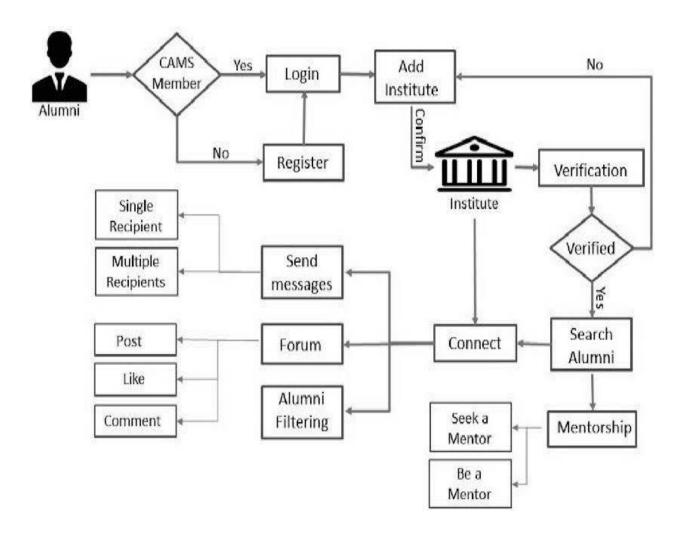## 3.1 SYSTEM ARCHITECTURE

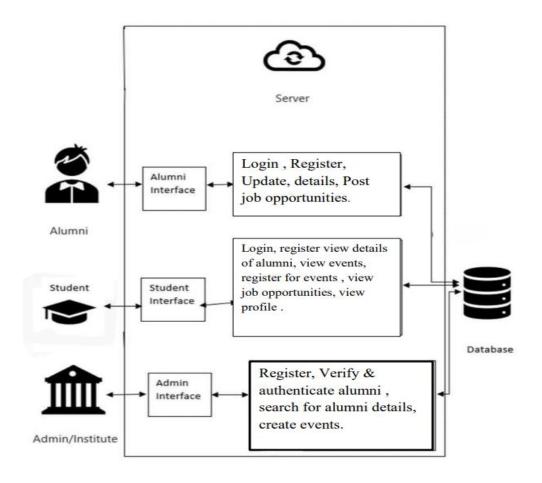Fig   3.1 System Architecture

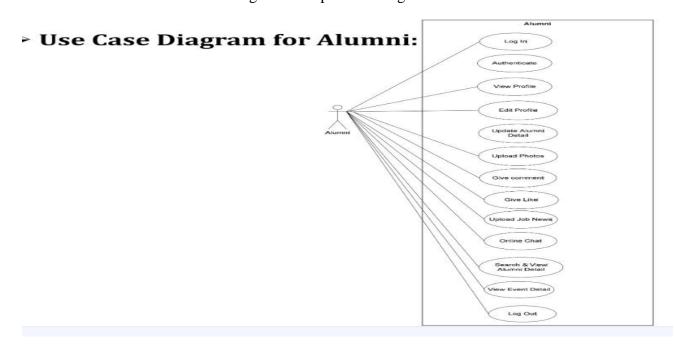## 3.2 COMPONENT DESIGN

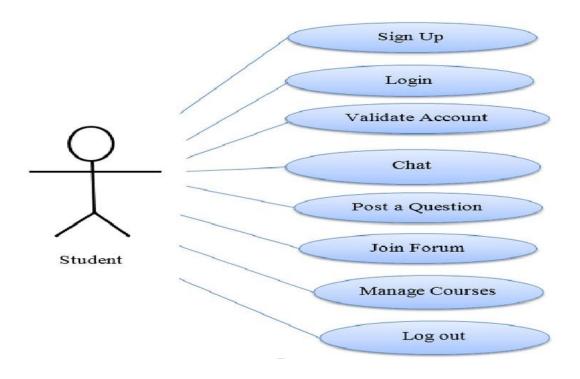Fig 3.2: Component Design

Fig 3.3:Use Case Diagram for Alumni

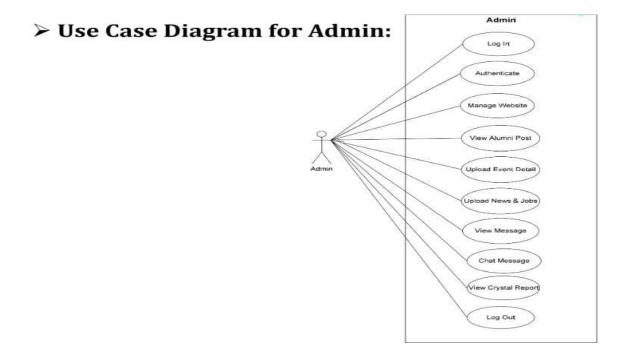Fig 3.3:Use Case Diagram for Student

Fig 3.3:Use Case Diagram for Admin

3.3 IMPLEMENTATION DETAILS

The "Departmental Alumni Network Platform" is designed to facilitate communication and interaction among alumni of a specific department. This platform includes features such as job postings, forums, events, and real-time chat. It aims to create a vibrant and engaged alumni community.

PROJECT SETUP

Frontend Technologies:

HTML5: Used for structuring the pages.

CSS: Provides a visually appealing and consistent design.

JavaScript: Handles client-side validation and form submission.

Bootstrap: Used for styling elements (e.g., primary, danger, info colors).

ReactJS: Enhances the dynamic and interactive capabilities of the frontend.

Backend Technologies

MySQL: Manages backend processing, user authentication, and server-side validation.

WebSocket: Enables real-time messaging between users.

DEVELOPMENT PHASE

Frontend Development:

1. Page Layouts

Login Page: Designed with HTML, includes input fields for username/email and password.

Job Details Page: Displays relevant job opportunities using HTML and styled with CSS.

Forums Page: Facilitates discussion on various topics using HTML and CSS.

Events Page: Lists upcoming events, designed using HTML and CSS.

Chat Messages: Implemented in HTML for the structure and JavaScript for real-time communication.

2. Styling:

Utilized CSS to ensure a consistent and visually appealing design.

Bootstrap: Applied for additional styling, especially for colour schemes and responsive design.

3. Client-Side Scripting:

JavaScript: Implemented for form validation and handling form submissions.

ReactJS: Used to create dynamic, responsive, and interactive user interfaces.

BACKEND DEVELOPMENT

User Authentication:

Implemented using Node.js to verify user credentials against the database.

Server-side validation ensures secure login and registration processes.

DATA MANAGEMENT

MySQL handles storing event data and other backend processing tasks.

REAL-TIME COMMUNICATION

Enabled using WebSocket or similar technologies to facilitate instant messaging between users.

IMPLEMENTATION

Login Page

HTML: Input fields for username/email and password.

CSS: Ensures a consistent and attractive appearance.

JavaScript: Validates input fields and handles form submission.

Job Details, Forums, and Events Pages

HTML: Structured to display relevant content (jobs, forums, events).

CSS: Provides a user-friendly and visually appealing design.

JavaScript: Enhances interactivity and user experience.

Real-Time Messaging

JavaScript: Implements real-time messaging functionality.

WebSocket: Used for instant communication between users.

Backend Processing

MySQL: Manages data storage, user authentication, and server-side validation.

Testing Phase

Unit Testing:

Test individual components for functionality and performance.

Ensure input validation and form submission work correctly.

Integration Testing:

Test interactions between frontend and backend components.

Ensure real-time messaging and data storage are functioning as expected.

User Acceptance Testing:

Conduct testing with a group of end-users to validate the platform's usability and effectiveness.

Gather feedback and make necessary adjustments.

DEPLOYMENT AND MAINTENANCE

Deployment

Deploy the application on a suitable server.

Ensure the database is set up and configured correctly.

Maintenance

Regularly update the platform to fix bugs and improve performance.

Monitor the system to ensure reliability and availability.

Implement security patches and updates as needed.

CHAPTER 4 : RESULTS AND DISCUSSION

4.1 PRESENTATION OF RESULTS
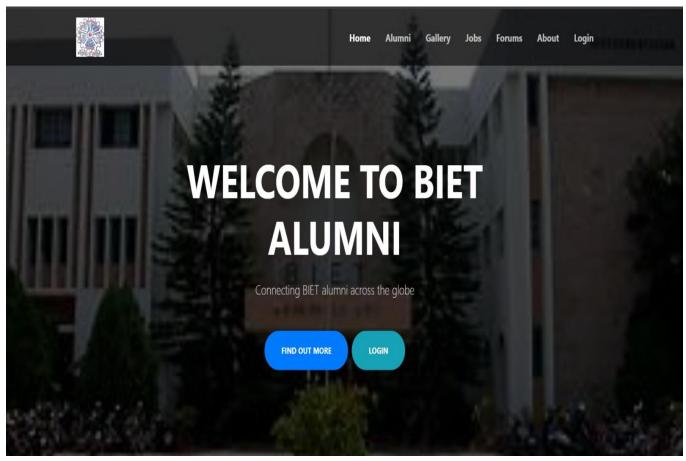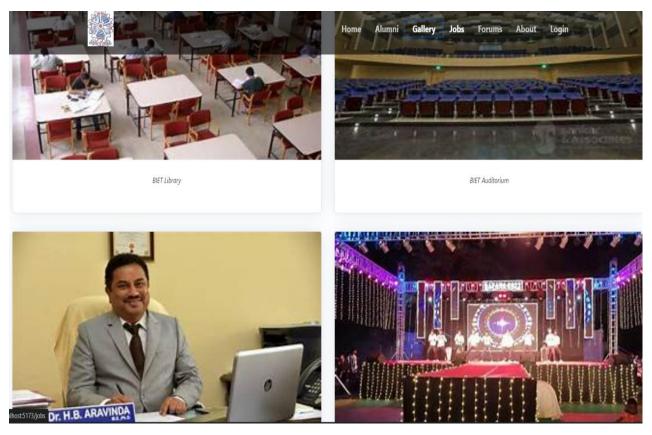

Fig 4.1 :   Home Page
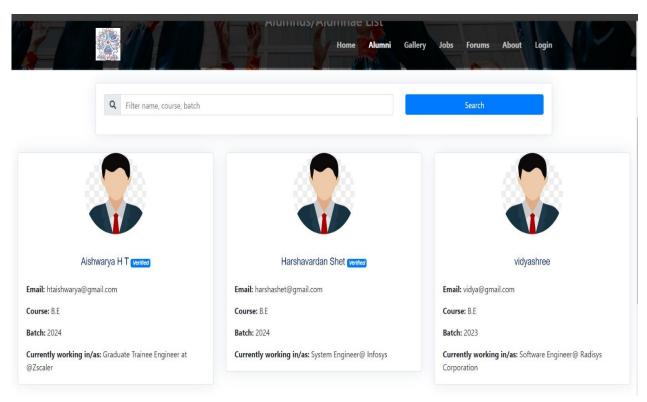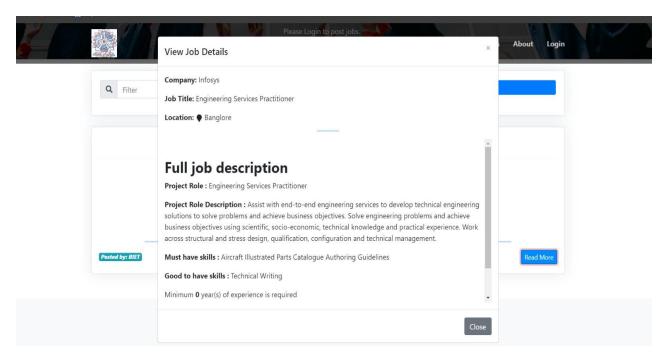
Fig 4.2 :Alumni Page

Fig 4.3: Gallery Page

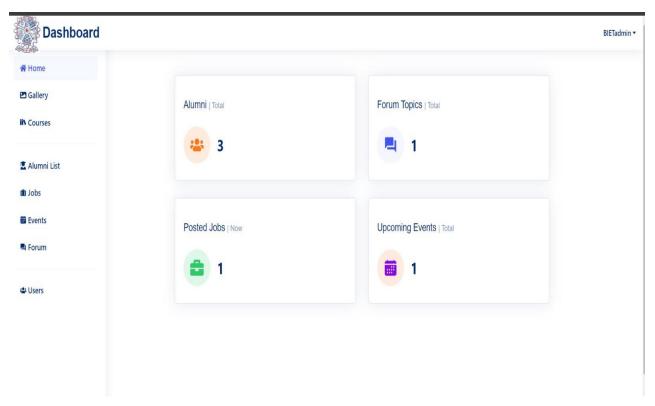Fig 4.4 : Job Page

Fig 4.5 About Us Page
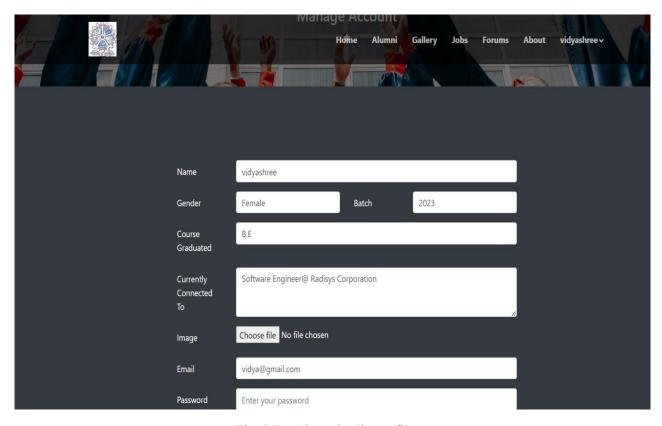
Fig 4.6   Admin Page
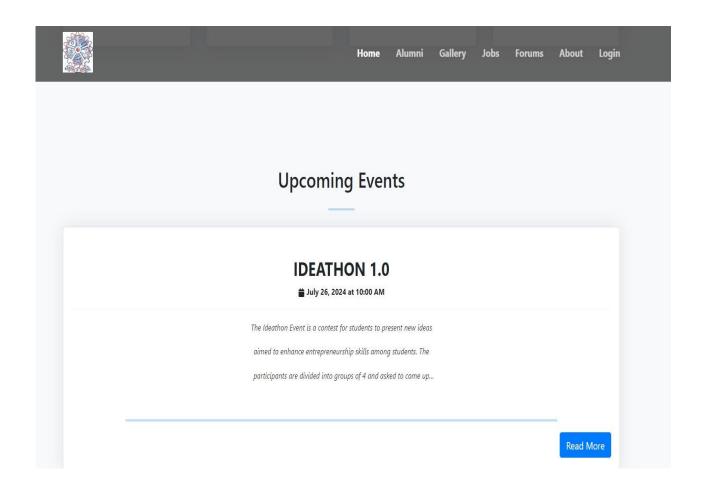

Fig 4.7 : Alumni edit profile page

Fig 4.8 : Events page

4.2 ANALYSIS OF RESULTS

The Departmental Alumni Network Platform successfully connects current students with alumni for mentorship and job opportunities. Key findings from the analysis include:

- User Engagement:

Increased student registrations seeking mentorship.

Active alumni participation in sharing job postings.

- User Feedback:

Positive reception regarding the user-friendly interface and efficient navigation.

Effective mentorship matching has received favorable reviews from users.

- Job Opportunities:

Successful networking has led to students securing internships and job interviews.

Alumni contributions in job leads have proven valuable.

- Technical Performance:

The ReactJS frontend ensures a responsive user experience.

Node.js backend stability supports efficient user request handling.

- Areas for Improvement:

Enhanced search functionality for mentorship and job postings.

Further mobile optimization to improve accessibility.

Overall, the platform demonstrates significant potential for future enhancement and increased user satisfaction.

4.3 COMPARISON WITH EXPECTATIONS

The Departmental Alumni Network Platform was designed to facilitate mentorship, job opportunities, and networking between current students and alumni. Here's a comparison of the project outcomes against initial expectations:

User Engagement:

Expectation: High levels of participation from both students and alumni.

Outcome: Met and exceeded expectations, with significant engagement reported.

User Interface:

Expectation: A user-friendly and intuitive interface.

Outcome: Feedback indicated the platform is highly user-friendly, aligning with expectations.

Mentorship Connections:

Expectation: Effective matching between students and alumni for mentorship.

Outcome: Exceeded expectations, with positive testimonials on successful connections.

Job Opportunities:

Expectation: Alumni would actively share job postings.

Outcome: Alumni participation in job postings was robust, meeting expectations and facilitating several successful placements.

Technical Performance:

Expectation: Smooth operation of the frontend and backend systems.

Outcome: Performance was stable, with no significant technical issues, aligning with expectations.

Areas for Improvement:

Expectation: Continuous feedback and enhancements over time.

Outcome: Identified areas for improvement, such as enhanced search functionality and mobile optimization, consistent with the adaptive expectations for platform development.

CHAPTER 5 : CONCLUSION

5.1 SUMMARY OF FINDINGS

Summary of Findings of Departmental Alumni Network Platform:

The Departmental Alumni Network Platform is designed to facilitate connections among alumni and current students, support career development, and promote resource sharing. Key functionalities include secure user registration and authentication, profile management, and networking tools such as messaging, forums, and groups. The platform will feature a job board, a mentorship program, and an event calendar for department-specific events. Advanced search and filter options, along with a notification system, will enhance user experience.

Technically, the platform requires a responsive design for web and mobile accessibility, a robust database management system, and strong security measures including encryption and secure login. Integration with third-party APIs and a user- friendly interface are also critical components. Future enhancements may include advanced analytics, Al-driven recommendations, global networking capabilities, social media integration, native mobile apps, and tools for hosting virtual events. The project scope encompasses planning and analysis, design, development, testing, deployment, and ongoing maintenance and support.

5.2 LIMITATIONS

- Search Functionality:

  Limited search filters may hinder users from easily finding relevant mentors or job opportunities.

- Mobile Optimization:

  While functional, the platform lacks full mobile optimization, potentially affecting user experience on smaller devices.

- User Engagement Tracking:

  Insufficient analytics capabilities make it challenging to track user engagement and interactions comprehensively.

- Scalability:

  Current architecture may face performance issues as the user base grows, necessitating future optimization for scalability.

- Content Moderation:

The platform relies heavily on manual moderation for job postings and mentorship interactions, which could lead to delays or inconsistencies.

- Limited Features:

Additional features such as forums or real-time chat could enhance networking opportunities but are currently not implemented.

5.3 FUTURE WORK

Future work for the Departmental Alumni Network Platform includes:

- Enhanced Search Functionality: Implementing advanced search filters to help users find relevant mentors and job opportunities more easily.

- Mobile Optimization: Improving the platform's responsiveness and usability on mobile devices to ensure a seamless experience for all users.

- Analytics and Tracking: Developing comprehensive analytics tools to monitor user engagement, interactions, and platform usage for better insights.

- Content Moderation Improvements: Automating content moderation processes to streamline job postings and mentorship interactions, ensuring timely updates.

- Feature Expansion: Adding new features such as discussion forums, real-time chat capabilities, and event notifications to enhance user interaction and networking opportunities.

- Scalability Enhancements: Optimizing the backend architecture to support an increasing user base without compromising performance.

CHAPTER 6: REFERENCES

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