ALUMNI ASSOCIATION PLATFORM

A

MAJOR PROJECT-II REPORT

Submitted in partial fulfillment of the requirements for the degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE & ENGINEERING

By

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CERTIFICATE

We hereby certify that the work which is being presented in the B.Tech. Major Project-II Report entitled **IMPLEMENTATION OF ALUMNI ASSOCIATION PLATFORM FOR THE UNIVERSITY/INSTITUTE**, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology, submitted to the Department of **Computer Science & Engineering**, Sagar Institute of Science & Technology (SISTec),Bhopal (M.P.) is an authentic record of our own work carried out during the period from Dec 2024 to June 2025 under the supervision of **Dr. Bhavana Gupta.**

The content presented in this project has not been submitted by me for the award of any other degree elsewhere.

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This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Date:

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ABSTRACT

The Alumni Association platform for the Government Engineering College is a web-based solution aimed at strengthening the relationship between the college and its alumni. The platform offers seamless alumni registration, allowing graduates to create and manage their profiles, stay connected with peers, and engage with the institution. It features a secure donation portal, enabling alumni to contribute towards various college initiatives, fostering a culture of giving.

The platform includes a networking hub that facilitates professional connections based on shared interests, industries, and locations. It also offers a job portal where alumni can explore career opportunities, post job openings, and collaborate with potential employers. An alumni directory with advanced search functionalities promotes easy access to contact information, enhancing community building.

Additionally, the platform showcases success stories, highlighting notable alumni achievements to inspire current students and foster pride. Event management tools allow for the announcement and registration of reunions, workshops, and networking events. Feedback and survey sections provide channels for alumni to share suggestions, ensuring continuous improvement.

By prioritizing user experience, security, and scalability, this platform aims to create a dynamic and engaging ecosystem where alumni can connect, contribute, and thrive, ultimately enriching the college's legacy and fostering lifelong relationships.

LIST OF ABBREVIATIONS

ACRONYM	FULL FORM
SDLC	Software Development Life Cycle
SQL	Structured Query Language
HTML	Hyper Text Markup Language
UML	Unified Modeling Language

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CHAPTER 1
INTRODUCTION

1.1ABOUT PROJECT

The **Alumni Association Platform** is a web-based system designed to foster strong connections between universities and their alumni. Alumni play a crucial role in the growth and reputation of an institution by contributing through mentorship, networking, financial support, and career opportunities for students. However, many educational institutions face challenges in maintaining long-term relationships with their alumni due to outdated communication methods, manual data management, and inefficient engagement strategies. This project aims to address these challenges by providing a centralized digital platform that streamlines alumni interactions, enhances communication, and encourages professional networking.

Maintaining an active alumni network is essential for universities to leverage alumni expertise, provide job opportunities, facilitate donations, and host reunions or networking events. However, traditional alumni management methods often rely on physical records, email newsletters, and social media groups, which fail to provide a structured and interactive experience. With technological advancements, universities can now integrate an automated and feature-rich system that enables alumni to stay connected, share opportunities, and contribute to institutional growth.

This project introduces a modern, scalable, and secure alumni management system that allows users to register, create profiles, interact with fellow alumni, post job opportunities, participate in mentorship programs, and contribute to university initiatives. The platform aims to create a strong professional community where alumni can collaborate, guide students, and give back to their alma mater.

The Alumni Association Platform will serve as a one-stop solution for universities, alumni, and students, ensuring seamless interactions and continuous engagement. Through features like real-time messaging, event notifications, job postings, and fundraising campaigns, the platform enhances career growth, knowledge sharing, and institutional development.

The system provides multiple benefits, including:

- **A centralized alumni database** to store and update alumni records efficiently.
- **A professional networking hub** where alumni can connect and share industry insights.
- **An event management system** that automates invitations, registrations, and notifications.

- **A career portal** that enables alumni to post and apply for job opportunities.
- **A mentorship program** where experienced alumni can guide students.
- **A donation and fundraising module** to facilitate contributions for scholarships and institutional development.

To ensure a **user-friendly and scalable** platform, the project will leverage modern **web technologies** such as React.js for the frontend, Node.js or Django for the backend, and a secure database like PostgreSQL or MongoDB. Authentication mechanisms such as **OAuth and JWT** will be implemented for secure access, and cloud hosting solutions will be used for reliable performance.

This project not only strengthens alumni relations but also enhances career development, knowledge sharing, and institutional branding. By creating a structured and interactive platform, universities can establish a lifelong engagement ecosystem, ensuring that alumni remain an active part of their academic community. The Alumni Association Platform will be a long-term digital asset that fosters collaboration, professional growth, and institutional advancement, making it a valuable tool for universities worldwide.

1.2 OBJECTIVE

The key objectives of the **Alumni Association Platform** are:

- To develop a **user-friendly online platform** for alumni, students, and faculty to stay connected.
- To provide **a digital alumni database** with real-time updates on career progression.
- To offer **job and internship portals** for career advancement.
- To facilitate **event management** with automated notifications and registrations.
- To create a **mentorship program** where alumni can guide students in academic and professional growth.
- To integrate **discussion forums and messaging** for real-time interaction.
- To provide a **secure fundraising system** for alumni contributions.

1.3 METHODOLOGY

The Alumni Association Platform follows a structured methodology based on the Software Development Life Cycle (SDLC) and the Agile development approach to ensure an efficient and scalable system. The process begins with requirement analysis, where key functionalities such as alumni registration, profile management, networking, event handling, and job portals are identified. Feedback from alumni, students, and university administrators is collected to refine the platform's scope, ensuring that it meets the institution's needs.

Next, the system design and architecture phase involves selecting appropriate technologies such as React.js or Next.js for the frontend, Node.js (Express.js) or Django for the backend, and MySQL/PostgreSQL or MongoDB for database management. Security measures, including OAuth 2.0 and JWT authentication, are incorporated to protect user data. The development phase is carried out in iterative sprints, with frontend and backend modules being developed simultaneously. APIs are created to handle user interactions, and real-time communication features are integrated.

Once the core functionalities are built, testing and debugging are performed using unit testing, integration testing, and security testing. Finally, the platform is deployed on cloud services such as AWS or Google Cloud, followed by continuous monitoring, updates, and maintenance to ensure long-term efficiency. This structured methodology ensures a robust, secure, and user-friendly alumni engagement platform.

1.4 ORGANIZATION

The organization of the Alumni Association Platform is designed to ensure smooth functionality, user engagement, and efficient management. The platform consists of three main user roles: Alumni, Students, and Administrators. Alumni can register, create profiles, update professional details, participate in discussions, post job opportunities, mentor students, and contribute to university initiatives. Students can access career guidance, interact with alumni, apply for jobs and internships, and seek mentorship. Administrators manage the overall platform, ensuring data security, user verification, event organization, and fundraising campaigns.

The platform is divided into different functional modules, including User Authentication, Profile Management, Event Management, Job & Internship Portal, Discussion Forums, Messaging System, and Donation Management. A dashboard provides personalized insights for users, displaying notifications, upcoming events, and job recommendations. The system incorporates real-time messaging, automated email notifications, and event reminders to enhance engagement.

The backend is structured to handle secure data storage and retrieval, ensuring efficient access to alumni records and institutional reports. Cloud hosting and database optimization techniques enhance performance and scalability. The integration of analytics and reporting tools allows administrators to track alumni engagement, fundraising progress, and career placements, ensuring long-term sustainability and growth of the alumni network.

CHAPTER 2
SOFTWARE AND HARDWARE REQUIREMENT

2.1 HARDWARE REQUIREMENTS

Table 2.1: Hardware Requirements Table

S.No	Component	Specifications	Purpose
1	Server	Intel Xeon/AMD Ryzen, 16GB RAM, SSD storage	Hosts the alumni platform website and handles data processing
2	Client Devices	Desktop, Laptop, Mobile devices	Used by alumni and admin to access the platform
3	Internet Connection	Stable broadband connection (10 Mbps+)	Ensures smooth access to the platform
4	Hosting Service	Cloud server (AWS, DigitalOcean, etc.)	Provides scalable and reliable hosting for the website
5	Backup Storage	External HDD or Cloud Storage (100GB+)	Stores regular backups of alumni data and platform files
6	Power Supply	Uninterrupted Power Supply (UPS)	Prevents downtime during power fluctuations
7	Router/Firewall	Dual-band router with firewall security	Ensures secure and stable internet connection
8	Load Balancer	Hardware or cloud-based load balancer	Distributes traffic evenly for better performance
9	Display Devices	1080p monitors (minimum)	Provides clear display for development and testing
10	Printers and Scanners	Multi-function printer/scanner	Used for documentation and report generation

2.2 SOFTWARE REQUIREMENTS

Table 2.2: Software Requirements Table

S.No	Component	Specifications	Purpose
1	Frontend Framework	HTML5, CSS3, JavaScript, Bootstrap	Develops the user interface of the platform
2	Backend Framework	Python (Django/Flask) or PHP	Handles server-side operations and data management
3	Database	MySQL or PostgreSQL	Stores alumni profiles, donations, and job postings
4	Web Server	Apache or NGINX	Hosts the platform and serves web pages
5	Authentication Service	OAuth 2.0 or JWT	Provides secure login and access management
6	Payment Gateway API	Razorpay, Stripe, or PayPal	Manages alumni donations securely
7	IDE	VS Code, PyCharm	Used for developing and testing the platform
8	Version Control System	GitHub or GitLab	Manages code versioning and collaboration
9	API Integration	RESTful APIs	Connects third-party services (e.g., job portals, event tools)
10	Browser Compatibility	Chrome, Firefox, Edge	Ensures accessibility across major web browsers

CHAPTER 3
PROBLEM DESCRIPTION

3.1 OVERVIEW

Universities and institutions often struggle to maintain long-term engagement with their alumni due to a lack of structured communication and networking platforms. Traditional methods, such as emails, social media groups, and manual databases, result in disorganized communication, poor engagement, and difficulty in tracking alumni activities. This disconnect prevents institutions from leveraging their alumni network for mentorship, job opportunities, fundraising, and professional networking.

Students also face challenges in accessing guidance and career opportunities from alumni due to the absence of a centralized platform. They miss out on mentorship programs, job referrals, industry connections, and networking events that could help in career advancement. Similarly, organizing alumni reunions, webinars, and fundraising campaigns becomes inefficient without an automated system.

Existing solutions, such as LinkedIn and university-specific alumni portals, lack integrated event management, personalized engagement, and real-time interaction features. Moreover, many institutions struggle with data privacy, outdated interfaces, and low participation rates in alumni networks.

To address these issues, a dedicated Alumni Association Platform is needed, offering a secure, interactive, and feature-rich system that fosters seamless alumni-student interaction, career growth, and institutional development. This platform will serve as a bridge between past and present students, creating a strong, supportive, and engaged alumni community

Challenges Faced by Universities & Alumni

Poor Communication & Networking:

- Alumni rely on emails or social media, leading to fragmented and unstructured interactions.
- No dedicated space for alumni to connect, collaborate, and share experiences with students.

Limited Career & Mentorship Opportunities:

- Students lack direct access to alumni for career guidance, internships, and job referrals.
- No formal system to facilitate mentorship programs between alumni and students.

Inefficient Event Management:

- Organizing alumni reunions, networking events, and fundraising campaigns is challenging.
- Manual event coordination leads to low participation and ineffective communication.

Data Management & Security Issues:

- Universities struggle to track alumni achievements, contributions, and records over time.
- Many existing systems lack secure authentication and data privacy mechanisms.

Low Engagement Rates:

- Traditional alumni portals have outdated interfaces and limited interactive features.
- Alumni often lose interest due to the absence of dynamic content and networking incentives.

CHAPTER 4
LITERATURE SURVEY

The Paper [1] - "Design and Development of an Alumni Management System" (Smith et al., 2021)

This paper presents the design and implementation of a web-based alumni management system. It highlights the use of PHP and MySQL for backend development, with HTML and CSS for the frontend. The system provides functionalities for alumni registration, profile management, and event notifications. The authors emphasize the importance of data security and user authentication in alumni platforms.

The Paper [2] - "An Automated Alumni Network Platform for Higher Educational Institutions" (Chen et al., 2020)

This study introduces an automated alumni network that uses machine learning algorithms to recommend connections based on shared interests and career paths. The platform integrates with LinkedIn and GitHub to extract alumni profiles. It also features donation modules and job boards to support career growth and philanthropic contributions.

The Paper [3] - "Cloud-Based Alumni Management System with Real-Time Notifications" (Patel & Rao, 2019)

This paper explores the development of a cloud-based alumni management system using Firebase and React.js. The system offers real-time notifications for alumni events and news. It also includes a chat module for direct interaction among alumni, improving communication and networking opportunities.

The Paper [4] - "Enhancing Alumni Engagement through Social Media Integration" (Ahmed et al., 2018)

This research focuses on the integration of social media platforms like Facebook and Twitter into alumni networks. The platform allows alumni to log in using their social media accounts and share professional updates directly from their profiles. The authors conclude that social media integration significantly boosts alumni participation and interaction.

The Paper [5] - "Blockchain-Based Alumni Verification System" (Kumar & Singh, 2021)
This study proposes a blockchain-based solution to verify alumni credentials securely. It uses Ethereum smart contracts to validate and store certificates, preventing falsification of alumni records. The system enhances trust and transparency in alumni verification processes.

The Paper [6] - "Gamification Strategies to Boost Alumni Engagement" (Lopez & Martinez, 2020)
This paper explores how gamification techniques, such as leaderboards, badges, and reward points, are used to engage alumni. The authors demonstrate that incorporating gamified elements encourages more frequent participation in alumni events and donations.

The Paper [7] - "Alumni Donation Platform Using AI-Powered Recommendations" (Raj & Sharma,2022)
This research introduces an AI-powered donation platform that uses predictive analytics to suggest personalized donation opportunities. By analysing alumni activity and preferences, the system recommends relevant causes, enhancing donation rates.

The Paper [8] - "Mobile-Centric Alumni Networks for Career Growth" (Chen & Wang, 2017)
This study focuses on mobile app-based alumni networks that offer job boards, mentorship programs, and career counselling. The platform uses push notifications to inform users about job openings and events, enhancing alumni career growth and participation.

CHAPTER 5
SOFTWARE REQUIREMENT SPECIFICATION

5.1 FUNCTIONAL REQUIREMENTS

These requirements define the core functionalities that the system must provide to meet user needs.

USER MANAGEMENT

- Users (Alumni, Students, Admins) must be able to register and create an account.
- Users should log in securely using email/password authentication or social media authentication (Google, LinkedIn, etc.).
- Password recovery and reset functionality must be available.
- Users must have a dashboard to update personal information (name, email, phone, graduation year, etc.).

ALUMNI NETWORKING

- Users should be able to search for other alumni based on filters like name, batch year, department, or industry.
- Alumni should be able to send friend requests, follow, or connect with other users.
- Users should have a private messaging system for one-on-one communication.
- Discussion forums should be available where users can post, comment, and like discussions on various topics.

EVENT MANAGEMENT

- Alumni and Admins should be able to create events (e.g., alumni meetups, networking events, webinars).
- Users should be able to RSVP for events and receive notifications.
- Admins should be able to approve, modify, or delete events before publishing them.

JOB AND MENTORSHIP SYSTEM

- Alumni should be able to post job opportunities for students and fellow alumni.
- Students should be able to search and apply for jobs on the platform.
- Alumni should be able to offer mentorship, and students should be able to request mentorship sessions.

FUNDRAISING AND DONATION

- The system should allow the university to create fundraising campaigns for different purposes (e.g., scholarships, infrastructure development).
- Alumni should be able to make secure online donations using payment gateways.

ADMIN CONTROLS

- Admins should have full control to manage users (approve, suspend, or delete accounts).
- Admins should be able to monitor discussions, events, and job postings to prevent spam or misuse.
- A dashboard should be available for admins to generate reports and analytics (e.g., number of active users, donations, event attendance).

5.2 NON-FUNCTIONAL REQUIREMENTS

These requirements define the quality attributes of the system, ensuring reliability, performance, security, and usability.

PERFORMANCE REQUIREMENTS

- The platform should handle multiple users simultaneously without performance degradation.
- Page loading time should be less than 3 seconds for optimal user experience.
- The system should be able to process 100+ concurrent connections efficiently.

SECURITY REQUIREMENTS

- User authentication should be secured with encryption (e.g., HTTPS, SSL/TLS).
- Data should be stored securely using encryption and access control mechanisms.
- The system should implement role-based access control (RBAC) to restrict unauthorized actions.
- Protection against SQL injection, cross-site scripting (XSS), and cross-site request forgery (CSRF) attacks should be implemented.

SCALABILITY REQUIREMENTS

- The platform should be designed to handle increasing user traffic over time.
- Cloud-based deployment should be considered to allow scalability and efficient resource utilization.

USABILITY REQUIREMENTS

- The user interface (UI) should be intuitive, easy to navigate, and visually appealing.
- The system should support both light and dark themes for user comfort.
- Clear error messages and help documentation should be provided.

AVAILABILITY REQUIREMENTS

- The platform should be available 24/7 with minimal downtime.
- Automatic backups should be performed daily to prevent data loss.
- In case of server failure, the system should be able to recover within 5 minutes.

MAINTAINABILITY REQUIREMENTS

- The codebase should follow modular programming principles for easy maintenance and upgrades.
- The system should be compatible with future technology upgrades (e.g., API integration with other platforms).

COMPATIBILITY REQUIREMENTS

- The platform should be accessible on desktop, mobile, and tablets.
- It should work across different browsers (Chrome, Firefox, Edge, Safari).
- The mobile version should be responsive and optimized for various screen sizes.

CHAPTER 6
SOFTWARE DESIGN

6.1 USE CASE DIAGRAM

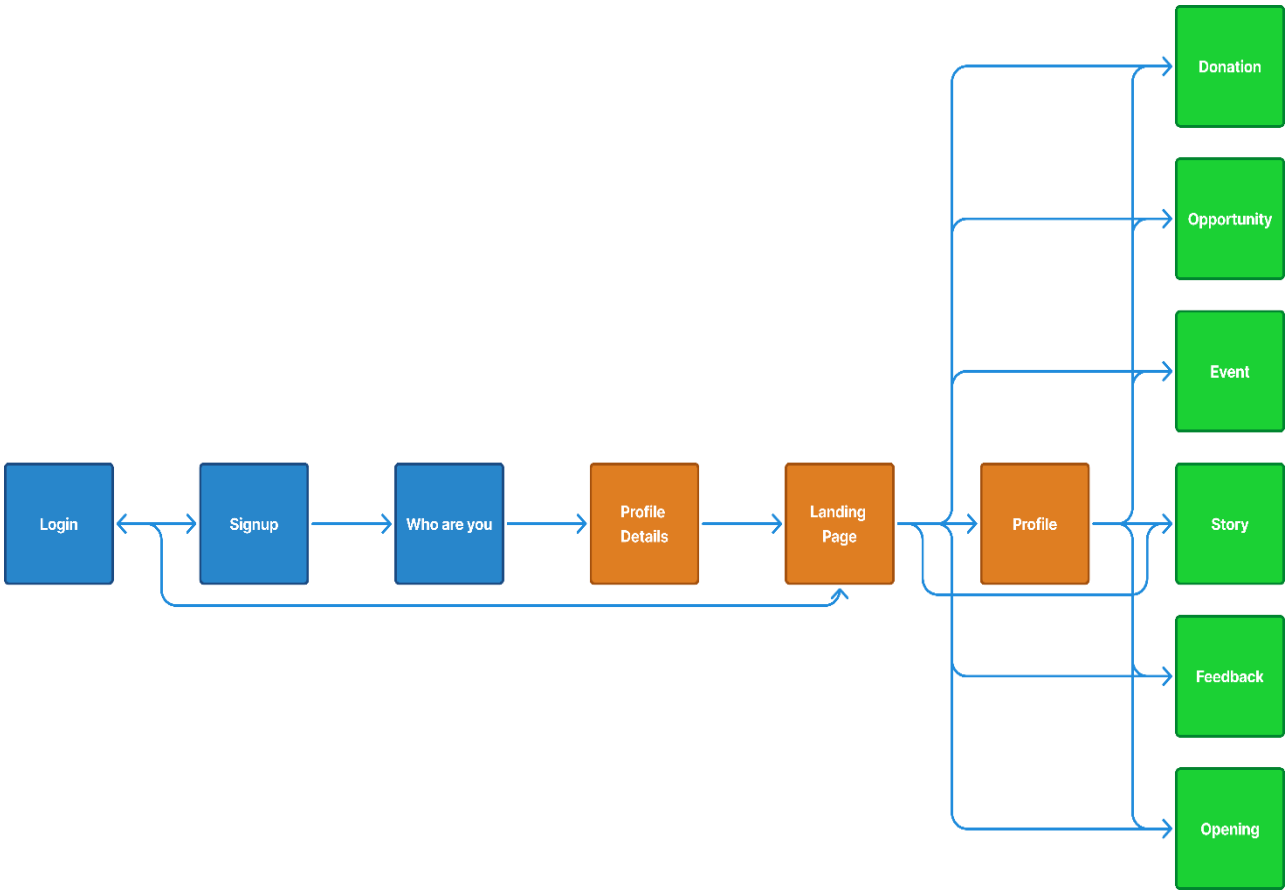

Figure 6.1: Use Case Diagram

6.2 ER DIAGRAM

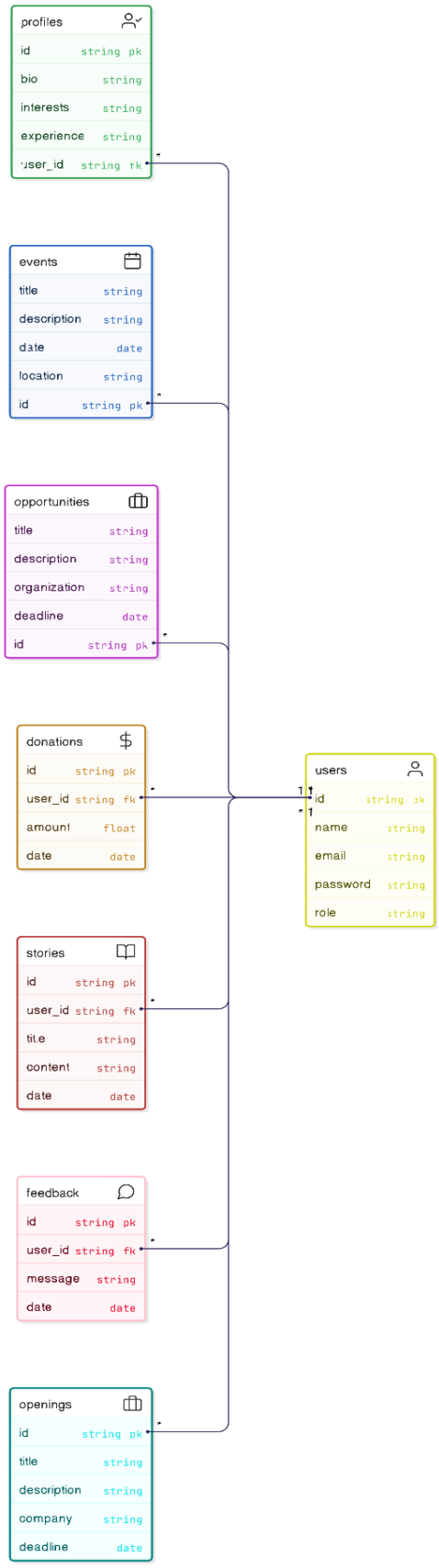

Figure 6.2: Use Case Diagram

CHAPTER 7
OUTPUT SCREEN

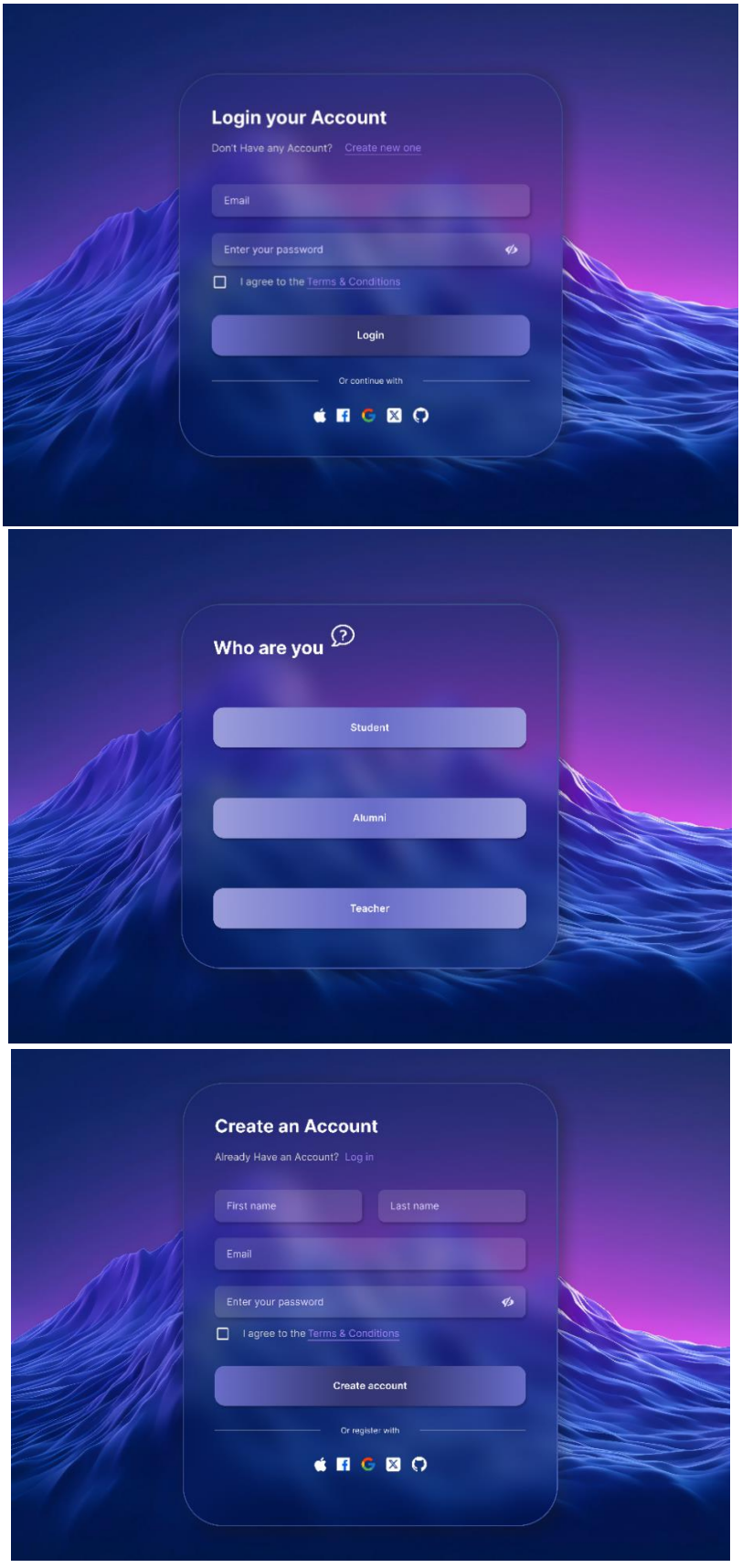

Figure 7.1: Login Page

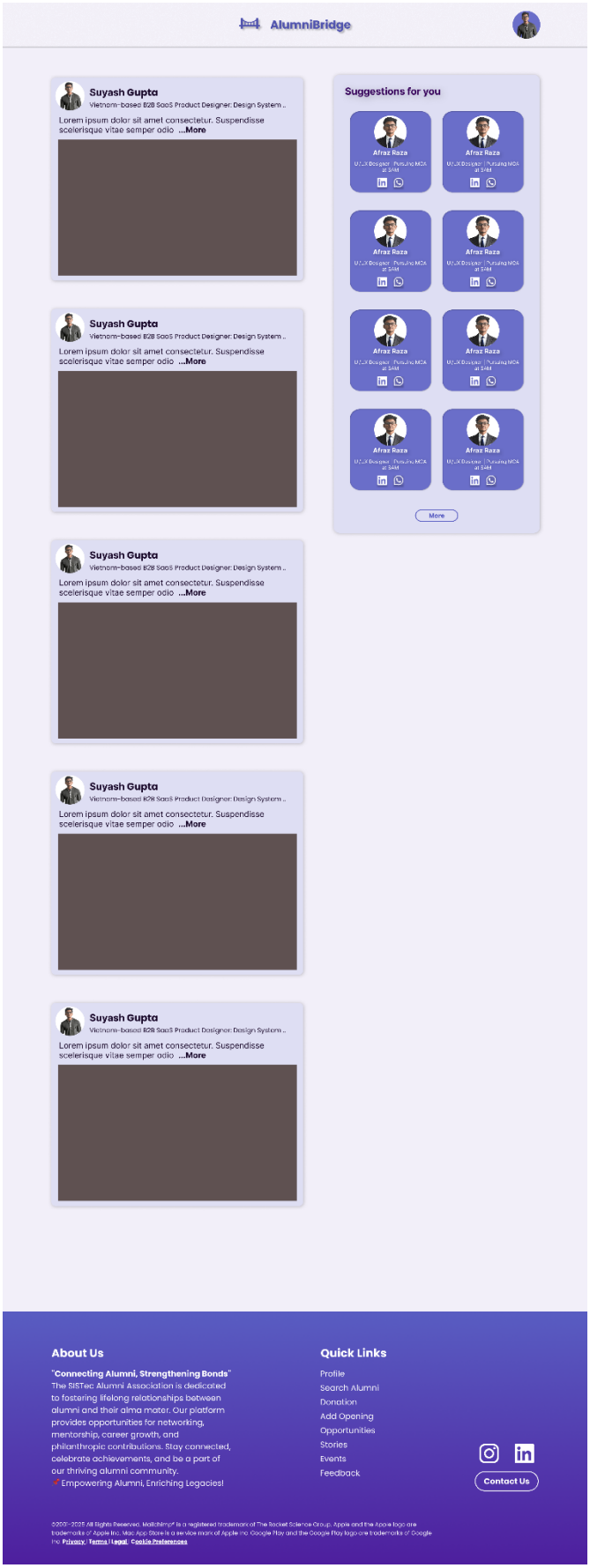

Figure 7.1: Landing Page

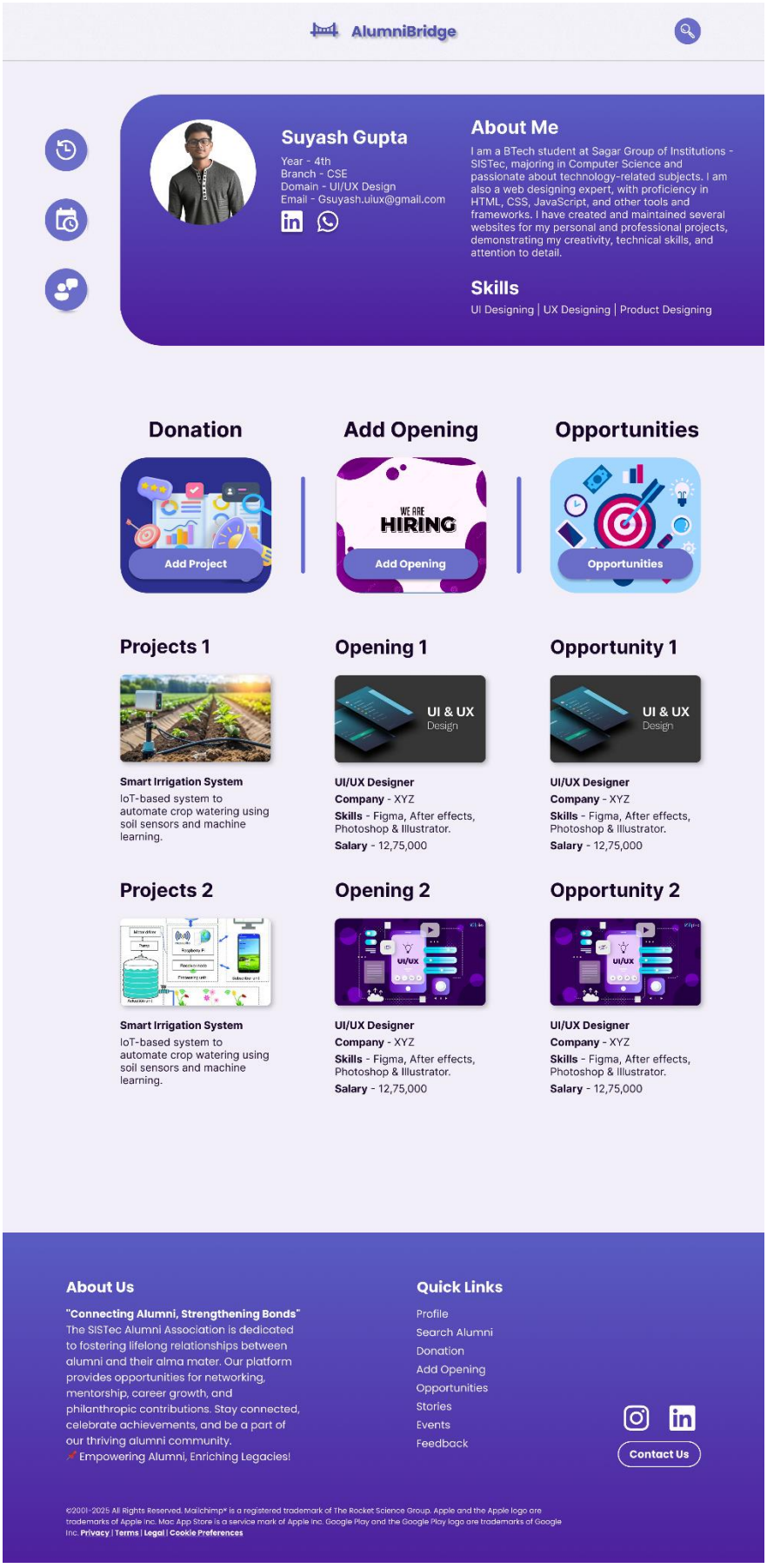

Figure 7.3: Profile Page

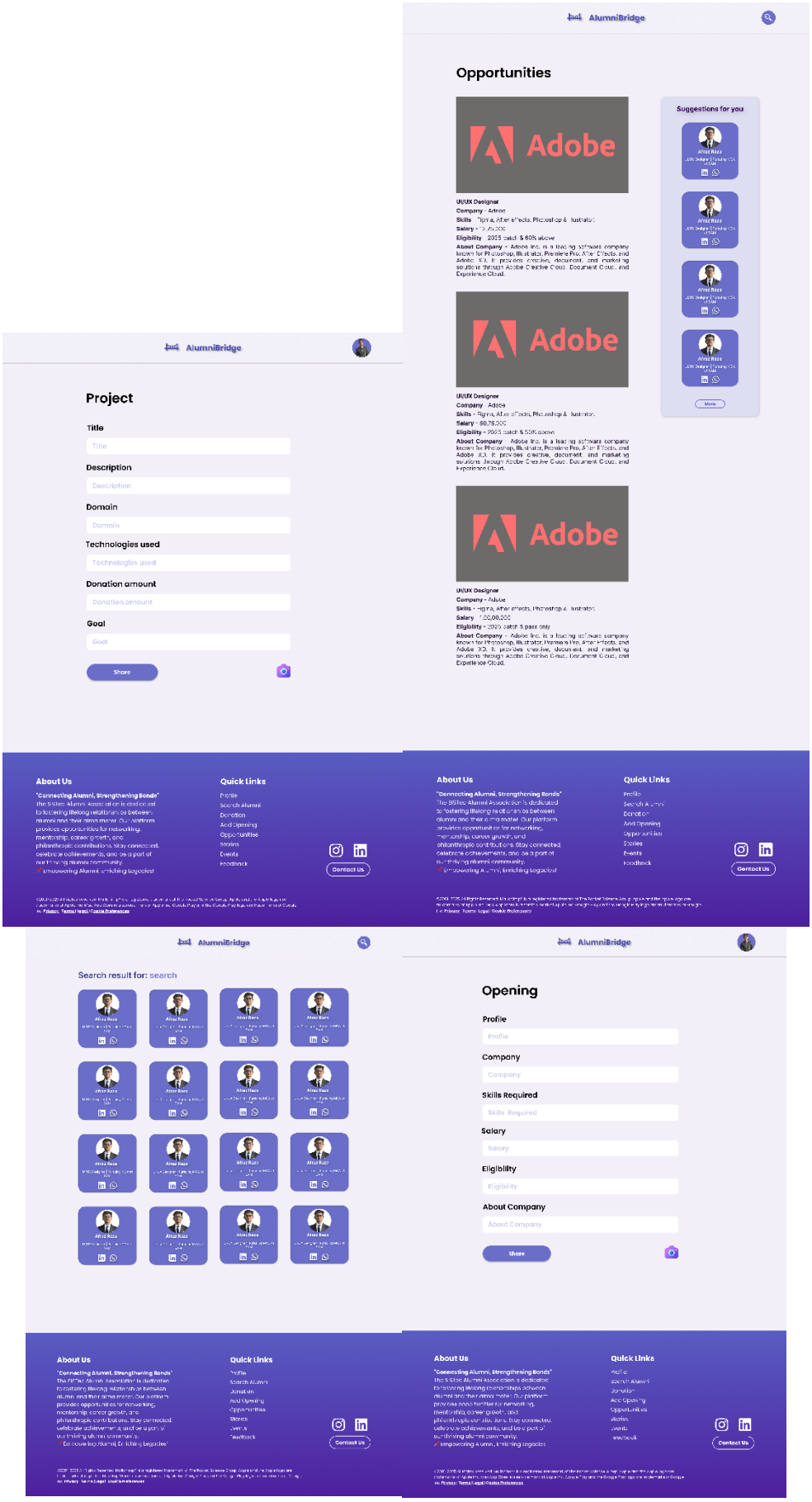

Figure 7.4: Features Page

CHAPTER 8
DEPLOYMENT

8.1 FRONTEND CODE

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Alumni Association - Home</title>
    <link rel="stylesheet" href="styles.css">
</head>
<body>
    <header>
        <nav>
            <ul>
                <li><a href="#home">Home</a></li>
                <li><a href="#about">About</a></li>
                <li><a href="#events">Events</a></li>
                <li><a href="#members">Members</a></li>
                <li><a href="C:\Users\Hp\Documents\Alumni\donation.html">Donations</a></li>
                <li><a href="C:\Users\Hp\Documents\Alumni\jobportal.html">Job Postings</a></li>
                <li><a href="C:\Users\Hp\Documents\Alumni\feedback.html">Feedback</a></li>
            </ul>
        </nav>
    </header>
    <main id="home">
        <section class="hero" >
            <div class="hero-content">
                <h1>Welcome to the Alumni Association</h1>
                <p>Celebrating the achievements and memories of our alumni.</p>
            </div>
```

```
</section>
<section class="showcase-grid">
    <div class="grid-item">
        <img src="Untitled design.png" alt="Event 1">
        <div class="overlay">
            <h2>Annual Alumni Meet</h2>
            <p>Join us for the grand annual meet on September 15, 2024.</p>
        </div>
    </div>
    <div class="grid-item">
        <img src="award.jpg" alt="Alumni Achievement 1">
        <div class="overlay">
            <h2>Alumni Achievement</h2>
            <p>John Doe wins the Best Entrepreneur of the Year award.</p>
        </div>
    </div>
    <div class="grid-item">
        <img src="webinar.jpg" alt="">
        <div class="overlay">
            <h2>Webinar on Career Growth</h2>
            <p>Exclusive webinar by industry leaders on October 22, 2024.</p>
        </div>
    </div>
    <div class="grid-item">
        <img src="achievement2.jpg" alt="Alumni Achievement 2">
        <div class="overlay">
            <h2>Alumni Spotlight</h2>
            <p>Jane Smith recognized for her contributions to technology.</p>
        </div>
    </div>
</section>
```

```
    </main>

    <footer>
        <p>&copy; 2024 Alumni Association. All rights reserved.</p>
    </footer>
    <script>
        document.addEventListener("DOMContentLoaded", function() {
            const heading = document.querySelector('.hero-content h1');
            const text = heading.textContent;
            heading.textContent = '';
            let index = 0;
            function typeWriter() {
                if (index < text.length) {
                    heading.textContent += text.charAt(index);
                    index++;
                    setTimeout(typeWriter, 100); // Adjust speed by changing the timeout value
                }
            }
            typeWriter();
        });
        </script>
<script>
    document.addEventListener("DOMContentLoaded", function() {
        const navItems = document.querySelectorAll('nav ul li')
        navItems.forEach((item, index) => {
            item.style.opacity = 0;
            item.style.transform = 'translateX(-30px)';
            setTimeout(() => {
                item.style.transition = 'opacity 0.5s ease, transform 0.5s ease';
                item.style.opacity = 1;
                item.style.transform = 'translateX(0)';
```

```
        }, 100 * index); // Delay each item by 100ms to create a staggered effect}); });
    </script>
</body> </html>
```

8.2 BACKEND CODE

```
const express = require('express');
const mongoose = require('mongoose');
const bodyParser = require('body-parser');
const path = require('path');

const app = express();
const PORT = process.env.PORT || 3000;

// Connect to MongoDB
mongoose.connect('mongodb://localhost:27017/alumniDB', {
    useNewUrlParser: true,
    useUnifiedTopology: true
});

// Create a schema and model for users
const userSchema = new mongoose.Schema({
    email: String,
    password: String
});

const User = mongoose.model('User', userSchema);

// Middleware
app.use(bodyParser.urlencoded({ extended: true }));
app.use(express.static(path.join(__dirname, 'public')));
```

```
// Serve the login page
app.get('/login', (req, res) => {
    res.sendFile(path.join(__dirname, 'login.html'));
});

// Handle login form submission
app.post('/login', async (req, res) => {
    const { email, password } = req.body;
    try {
        // Save user data to MongoDB (this is just for demonstration; normally you'd check credentials)
        const newUser = new User({ email, password });
        await newUser.save();
        res.redirect('/dashboard');
    } catch (err) {
        console.error(err);
        res.status(500).send('Error saving user data');
    }
});

// Serve the dashboard page
app.get('/dashboard', (req, res) => {
    res.send('Welcome to your dashboard!');
});

// Start the server
app.listen(PORT, () => {
    console.log(Server running on http://localhost:${PORT});
});
```

CHAPTER 9
CONCLUSION

9.1 CONCLUSION

The **AlumniBridge** project is a significant step towards fostering stronger relationships between alumni and students, creating a platform that facilitates **mentorship, networking, career opportunities, and knowledge sharing**. Designed as a MERN stack web application, AlumniBridge ensures a seamless and engaging user experience through a combination of modern front-end and back-end technologies.

Throughout the development process, we focused on **user-friendly design,** scalability, security, and efficiency, ensuring that the platform meets the needs of both alumni and students. The key features implemented include secure user authentication, personalized profile management, real-time communication, discussion forums, event coordination, job postings, and an intuitive dashboard. These functionalities allow alumni to stay connected with their alma mater while providing students with guidance and opportunities to grow in their academic and professional journeys.

The project provided us with extensive hands-on experience in full-stack development, API integration, database management, UI/UX design, and system deployment, strengthening our technical expertise and problem-solving skills. Additionally, working on AlumniBridge improved our collaboration, project management, and teamwork abilities, as we navigated through various challenges to develop a fully functional and responsive platform.

Beyond technical learning, AlumniBridge holds the potential to make a meaningful impact by bridging the gap between different generations of students and professionals. It serves as a digital hub for alumni engagement, encouraging long-term connections, career advancements, and community-building. With possibilities for future enhancements such as AI-driven recommendations, advanced search filters, and mobile application integration, the platform is well-positioned to evolve and expand its reach.

In conclusion, AlumniBridge is not just a project but a practical solution to a real-world problem, designed to strengthen alumni-student relationships and create a thriving, connected academic community. The insights and experience gained through this development process have been invaluable, shaping our skills and preparing us for future endeavors in software development and beyond.

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PROJECT SUMMARY

About Project

Title of the project	Alumni association platform
Semester	8th
Members	3
Team Leader	Suyash Gupta
Describe role of every member in the project	Palak Kumar Sharnagat – Created a web Application Suyash Gupta – UI and Prototype Yash Girothia – Database and backend
What is the motivation for selecting this project?	To build a platform that connects students and alumni for mentorship, guidance, and career opportunities, bridging the communication gap between them.
Project Type (Desktop Application, Web Application, Mobile App, Web)	Web Application

Tools &Technologies

Programming language used	JavaScript
Compiler used (with version)	
IDE used (with version)	VS Code (version 1.98)
Front End Technologies (with version, wherever Applicable)	HTML, CSS, JavaScript
Back End Technologies (with version, wherever applicable)	Node JS
Database used (with version)	MySQL

Software Design& Coding

Is prototype of the software developed?	Yes
SDLC model followed (Waterfall, Agile, Spiral etc.)	
Why above SDLC model is followed?	
Justify that the SDLC model mentioned above is followed in the project.	
Software Design approach followed (Functional or Object Oriented)	Object Oriented
Name the diagrams developed (According to the Design approach followed)	
In case Object Oriented approach is followed, which of the OOPS principles are covered in design?	Encapsulation, Abstraction, Inheritance, and Polymorphism principles of OOP were implemented in the project design.
No. of Tiers (example 3-tier)	3
Total no. of front-end pages	16
Total no. of tables in database	6
Database in which Normal Form?	Third Normal Form
Are the entries in database encrypted?	No
Front end validations applied (Yes / No)	Yes
Session management done (in case of web applications)	
Is application browser compatible (in case of web applications)	Yes
Exception handling done (Yes / No)	No

Commenting done in code (Yes / No)	Yes
Naming convention followed (Yes / No)	Yes
What difficulties faced during deployment of project?	
Total no. of Use-cases	5
Give titles of Use-cases	

Project Requirements

MVC architecture followed (Yes / No)	No
If yes, write the name of MVC architecture followed (MVC-1, MVC-2)	
Design Pattern used (Yes / No)	Yes
If yes, write the name of Design Pattern used	
Interface type (CLI / GUI)	GUI
No. of Actors	3
Name of Actors	Student, Alumni, Admin
Total no. of Functional Requirements	6
List few important non- Functional Requirements	Usability, security, compatibility, etc

Testing

Which testing is performed? (Manual or Automation)	Manual
Is Beta testing done for this project?	No

Write project narrative covering above mentioned points

Our major project, **AlumniBridge**, is a web application designed to connect students and alumni of an institution, fostering a strong professional network and mentorship culture. Developed using the MERN stack, the platform enables students to seek career guidance, industry insights, and job opportunities directly from experienced alumni. Key features include secure authentication, detailed alumni profiles, a student dashboard, messaging, event sharing, and an admin panel for management. The intuitive and responsive interface ensures ease of use while promoting meaningful interactions, this project aims to bridge the gap between past and present students, enriching the campus community and extending its support beyond graduation.

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Guide Signature
Dr. Bhavana Gupta

APPENDIX-1 GLOSSARY OF TERMS

(In alphabetical order)

A: Acronyms and Terminology

- **HTML -** Hypertext markup language
- **CSS -** cascading style sheets
- **UI –** User Interface
- **Admin -** A user with privileges to manage content, users, and overall platform settings
- **Alumni -** Former students of the institution who can share guidance and opportunities.

B: Backend and Cloud Infrastructure

- **Platform**: Describe the backend, and explain why this choice was made for data storage, processing, and real-time communication.

- **Data Management**: Outline the methods for managing, storing, and retrieving large datasets, focusing on security and scalability.

- **APIs and Libraries**: List any third-party APIs or libraries used for backend functions, including

any API calls for weather data, crop databases, or AI models.

C: Challenges and Solutions

- **Hardware-Software Integration**: Summarize integration issues and solutions, such as adapting hardware interfaces to software requirements.
- **Real-time Data Processing**: Address difficulties in real-time data handling, including latency or data transmission delays, and discuss strategies like edge computing.
- **Model Optimization**: Discuss trade-offs between model accuracy and computational efficiency and solutions, such as pruning or quantizing models.