ALUMNI ASSOCIATION SYSTEM

A project report

Submitted in partial fulfillment for

The award of degree of

M.Sc. (COMPUTER SCIENCE) By SATHIYASEELAN.K - 2222645

Under the guidance of

Mrs N. VIMALA, M.CA.,M.Phil.,

KANCHI MAMUNIVAR GOVERNMENT INSTITUTE FOR POST GRADUATE STUDIES AND RESEARCH

(Autonomous)

(A College with Potential for Excellence)

(Re-Accredited with **"B++"** Grade by NAAC)

PUDUCHERRY-605008

JUNE-2024

KanchiMamunivar Government Institute for Postgraduate

Research

(Autonomous-Reaccredited with “B++” Grade by NAAC)

Lawspet, Puducherry-605008

BONAFIDE CERTIFICATE

This is to certify that the project work entitled “**ALUMNI ASSOCIATION SYSTEM**” is a bonafide record of project work done by **SATHIYASEELAN.K [2222645]** in partial fulfilment for the award of the degree of **Master of Science in ComputerScience**of KanchiMamunivar Government Institute for Postgraduate Studies and Research (Autonomous), Affiliated to Pondicherry University, Puducherry.

This work has not been submitted for the award of any other degree to the best our knowledge.

Head of the Department   Project Guide

Submitted for the project viva-voce Examination held on ________________

INTERNAL EXAMINER   EXTERNAL EXAMINAR

Government of Puducherry

KanchiMamunivar Government Institute for

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This is to certify that this project work entitled “**ALUMNI ASSOCIATION SYSTEM**” is done by **SATHIYASEELAN.K [2222645]** under my supervision and guidance in partial fulfilment for the award the degree of **Master of Science in Computer Science** of KanchiMamunivar Government Institute for Postgraduate Studies and Research (Autonomous), Affiliated to Pondicherry University, Puducherry.

This work has not submitted elsewhere for the award of any other degree to the best of my knowledge.

Project Guide

ACKNOWLEDGEMENT

The satisfaction of completing my project will not be complete until I thank allpeople who have helped me through this.

I take this opportunity to express my profound gratitude and deep regards to my guide **Mrs N. VIMALA, M.CA., M.Phil.,** for her exemplary guidance, monitoring and constant encouragement though out the course of this project. The blessing, help and guidance given by her time to shall carry me a long way in the journey of life on which I am about to embark.

I would like to thank **Dr.M. SELVARAJ, M.Com., M.Phil., B.Ed.,Ph.D.,** Director, Kanchi Mamunivar Centre for Post Graduate Studies, Puducherry, providing us the confidence and all the necessary support in under taking the project. At this junction, I would like to thank **Mrs. V.K. MIXYMOL, MCA, MTech** Head Of the Department of computer science for her valuable help and support.

I would like to thank all my teachers, **Mrs.V.K.MIXYMOL, DR.P.DINADAYALAN, Dr.N.KANNATHASAN, Dr.C.MANJU, Mr.S.RAJABADHAR** for the timely help and suggestions given by them that render a perfect shape for thiswork.

I would like to thank all my family members for their direct and indirectsupport extended to me for my academic and social progress.

I also thank all my classmates who have helped me at different time during the study of my course.

Those who find their comments and suggestions incorporated in this report should notthink me churlish for leaving them unnamed.

SATHIYASEELAN.K

KANCHI MAMUNIVAR GOVERNMENT INSTITUTE FOR POSTGRADUATE STUDIES AND RESEARCH, PUDUCHERRY

DEPARTMENT OF COMPUTER SCIENCE

DETAILED STRUCTURE AND CONTENT OF THE PROJECT WORK

CONTENTS

ABBREVIATIONS

HTML	- Hyper Text Markup Language.
CSS	- Cascading Style Sheet.
PHP	- Hypertext Preprocessor.
MYSQL	- My Structured Query Language.
UI	- User Interface.
ERD	- Entity Relationship Diagram.
UML	- Unified Modeling Language.
SRS	- Software Requirement specification.
SQA	- Software Quality Assurance.
SQL	- Structured Query Language.
Email	- Electronic mail

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ALUMNI ASSOCIATION SYSTEM

ABSTRACT

In the contemporary landscape of higher education, alumni engagement stands as a pivotal factor in institutional success and sustainability. With a focus on user privacy, security, and accessibility, the web application aims to strengthen the bond between alumni and their university/ institution /college, creating a vibrant and supportive network that benefits both individuals and the institution as a whole. This projects has three sides of UI(user interface), which are the admin side/ college management, the alumnus/alumna's side and college faculties side.

Alumni benefit from features such as a gallery showcasing memories and achievements, fostering nostalgia and connection. Additionally, alumni can explore job opportunities through a dedicated job board, events, and contribute to fundraising initiatives to support alma mater projects and programs.

Thus the alumni association system makes fundraising through an alumni network. It also includes discussion forums that allow students to reach out and Events enable seamless organization and promotion of reunions, networking events, educational seminars, and organize an internship with their experience in any field of subject, in fostering community spirit and lifelong learning. And also alumni can notify the job recruitment though their mail.

The Alumni Association System Web Application serves as a central hub for alumni engagement, fundraising, and community building within the university ecosystem.

CHAPTER 1
SCOPE AND JUSTIFICATION

1.1 INTRODUCTION

Alumni are the most valuable asset of any organization, representing the institution in the real world and embodying its values and achievements. An alumni association fosters a sense of community, engagement, and mutual support among its members and the institution.

The Alumni Association System is a web application designed to connect alumni, current students, and staff, enhancing communication and engagement. This system serves as a bridge, allowing alumni to stay updated on current college activities, participate in events, and maintain connections with fellow graduates. It also facilitates interaction between old and new students, providing a platform for networking and support.

Alumni can register on the platform, and upon approval, they can log in to update their profiles, post queries in forums, and search for other alumni. They can also receive notifications about job opportunities posted by the institution or other alumni. Additionally, the system enables alumni to raise funds for the college, enhancing its resources and support for current students.

Administrators play a crucial role in managing the system. They verify alumni accounts; manage the gallery displayed on the website, and invite alumni to industry-oriented guest sessions. The system allows administrators to post job opportunities, triggering automatic email notifications to all registered alumni.

Key Features: The web application will include features such as user registration, profile management, messaging, forums, event management, career services, fundraising tools, and alumni directory.

1.2 PROBLEM STATEMENT

Maintaining a strong connection between alumni and their alma mater is a challenge for many educational institutions. Alumni often lose touch with the institution and their fellow graduates, making it difficult to foster a sense of community and support. Additionally, the institution misses opportunities to engage alumni in current activities, events, and fundraising efforts.

Alumni associations typically rely on out-dated methods of communication and event coordination, leading to inefficient information dissemination and limited interaction among members. There is a need for a centralized, efficient, and user-friendly platform that can bridge the gap between alumni and the institution.

The challenges include alumni finding it hard to stay informed about college events and updates, struggling to connect with fellow graduates and current students for networking and support, and the cumbersome process of organizing and managing alumni events with limited engagement. Additionally, alumni miss out on job opportunities and career support that could be facilitated by the institution. The institution also faces difficulties in coordinating and maximizing alumni contributions for fundraising, and administrators find managing alumni information and verifying accounts manually to be time-consuming.

1.3 JUSTIFICATION

The importance of an alumni association management system lies in its ability to enhance the effectiveness and efficiency of managing alumni relations and engagement. Justifying the implementation or improvement of such a system involves several key benefits.

- It strengthens alumni connections by keeping former students connected with each other and the institution.
- It facilitates communication, making it easier to share updates and information. Enhanced alumni engagement is achieved through interactive features and events that keep alumni involved.
- Improved fundraising efforts are supported by streamlined donation processes and better outreach.
- Effective event management ensures successful organization and participation in alumni events.
- The system also enhances career development by providing job opportunities and networking resources.
- Lastly, it fosters alumni network growth, expanding the community and its impact.

1.4 SCOPE OF THE PROJECT

In a web application project, a scope of the project is the defined features and functions of a project or product or it is a work that is needed to finish a project. For Alumni association system the following scope has to be met.

- The system will allow administrators to manage alumni user accounts, including registration, login, profile updates, and account authentication.
- The alumni can register and explore the features and services provided by the system.
- The system provides tools for communication between alumni, administrators, and others.
- System should be accurate, consistence and flexible. Store data on centralized database.
- Provide a chat feature for All Alumni and other users.
- It will enable to make donations and it offer job opportunities to help alumni with their professional development.
- A searchable directory of alumni will be included, allowing users to find and connect with other alumni

1.5 OBJECTIVES

Here are the major objectives of our Alumni association system.

- It offers the complete suite of services that required to maintain a strong connection with alumni.
- To create a system that would be able to manage a college's alumni data and enable easy access to it.
- To develop a user-friendly interface.
- To provide more storage and fast retrieval of data.
- To provide job opportunities for alumni.
- It makes fundraising through an alumni network extremely simple as the institution needs to simply post a request and each member will then receive a notification about it.
- To allow old and new university or college students to communicate with one another. This gives pupils the opportunity to learn about one another and their present activities.
- Providing a venue for alumni to discuss thoughts on current academic, cultural, and social challenges.
- It includes discussion forums that allows students to reach out for career advice, internships and eventually.

CHAPTER-2
LITIERATURE REVIEW

2.1 LITERATURE REVIEW

The implementation of an Alumni Association System is a critical component for modern educational institutions aiming to foster strong connections with their alumni. The literature reveals several key themes and findings relevant to the development and benefits of such systems.

- **Importance of Alumni Engagement**

  According to Weerts and Ronca (2008), active alumni engagement contributes significantly to fundraising, student recruitment, and enhancing the institution's reputation. The establishment of an effective alumni association system can strengthen these relationships, providing a structured way for alumni to remain involved in institutional activities and support.

- **Technology in Alumni Relations**

  Palackal et al. (2011) highlight the role of web-based platforms in facilitating communication and engagement among alumni communities. These platforms provide a centralized location for information sharing, event management, and professional networking, thereby enhancing the overall alumni experience.

- **Features of Effective Alumni Systems**

  Research by Holmes (2013) suggests that the most effective alumni association systems incorporate features such as user registration and profile management, communication tools, event management capabilities, and career services. These features ensure that alumni can easily access and participate in various aspects of the alumni network, from attending events to seeking professional development opportunities.

- **Benefits of Centralized Databases**

Choi and Park (2016) discuss the importance of having a reliable and centralized data repository to manage alumni information, which aids in efficient account management and personalized communication.

➢ **Communication and Networking**

Studies by Larsen et al. (2012) show that integrated communication features, such as messaging and forums, facilitate stronger connections among alumni and between alumni and the institution. These tools enable real-time interaction and support collaborative initiatives.

➢ **Event Management and Participation**

According to Brown and Cummings (2014), systems that offer robust event management features, including RSVPs, reminders, and event promotions, see higher levels of alumni participation and engagement. Events serve as touchpoints for alumni to reconnect with the institution and each other.

➢ **Professional Development and Career Services**

Research by Smith (2015) indicates that alumni value platforms that offer professional development resources, such as job postings and career counseling, which help them in their career progression.

➢ **Fundraising and Contributions**

The literature also underscores the role of alumni systems in facilitating fundraising efforts. According to Miller (2017), alumni who feel connected and engaged are more likely to contribute financially to their alma mater. Effective alumni systems incorporate fundraising tools that simplify the donation process and track contributions.

CHAPTER 3

ANALYSIS AND REQUIREMENT

3.1 PROBLEM ANALYSIS

Current Challenges:

- **Outdated Alumni Records:** Maintaining updated records is challenging without a cohesive system.
- **Event Organization:** Difficulty in organizing events effectively.
- **Networking Opportunities:** Limited opportunities for valuable alumni networking.

Steps Taken for Problem Analysis:

1. **Identify Stakeholders:**
    - **Key Stakeholders:** Alumni, administrators, and staff members.
2. **Service Analysis:**
    - Analyzed the services to be provided by the new system.
3. **Study Existing Systems:**
    - Identified areas needing improvement in current systems to inform the new system's development.
4. **Gather Requirements:**
    - Collected requirements to identify desired system features.
5. **Prioritize Features:**
    - Prioritized features and functionalities based on gathered requirements.

3.2 SOFTWARE REQUIREMENT SPECIFICATION

A Software Requirement Specification (SRS) is a complete description of the behaviour of the system to be developed. It includes a set of use cases that describes all of the interactions that the users will have with the software. Use cases are also known as functional requirements. In addition to use cases, the SRS also contains non-functional requirements are the requirements which impose constraints on the design or implementation (such as performance engineering requirements, quality standards, or design constraints).

The function and performance allocated to software as part of system engineering are refined by establishing a complete information description, functional description, and representation of system behaviour, on indication of performance requirements and constraints, appropriate validation criteria and other information pertinent to requirement.

For an alumni association system, the SRS document would include specific details related to alumni registration, event management, communication tools, donation tracking, and career services. It would specify how each functionality should operate, including user interfaces, data flows, security measures, and performance requirements relevant to engaging and supporting alumni effectively.

3.3 REQUIREMENT ANALYSIS

The requirement analysis can build to generate the development of the project requirement and the purpose of the document may involve maintaining the details in performance of the requirement specification.

3.3.1 Overall Description

Product Perspective: The Alumni Association System will integrate with university databases, social media platforms, and payment gateways for seamless data exchange.

Product Functions: The system features alumni registration, event management, communication tools, donation tracking, and career services.

User Characteristics: Users include alumni, administrators, and moderators, each with specific roles in the system.

3.3.2 Functional Requirements

Use Case Diagrams: Diagrams will represent interactions between users and the system.

Use Case Descriptions: Descriptions will outline key processes like registration, event management, and donation tracking.

Functional Requirements List: A list of features including task management, Gantt charts, and reporting capabilities.

3.3.3 Data Requirements

Data Entities: The system will manage alumni profiles, event data, and donation records.

Data Flow Diagrams: Diagrams will illustrate data flow within the system and interactions with external interfaces.

3.3.4 System Architecture

High-Level Architecture: An overview of the system’s frontend, backend, database components, and integration points.

Components and Modules: Descriptions of each system component and module, such as user and event management.

3.3.5 Risk Analysis

Risks: Potential risks include low adoption, data breaches, and technical integration challenges.

Mitigation Strategies: Strategies include user surveys, data encryption, and thorough testing.

3.3.6 Considering Feasibility

Technical Feasibility: Evaluate platforms and frameworks for building the system.

Organizational Feasibility: Assess university resources and commitment to system maintenance and updates.

3.4 HARDWARE REQUIREMENT

- I3 PROCESSOR (OR) ABOVE
- RAM 4GB (OR) ABOVE
- HARD DISK 100GB (OR) ABOVE

3.5SOFTWARE REQUIREMENT

- OPERATING SYSTEM: WINDOWS
- FRONT END: HTML, CSS, BOOTSTAMP
- BACK END: PHP, MY SQL

CHAPTER – 4
DETAILED SYSTEM DESIGN

4.1 INTRODUCTION

System design is the process of planning the software product. The design act as a link between the problem specification and the actual implementation of the system. After the analysis of the existing system , the design of the system is carried out.

The goal of this phase is to create the design of the new system that meets a set of objectives are the driving force behind the design process. The design identifies the input and the outputs that are involved in the system. The design can be divided into three segments

- Architectural Design
- Data Design
- User Interface Design

4.2 ARCHITECTURAL DESIGN

Architectural design in software engineering is a high-level design expressed as a block diagram defining the structure of software.

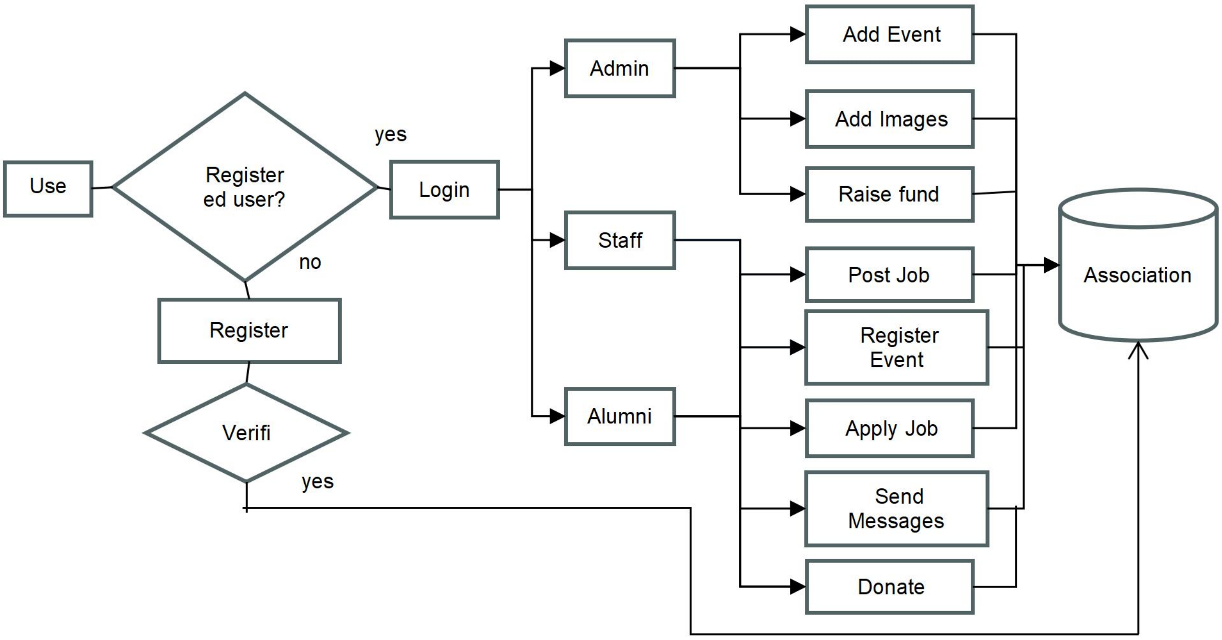


Fig 4.1 Architectural Design

4.3 UML DIAGRAM

UML stands for Unified Modeling Language. UML is a standardized general purpose modeling language in the field of object-oriented software engineering. The goal is for UML to become a common language for creating models of object oriented computer software. In its current form UML is comprised of two major components: a Meta-model and a notation. In the future, some form of method of process may also be added to; or associated with UML. The Unified Modeling Language is a standard language for specifying, visualization, constructing and documenting the artifacts of software system, as well as for business modelling and other non-software system.

4.3.1 USE CASE DIAGRAM

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases.

The main purpose of a use case diagram is to show what system functions are performed for which actor. Use-cases model the system from the end-user's point of view. A use case is a technique for capturing functional requirements of systems. Each use case provides one or more scenarios that convey how the system should interact with the users called actors to achieve a specific business goal or function

User Model View

- This view represents the system from the users perspective.
- The analysis representation describes a usage scenario from the end-users perspective.
- Use case actors may be end users or other systems.
- To define the functional and operational requirements of the system
- To provide a clear and unambiguous descriptions of how the end-user and the system interact with one another.

Use Case Diagram

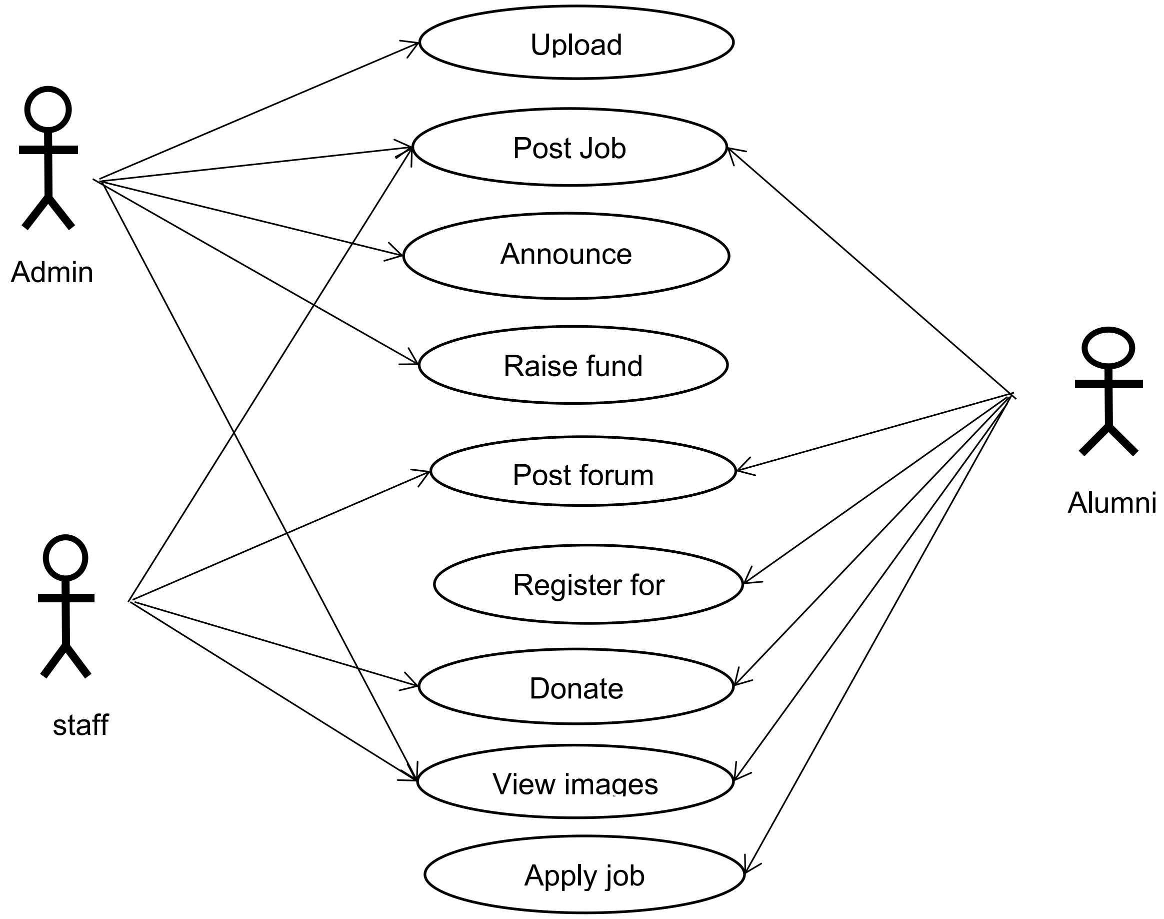


Fig 4.2

4.3.2 ACTIVITY DIAGRAM

Activity Diagrams are used to illustrate the flow of control in a system and refer to the steps involved in the execution of a use case. It is a type of behavioral diagram and we can depict both sequential processing and concurrent processing of activities using an activity diagram is an activity diagram focuses on the condition of flow and the sequence in which it happens.

- We describe what causes a particular event using an activity diagram.

- An activity diagram portrays the control flow from a start point to a finish point showing the various decision paths that exist while the activity is being executed.

- They are used in business and process modeling where their primary use is to depict the dynamic aspects of a system.

Activity Diagram

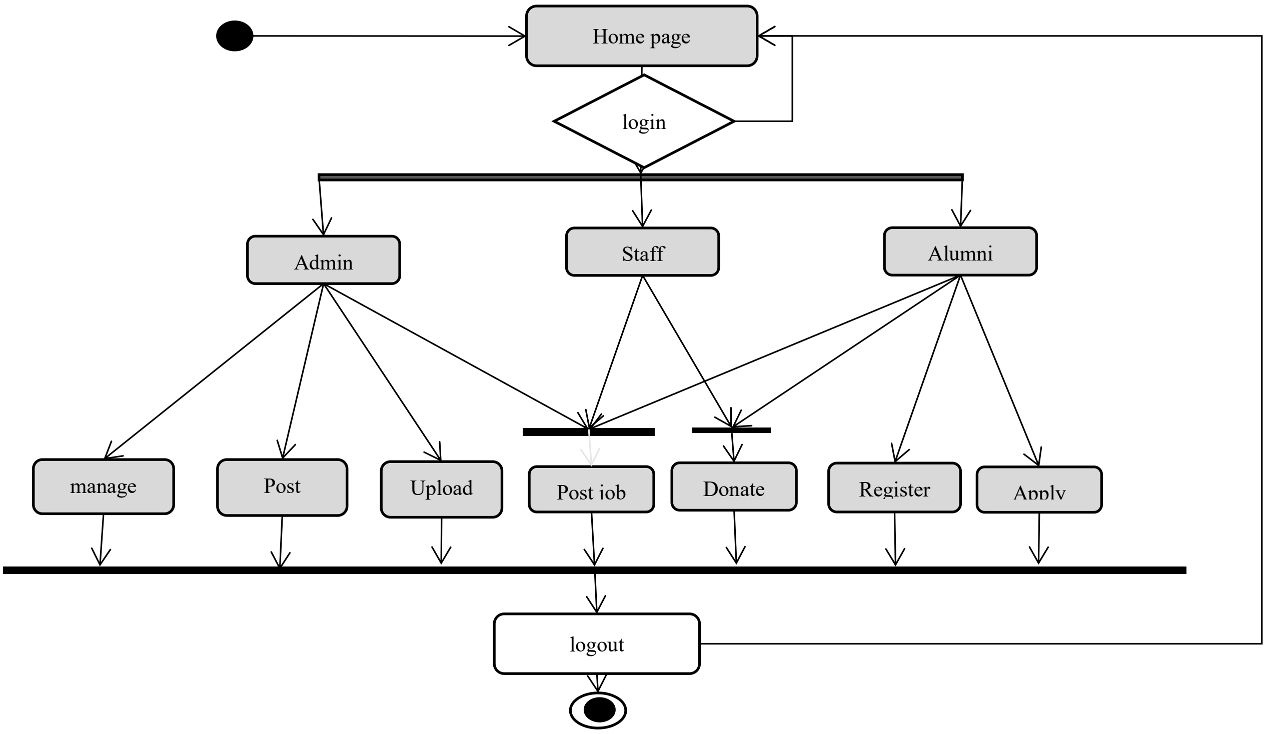


Fig 4.3

4.3.3 SEQUENCE DIAGRAM

A Sequence diagram shows object reaction arrange in time sequence. It is typically associated with use case realization in the logical view of the system under development. UML guides the creation of multiple types of diagrams such as interaction, structure, and behavioral diagrams. A **sequence diagram** is the most commonly used **interaction** diagram.

- A sequence diagram simply depicts the interaction between the objects in a sequential order i.e. the order in which these interactions occur.
- We can also use the terms event diagrams or event scenarios to refer to a sequence diagram.
- Sequence diagrams describe how and in what order the objects in a system function.
- These diagrams are widely used by businessmen and software developers to document and understand requirements for new and existing systems.

Admin sequence diagram

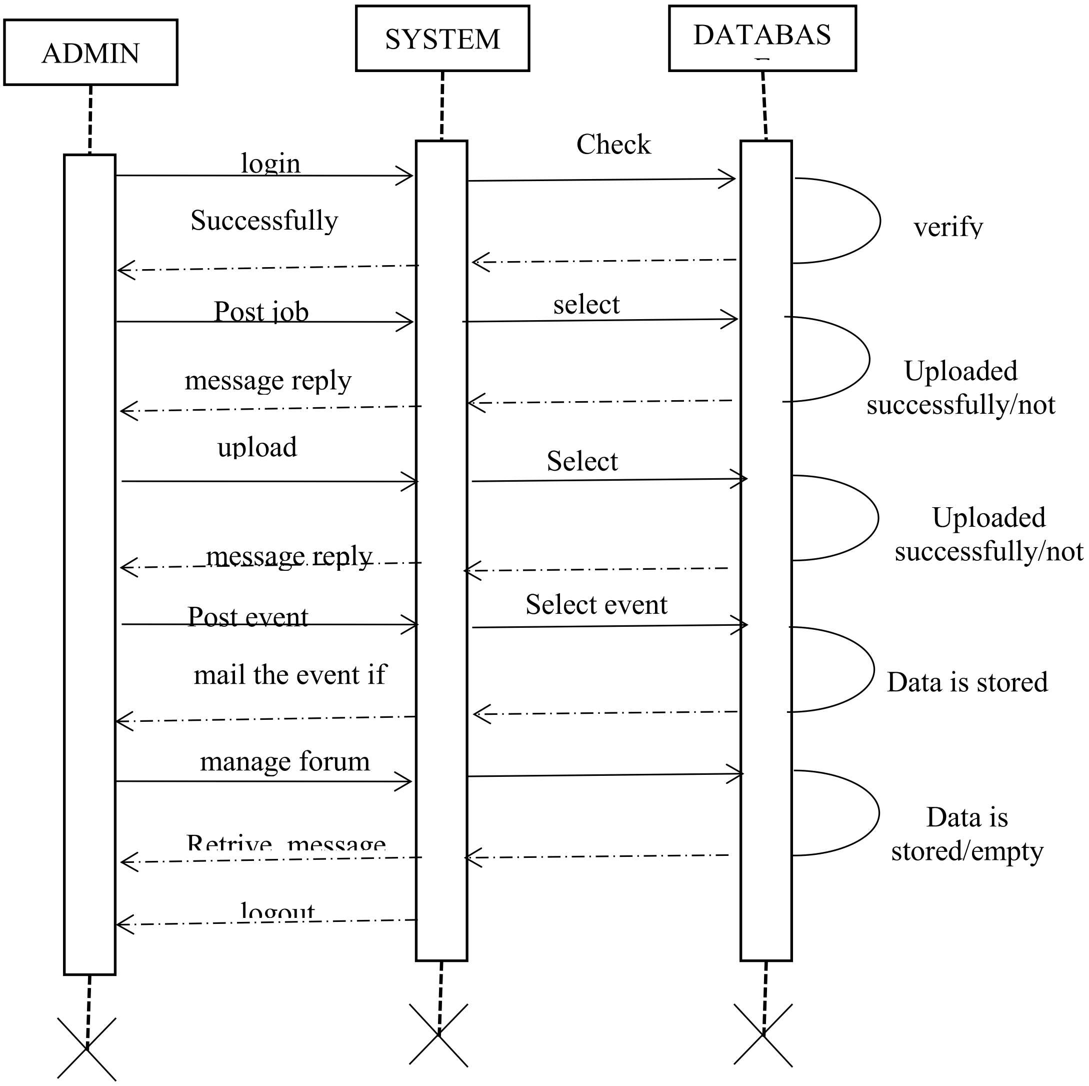


Fig 4.4

Alumni Sequence diagram

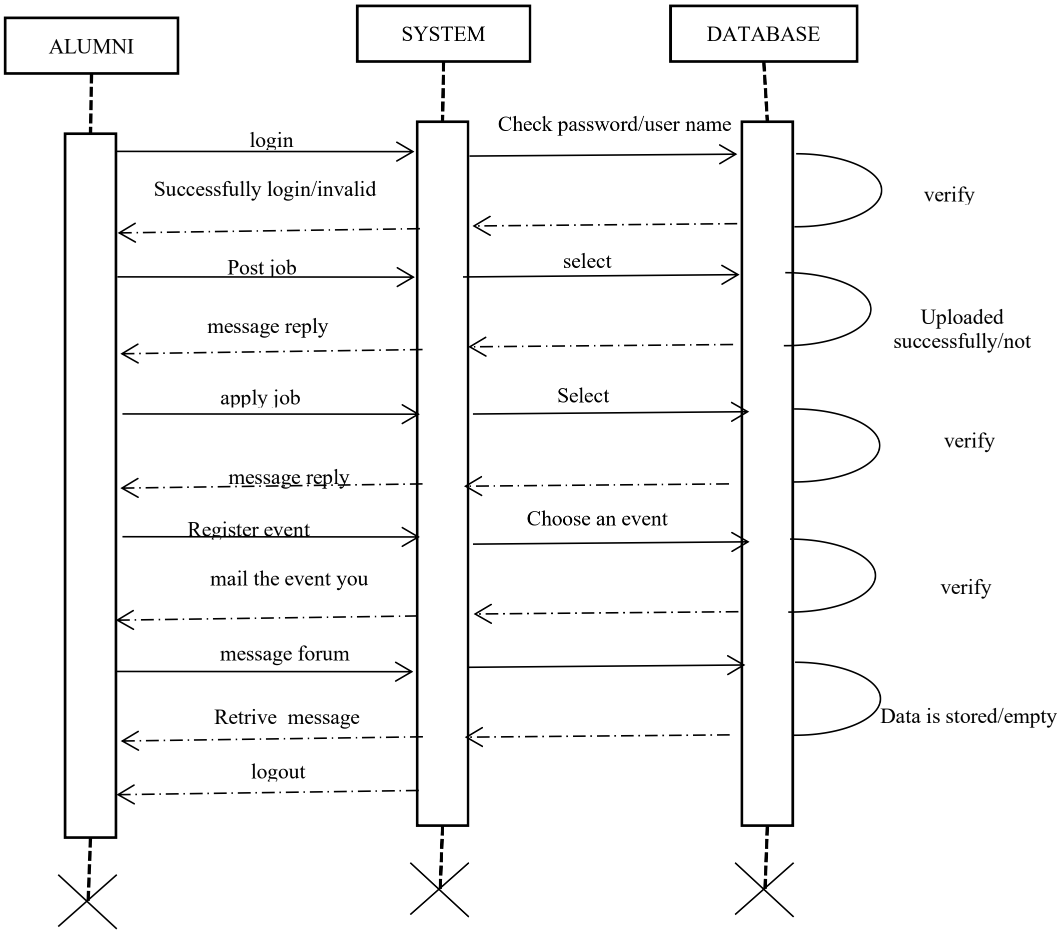


Fig 4.5

4.3.4 CLASS DIAGRAM

In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describe the structure of a system by showing the classes. It explains which class contains information.

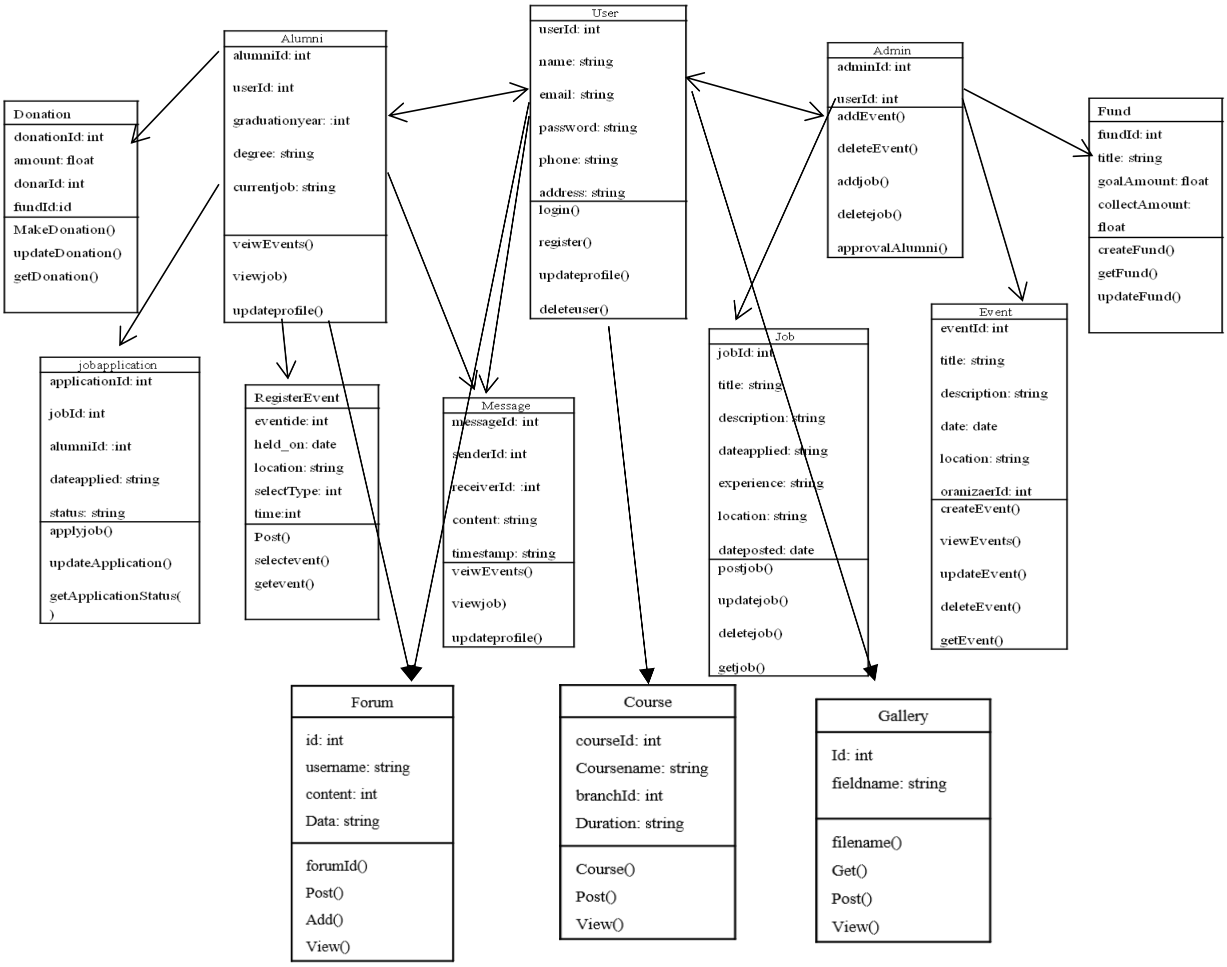


Fig 4.6

4.3.5 ER DIAGRAM

Creating an Entity-Relationship (ER) diagram for an Alumni Association System involves identifying key entities, their attributes, and relationships between them. Here's a simplified ER diagram for such a system:

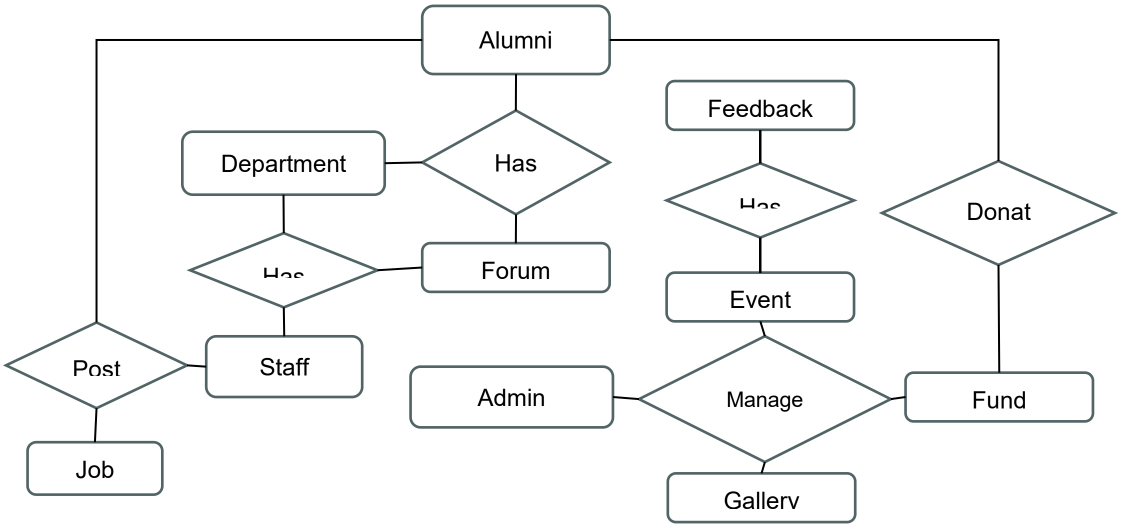


Fig 4.7

4.4 DATABASE DESIGN

Database Name: alumni_association

Table Name: alumni

Primary Key: id

FEILD	DATATYPE	CONSTRAINS	DESCRIPTION
Id	int(11)	Primary Key	Alumni ID
Name	varchar(50)	Not null	Alumni name
Gender	varchar(20)	Not null	Alumni Gender
martial_status	varchar(20)	Not null	Matrial status
course_id	int(30)	Not null	Course id number
Contact	varchar(12)	Not null	Contact number
Email	varchar(50)	Not null	Email id
Address	varchar(50)	Not null	Address
year_of_passing	year(4)	Not null	Year of passing
job_title	varchar(20)	Not null	Job type
job_location	varchar(30)	Not null	Job location
Profile	varchar(30)	Not null	Alumni Profile
Password	varchar(50)	Not null	Alumni Password

Tab 4.1

Table Name: staff

Primary Key: id

FIELD	DATATYPE	CONSTRAINS	DESCRIPTION
Id	int(11)	Primary Key	Staff ID
Name	varchar(30)	Not null	Staff name
Gender	varchar(20)	Not null	Staff Gender
course_id	int(30)	Not null	Course id
Contact	varchar(12)	Not null	Contact number
Email	varchar(50)	Not null	Email id
martial_status	varchar(50)	Not null	Martial status
Address	varchar(100)	Not null	Staff address
Profile	varchar(30)	Not null	Staff profile
Password	varchar(50)	Not null	Staff password

Tab 4.2

Table Name: admin

Primary Key: id

FIELD	DATATYPE	CONSTRAINS	DESCRIPTION
Id	Int	Primary Key	Admin ID
Name	varchar(50)	Not null	Admin Name
Email	varchar(40)	Not null	Admin Email Address
Contact	varchar(20)	Not null	Contact Number
Profile	varchar(40)	Not null	Profile Image
Address	varchar(50)	Not null	Address

Tab 4.3

Table Name: course_table

Primary Key: id

FIELD	DATATYPE	CONTRAINS	DESCRIPTION
Id	int(11)	Primary Key	Course id
Course	varchar(30)	Not null	Course name
Branch	varchar(30)	Not null	Branch name
Duration	int(30)	Not null	Course duration

Tab 4.4

Table Name: event

Primary Key: id

FIELD	DATATYPE	CONTRAINS	DESCRIPTION
Id	int(11)	Primary Key	Event id
Title	varchar(100)	Not null	Event title
Description	varchar(150)	Not null	Event description
Date	Date	Not null	Event conduct date
Location	varchar(50)	Not null	Event venue
Timing	varchar(20)	Not null	Event timing
Image	varchar(50)	Not null	Event image

Tab 4.5

Table Name: forum

Primary Key: id

FIELD	DATATYPE	CONTRAINS	DESCRIPTION
Id	int(11)	Primary key	User id
User	varchar(30)	Not null	User name
Content	varchar(500)	Not null	User contents
Data	varchar(20)	Not null	Current date message is entered

Tab 4.6

Table Name: gallery

Primary Key: id

FIELD	DATATYPE	CONTRAINS	DESCRIPTION
Id	int(11)	Primary Key	Image id
Filename	varchar(30)	Not null	File name

Tab 4.7

Table Name: job

Primary Key: id

FIELD	DATATYPE	CONTRAINS	DESCRIPTION
id	int(11)	Primary key	Job id
user_id	varchar(30)	Not null	User id
Title	varchar(50)	Not null	Title of the job
Description	varchar(500)	Not null	Description for the job
Qualification	varchar(50)	Not null	Qualification
Level	varchar(50)	Not null	Level of education
Location	varchar(50)	Not null	Location
held_on	varchar(50)	Not null	Held on
Contact	varchar(100)	Not null	Contact number
Banner	varchar(50)	Not null	Image

Tab 4.8

Table Name: message

Primary Key: id

FIELD	DATATYPE	CONTRAINS	DESCRIPTION
Id	int(11)	Primary key	Message id
from_user	int(30)	Not null	From_user id
to_user	int(30)	Not null	To_user id
Type	tinyint(1)	Not null	Type of message
Message	Text	Not null	Message
Status	tinyint(1)	Not null	Status
Popped	tinyint(1)	Not null	Pop down message
delete_flag	tinyint(1)	Not null	Delete flag
date_created	Datetime	Not null	Date of the message
date_updated	Datetime	Not null	Date updated

Tab 4.9

Table Name: fund

Primary Key: id

FIELD	**DATATYPE**	**CONTRAINS**	**DESCRIPTION**
Id	int(11)	Primary Key	Fund id
Title	varchar(50)	Not null	Fund Title
Description	Varchar(500)	Not null	Fund Description

Tab 4.10

Table Name: event register

Primary Key: id

FIELD	DATATYPE	CONTRAINS	DESCRIPTION
Id	int(11)	Primary Key	Event register id
Event_id	int(11)	Not null	Event id
User_id	int(50)	Not null	User id

Tab 4.11

Table Name: job application

Primary Key: id

FIELD	DATATYPE	CONTRAINS	DESCRIPTION
Id	int(11)	Primary Key	Job application id
Job_id	int(11)	Not null	Job id
User_id	int(50)	Not null	User id

Tab 4.12

Table Name: donations

Primary Key: id

FIELD	DATATYPE	CONTRAINS	DESCRIPTION
Id	int(11)	Primary Key	Donations id
Fund_id	int(11)	Not null	Fund id
User_id	int(50)	Not null	User id
method	varchar(25)	Not null	Payment method
amount	int(11)	Not null	Amount

Tab 4.13

CHAPTER – 5

IMPLEMENTATION

5.1 IMPLEMENTATION

Implementation is the process of converting a new or revised system design into an operational one. This crucial phase involves careful planning, investigation of current system and its constraints on implementation, design of methods to achieve changeover methods.

The proper implementation involves conversion of existing clerical files to computer media and hence these file as they are get converted. Then the actual changeover from the existing system to the new system takes place.

The system has been tested with sample data, changes are made to the user requirements and run in parallel with the existing system to find out the discrepancies. The user has also appraised how to run the system during the training period.

5.2 IMPLEMENTATION PLAN

Implementation is the stage, which is crucial in the life cycle of the new system designed. Implementation means converting a new or revised system designed into an operational one. This is the stage of the project where the theoretical design is turned into a working system.

In computer programming, coding style is manifest in the patterns used by a programmer to express a desired action or outcome. A good coding style can overcome many of the deficiencies of a primitive programming language. The goal of good coding style is to provide easily understood, straightforward, elegant code.

There are several activities involved while implementing a project:

- ✓ Careful planning.
- ✓ Investigation current system and its constraints on implementation.
- ✓ Design of methods to achieve the change over.
- ✓ Test the developed software with sample data.
- ✓ Training of the staff in the changeover procedure and evaluation of changeover method.

5.3 MAINTENANCE

Once the project is subjected to various testing techniques, the final stage of software development life cycle is maintenance.

CHAPTER – 6

TESTING

6.1 TESTING INTRODUCTION

Software testing is the software process used to identify the correctness, completeness, security and quality of developed computer software. Testing is a process of technical investigation, performed on behalf of stakeholders, that is intended to reveal quality-related information about the project with respect to the context in which it is intended to operate. This includes the process of executing a program or application with the intend of finding errors. The software testing should be distinguished from the separate discipline of Software Quality Assurance (SOA). which encompasses all business process areas, not just testing.

6.2 TEST CASES

Test cases are derived to ensure that all statement in the program have been executed at least once during testing and that all logical conditions have been executed. Using White-box testing methods, the software engineer can drive test case that?

- Guarantee that logical decisions on their true and false sides.
- Exercise all logical decisions on their true and false sides.
- Execute all loops at their boundaries and within their operational bounds.
- Exercise internal data structure to assure their validity.

The test case specification for system testing has to be submitted for review before system testing commences.

Testing Objectives:

- Testing is a process of executing a program with the intent of finding an error.

- A good test case is one that has a probability of finding an as yet undiscovered error.
- A successful test is one that uncovers an undiscovered error.

Testing Principles:

- All tests should be traceable to end user requirements.
- Tests should be planned long before testing begins.
- Testing should begin on a small scale and progress towards testing in large.
- Exhausting testing is not possible.
- To be most effective testing should be conducted by a independent third party.

6.3 TYPE OF TESTING USED:

6.3.1 WHITE BOX TESTING

White box testing strategy deals with the internal logic and structure of the code. White box testing is also called as glass, structural, open box or clears box testing. The tests written based on the white box testing strategy incorporate coverage of the code written branches paths statement.

In order to implement white box testing, the tester has to deal with the code and hence is needed to possess knowledge of coding and logic i.e. internal working of the code. White box test also needs the tester to look into the code and find out which unit/statement/chunk of the code is malfunctioning and internal logic of the code etc.

6.3.2 BLACK BOX TESTING

Testing software without any knowledge of the inner workings, structure or language of the module being tested. Black Box Testing is testing without knowledge of the internal workings of the item being tested.

For example, when black box testing is applied to software engineering, the tester would only know the "legal" inputs and what the expected outputs should be, but not how the program actually arrives at those outputs. It is because of this that black box testing can be considered testing with respect to the specifications, no other knowledge of the program is necessary.

6.3.3 UNIT TESTING

Unit testing was used to test individual units in the system and ensure that they operate correctly. Alternate logic analysis and screen validations were tested in this phase to ensure optimum efficiency in the system. The procedures and functions used and their association with data were tested.

6.3.4 MODULE TESTING

Module testing was used to ensure that the dependable components in a module work in coordination with one another. Functional testing, performance testing and stress tests were conduct on modules independently to ensure robustness in the system developed. The various forms, their validations, relationships between forms, tables and the data flow between components in a module were analyzed and tested. The procedures and functions common to a module were also tested during module testing.

6.3.5 SUB-SYSTEM TESTING

Sub-system testing also known as integration testing was used to ensure that the modules are available for integration with one another to form the final integrated system. Interface testing was conducted to ensure that the modules could work in harmony with one another. The relationship between the modules and the data they share were tested. The flow of information or data from one module to another was tested. Procedures and functions common to modules were analyzed and tested.

6.3.6 SYSTEM TESTING

System testing was carried out after integrating the modules into one the requirements specified by the client and the external observations perceived during the analysis phase, Interactions between modules were keenly analyzed and tests conducted to ensure robustness in the integrated system. Tests were conducted using simulated data.

6.3.7 ACCEPTANCE TESTING

Acceptance Testing was conducted to ensure that the developed system is in accordance with the requirements of the client. The tests were conducted using data supplied by the client. The acceptance testing was carried out as Alpha and Beta tests. The alpha test was conducted at the company where the project was developed and beta test was conducted by the company at the clients place to ensure that the package to be delivered is to the satisfaction of the client.

CHAPTER – 7

TOOLS AND TECHNOLOGY

7.1 INTRODUCTION

Building an Alumni Association System involves integrating various tools and technologies to create a dynamic platform that fosters engagement, networking, and collaboration among graduates and their alma mater. This system serves as a digital hub where alumni can reconnect, stay informed about institutional developments, participate in events, and contribute to their community's growth. By leveraging modern web technologies, secure data management practices, and user-friendly interfaces, these systems aim to enhance alumni experiences and strengthen institutional ties over time.

7.2 TOOLS AND TECHNOLOGIES :

7.2.1 FRONTEND :

7.2.1.1 HTML :

HTML (HyperText Markup Language) is the most basic building block of the Web. It defines the meaning and structure of web content. Other technologies besides HTML are generally used to describe a web page's appearance/presentation or functionality/ behavior.

HyperText: HyperText simply means "Text within Text." A text has a link within it, is a hypertext. Whenever you click on a link which brings you to a new webpage, you have clicked on a hypertext. HyperText is a way to link two or more web pages (HTML documents) with each other.

Markup language: A markup language is a computer language that is used to apply layout and formatting conventions to a text document. Markup language makes text more interactive and dynamic. It can turn text into images, tables, links, etc.

Web Page: A web page is a document which is commonly written in HTML and translated by a web browser. A web page can be identified by entering an URL. A Web page can be of the static or dynamic type. With the help of HTML only, we can create static web pages.

Features of HTML

1) It is a very easy and simple language. It can be easily understood and modified.

2) It is very easy to make an effective presentation with HTML because it has a lot of formatting tags.

3) It is a markup language, so it provides a flexible way to design web pages along with the text.

4) It facilitates programmers to add a link on the web pages (by html anchor tag), so it enhances the interest of browsing of the user.

5) It is platform-independent because it can be displayed on any platform like Windows, Linux, and Macintosh, etc.

6) It facilitates the programmer to add Graphics, Videos, and Sound to the web pages which makes it more attractive and interactive.

7) HTML is a case-insensitive language, which means we can use tags either in lower-case or upper-case.

7.2.1.2 CSS :

CSS stands for Cascading Style Sheet. It gives an additional style to the HTML document. A cascading style sheet is a language that is designed to define the document formatting and look written in a markup language. Generally, CSS is applied with HTML documents to change various styles of user interfaces and web pages. This separation can improve content accessibility; provide more flexibility and control in the specification of presentation characteristics; enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file, which reduces complexity and repetition in the structural content; and enable the .css file to be cached to improve the page load speed between the pages that share the file and its formatting. Separation of formatting and content also makes it possible to present the same markup page in different styles for different rendering methods, such as on-screen, in print, by voice (via speech-based browser or screen reader), and on Braille-based tactile devices. CSS also has rules for alternate formatting if the content is accessed on a mobile device. The name cascading comes from the specified priority scheme to determine which style rule applies if more than one rule matches a particular element.

- CSS was introduced on 10th October 1994 by HakonWium Lie.
- CSS is an easy language to understand and learn, but it gives robust control on the presentation of HTML documents
- It specifies how the various HTML elements or tags to be presented on the screen.
- It has various advantages, such as save time, offline browsing, fast page load, and many others.
- CSS3 is the current version of the cascading style sheet.

It can be also applied with any document of XML, including XUL, SVG, and plain XML.

Features of CSS

- Opportunity in Web designing: If anyone wants to begin a career in web designing professionally, it is essential to have knowledge of CSS and HTML.
- Website Design: With the use of CSS, we can control various styles, such as the text color, the font style, the spacing among paragraphs, column size and layout, background color and images, design of the

layout, display variations for distinct screens and device sizes, and many other effects as well.

- Web Control: CSS has controlling power on the documents of HTML, so it is easy to learn. It is integrated with the HTML and the XHTML markup languages.35
- Other Languages: Once we have knowledge of some basics of CSS and HTML, other associated technologies like Angular, PHP, and JavaScript are become clearer to understand.

7.2.1.3 JAVACRIPT

JavaScript is one of the most popular languages which includes numerous features when it comes to web development. It's amongst the top programming languages as per Github and we must know the features of JavaScript properly to understand what it is capable of.

Some of the features are lightweight, dynamic, functional and interpreted. Now we are going to discuss some important features of JavaScript.

- Light Weight Scripting language
- Dynamic Typing
- Object-oriented programming support
- Functional Style
- Platform Independent
- Prototype-based
- Interpreted Language
- Async Processing
- Client-Side Validation
- More control in the browser

7.2.2 BACKEND :

7.2.2.1 PHP

What is PHP?

PHP is a popular scripting language used for creating dynamic web pages and web applications. The term PHP is an acronym of **Hypertext Preprocessor**. It is an open-source, interpreted, object-oriented server-side scripting language.

History of PHP

PHP is developed by **Rasmus Lerdorf** in 1994 the very first version of PHP that simply designed to set the Common Gateway Interface (CGI) binaries, which are written in C programming language. The latest version of PHP is PHP version 8 which is released on November 24, 2022. It can be easily embedded with HTML files. HTML codes can also be written in a PHP file. The PHP codes are executed on the server side whereas HTML codes are directly executed on the browser.

Some important points need to be noticed about PHP are as followed:

- PHP stands for Hypertext Preprocessor.
- PHP is an interpreted language, i.e., there is no need for compilation.
- PHP is faster than other scripting languages, for example, ASP and JSP.
- PHP is a server-side scripting language, which is used to manage the dynamic content
- of the website.
- PHP can be embedded into HTML.
- PHP is an object-oriented language.
- PHP is an open-source scripting language.
- PHP is simple and easy to learn language.

Features of PHP

- **Open-Source and Free**: PHP is firstly open source which means anyone can use PHP code without any licensing. Along with this one can run PHP on any operating system like Windows, macOS, Linux, Unix and more.

- **PHP Server-Side Scripting**: PHP code executes on the server before sending HTML content to the user's browser, allowing for the dynamic generation of web pages and handling user interactions.

- **Interpreted language**: PHP code is interpreted line by line, eliminating the need for compilation and simplifying development and testing processes.

- **Database connectivity**: PHP integrates seamlessly with various databases like MySQL, PostgreSQL, and Oracle, facilitating data storage and retrieval for web applications.

- **Object-oriented programming (OOP)**: PHP supports OOP concepts like classes, objects, inheritance, and polymorphism, enabling better code organization and modularity.

- **Built-in functions**: PHP comes with a rich set of built-in functions for various tasks such as string manipulation, date and time handling, file handling, and more, reducing the need for external libraries.

- **Session management**: PHP allows for user session management, enabling personalized experiences and storing user data across multiple page visits.

- **Security features**: While security considerations are essential for any development language, PHP offers several built-in security features and best practices to help mitigate vulnerabilities.

PHP Characteristics

1. Simple
2. Efficient
3. Secure
4. Flexible

7.2.2.1 MYSQL

What is MY SQL?

MySQL is a relational database management system based on the Structured Query Language, which is the popular language for accessing and managing the records in the database. MySQL is open-source and free software under the GNU license. It is supported by **Oracle Company.**

MySQL Features

- MySQL is a relational database management system.
- MySQL is easy to use. You have to get only the basic knowledge of SQL.
- You can build and interact with MySQL with only a few simple SQL statements.
- MySQL consist of a solid data security layer that protects sensitive data from intruders. Passwords are encrypted in MySQL.
- MySQL follows a client /server architecture. There is a database server (MySQL) and arbitrarily many clients (application programs), which communicate with the server; that is, they query data, save changes, etc.

- MySQL is free to use and you can download it from MySQL official website.
- MySQL can handle almost any amount of data, up to as much as 50 million rows or more. The default file size limit is about 4 GB.
- However, you can increase this number to a theoretical limit of 8 TB of data.
- MySQL is compatible to run on many operating systems, like Novell, NetWare, Windows* Linux*, many varieties of UNIX* (such as Sun* Solaris*, AIX, and DEC* UNIX), OS/2, FreeBSD*, and others.
- MySQL 55 also provides a facility that the clients can run on the same computer as the
- server or on another computer (communication via a local network or the Internet).
- MySQL allows transactions to be rolled back, commit and crash recovery.
- MySQL is faster, more reliable and cheaper because of its unique storage engine architecture.

How MySQL Works?

MySQL works like this:

1. **Client Request**: You send a request to the MySQL server using an application or a command-line tool.

2. **Connection**: The server connects with your application to start a session.

3. **SQL Parsing**: The server checks your SQL query for any errors.

4. **Query Optimization**: The server figures out the best way to execute your query efficiently.

5. **Execution**: The server runs the query. It reads or writes data to the database as needed.
6. **Storage Engine**: This is where data is stored on the disk. MySQL uses different storage engines like InnoDB or MyISAM for this.
7. **Result Generation**: The server creates the result based on your query.
8. **Response**: The server sends the results back to your application.
9. **Client Interaction**: Your application displays the data to you.
10. **Transaction Management**: For complex operations, MySQL ensures everything runs smoothly and data remains accurate.
11. **Logging and Recovery**: MySQL keeps logs to help recover data if something goes wrong.
12. **Replication and Backup**: MySQL can copy data to other servers for safety and better performance. It also supports data backups to keep your information safe.

In simple terms, MySQL receives your request, processes it efficiently, interacts with stored data, and returns the results to you, all while ensuring data safety and reliability.

CHAPTER – 8

CONCLUSION

8.1 CONCLUSION

Finally coming to the conclusion of the project report, I would like to express my sincere gratitude to all those who have helped for the project to complete successfully. The project “ALUMNI ASSOCIATION SYSTEM” has been designed and developed to the satisfaction of the end user.

The Alumni Association System web application represents a pivotal advancement in nurturing lifelong bonds between alumni and their alma mater. By facilitating seamless communication, efficient event management, and the preservation of institutional memory, it plays a crucial role in fostering a strong and engaged alumni community.

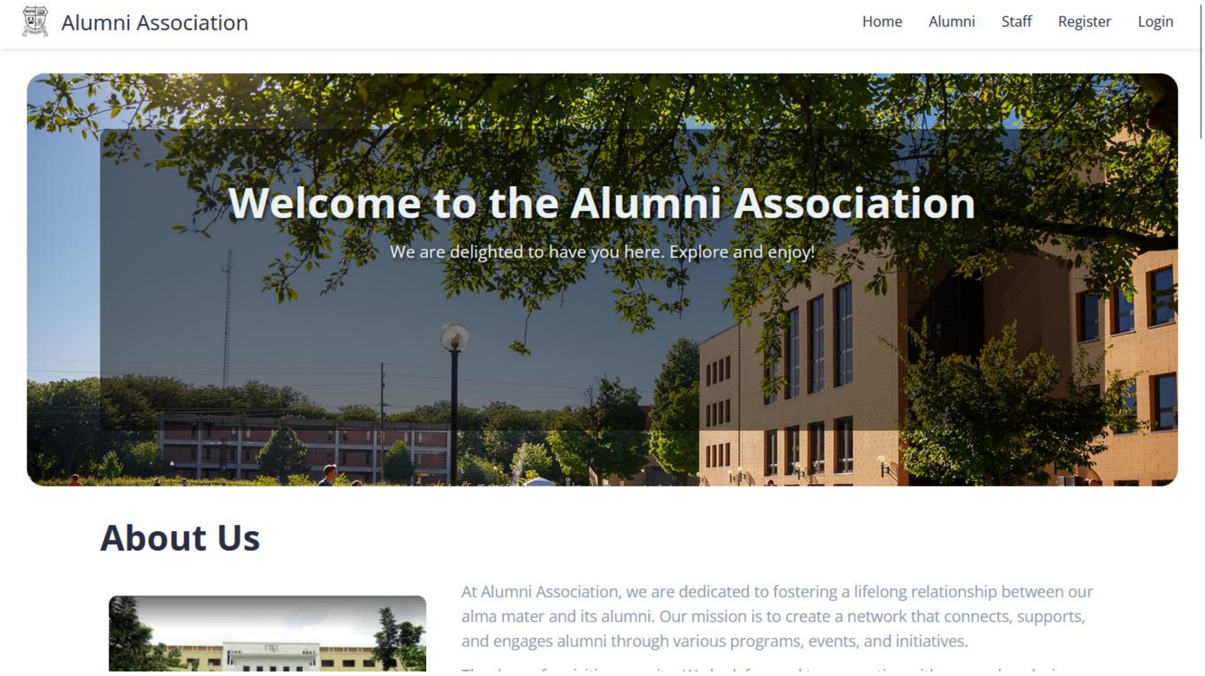
8.2 FUTURE ENHANCEMENT

Looking ahead, future enhancements could focus on integrating

- AI-driven analytics to better understand alumni engagement patterns.
- enhancing mobile accessibility for greater user convenience.
- Implementing blockchain technology for secure data management.

Additionally, incorporating virtual reality (VR) or augmented reality (AR) features could enrich virtual reunions and networking events, providing an immersive experience regardless of geographical location. These advancements promise to elevate the Alumni Association System's functionality, ensuring it remains a dynamic platform that meets the evolving needs of alumni and their alma mater in the digital age.

8.3 SNAPSHOTS



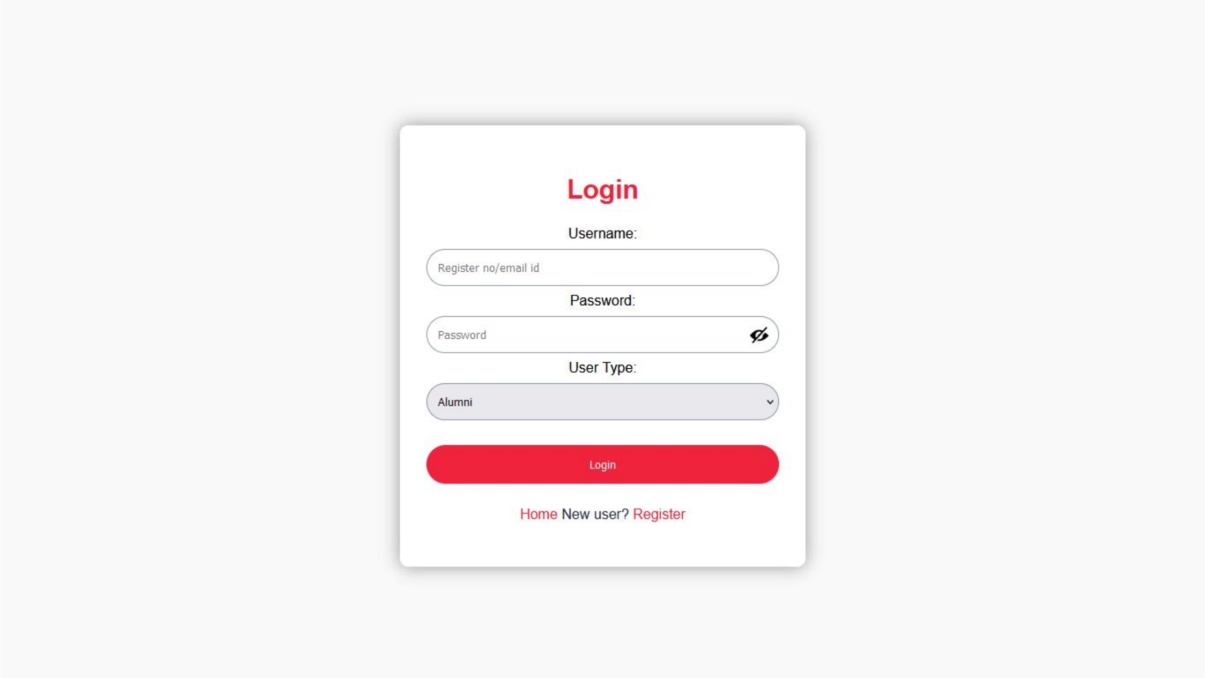
Welcome to the Alumni Association

We are delighted to have you here. Explore and enjoy!

About Us

At Alumni Association, we are dedicated to fostering a lifelong relationship between our alma mater and its alumni. Our mission is to create a network that connects, supports, and engages alumni through various programs, events, and initiatives.

Fig. 8.1 Home Page



Login

Username:

Register no/email id

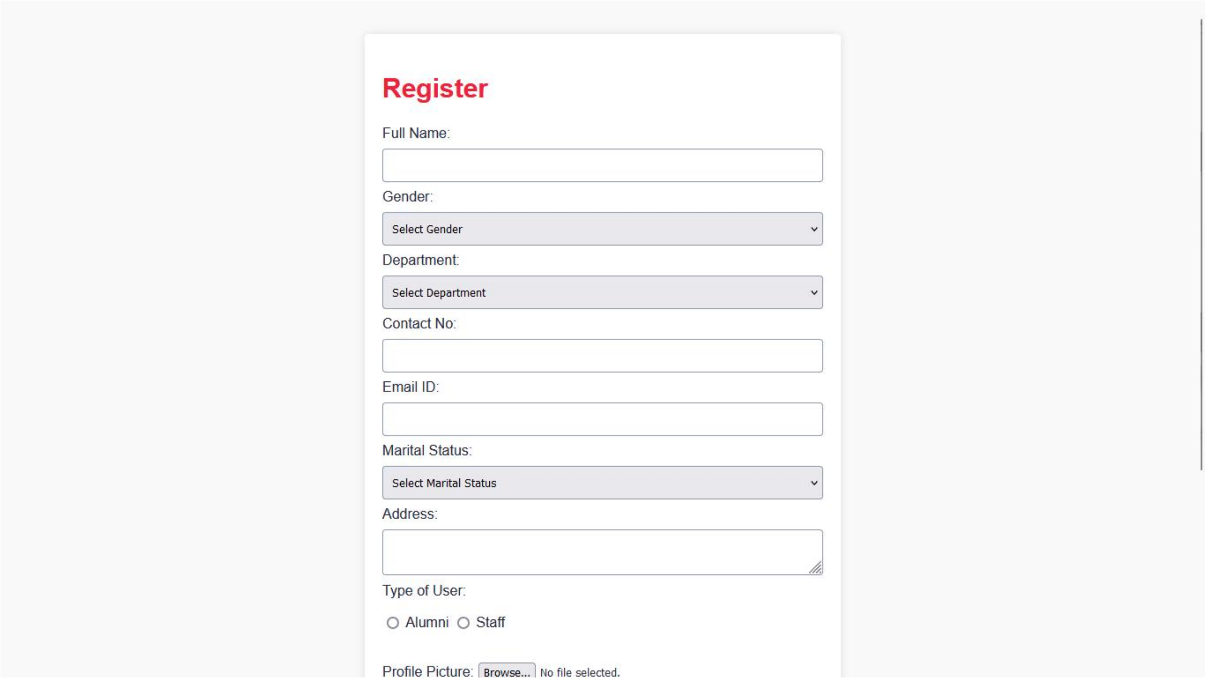
Password:

Password

User Type:

Alumni

Fig. 8.2 Login Page



Register

Full Name:

Gender:

Select Gender

Department:

Select Department

Contact No:

Email ID:

Marital Status:

Select Marital Status

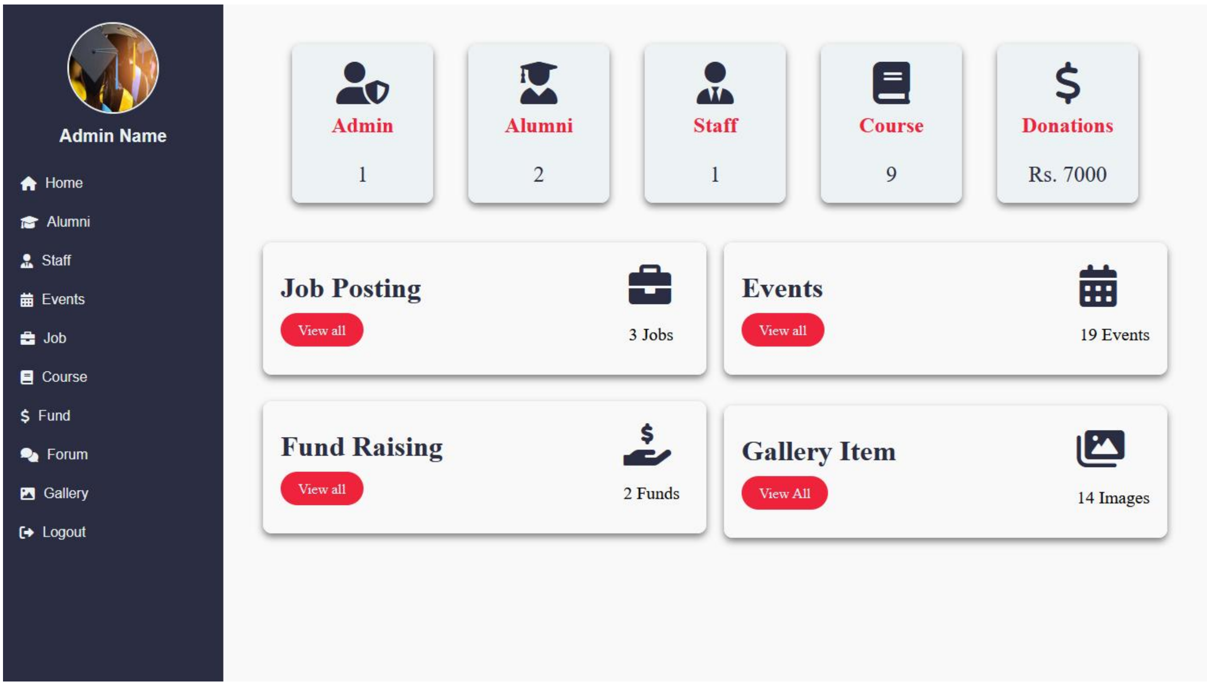
Address:

Type of User:

○ Alumni ○ Staff

Profile Picture: Browse... No file selected.

Fig. 8.3 Register Page



Admin Name

Admin	Alumni	Staff	Course	Donations
1	2	1	9	Rs. 7000

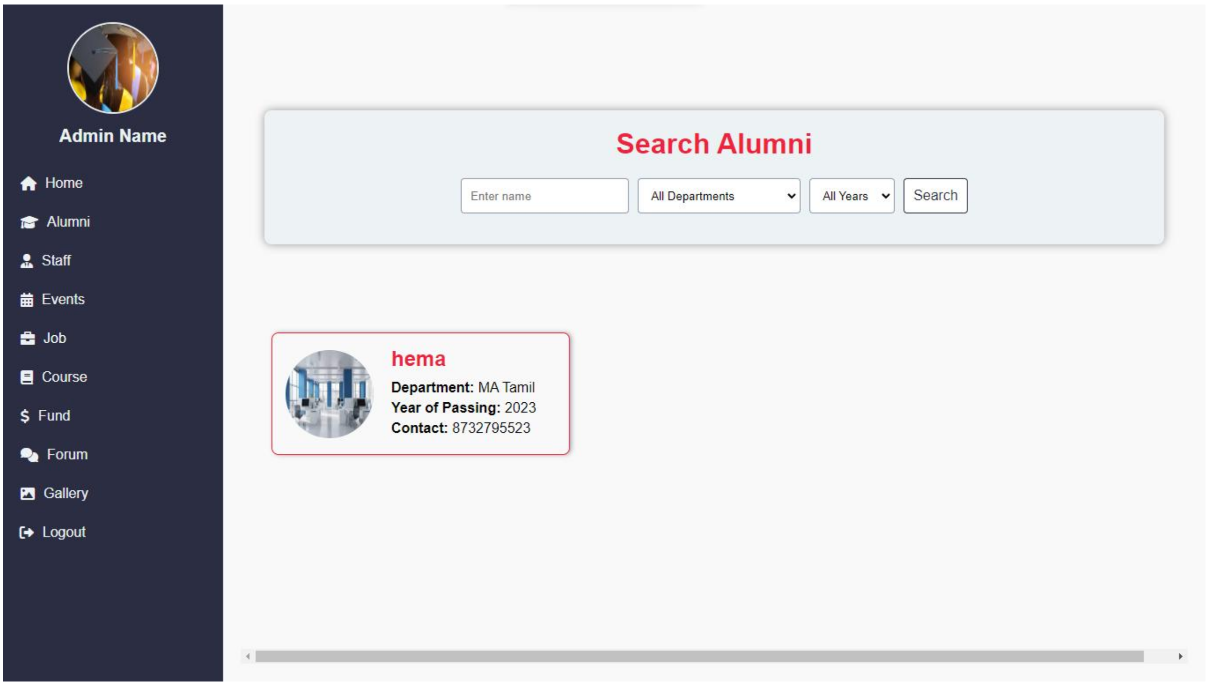
Job Posting — View all — 3 Jobs

Events — View all — 19 Events

Fund Raising — View all — 2 Funds

Gallery Item — View All — 14 Images

Fig. 8.4 Admin Dashboard

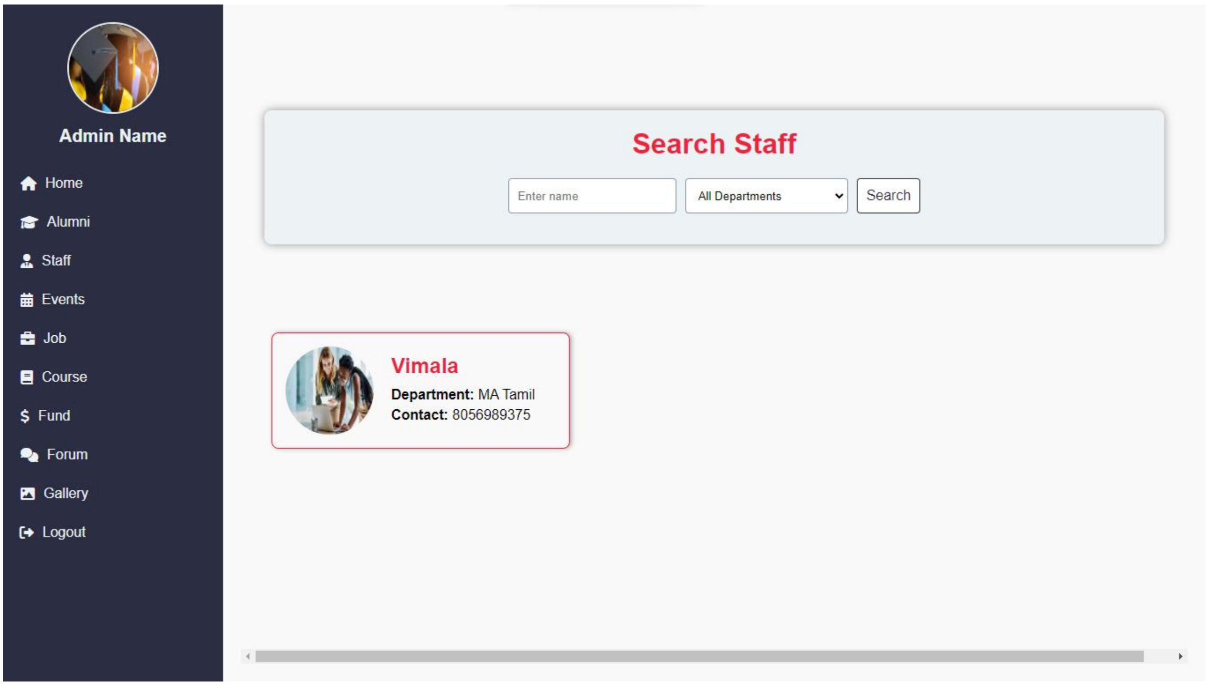


Search Alumni

hema

Department: MA Tamil
Year of Passing: 2023
Contact: 8732795523

Fig. 8.5 Search Alumni Page

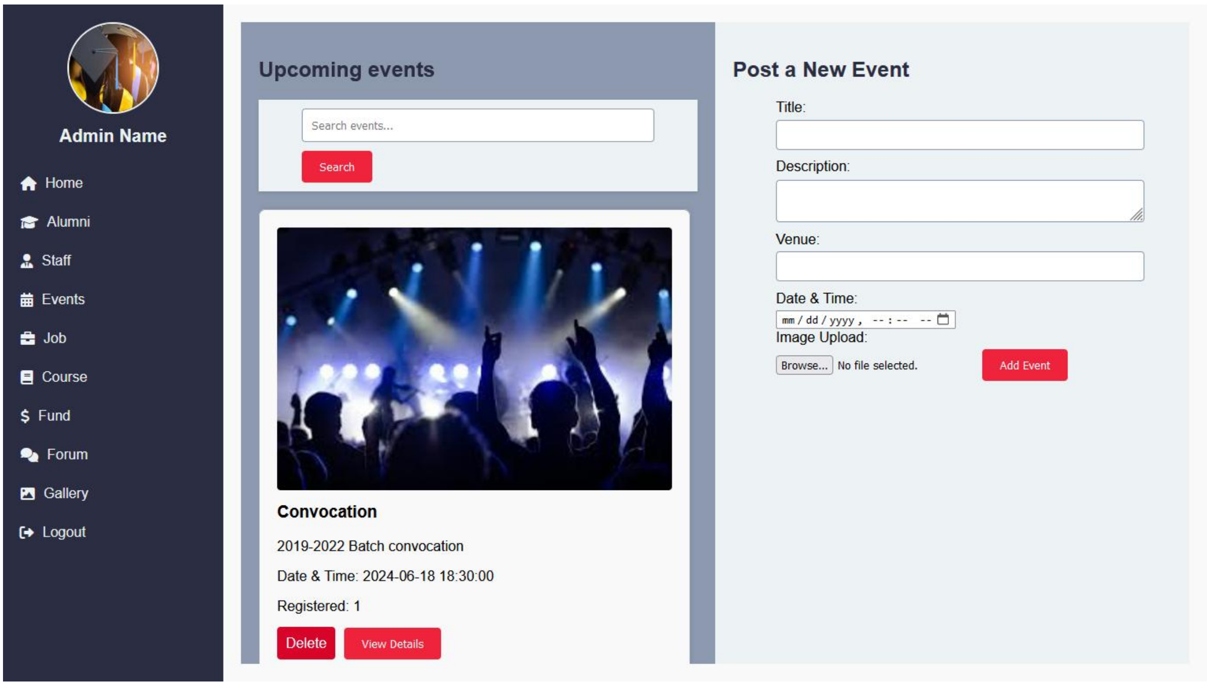


Search Staff

Vimala

Department: MA Tamil
Contact: 8056989375

Fig. 8.6 Search Staff Page



Upcoming events

Convocation

2019-2022 Batch convocation

Date & Time: 2024-06-18 18:30:00

Registered: 1

Post a New Event

Title:

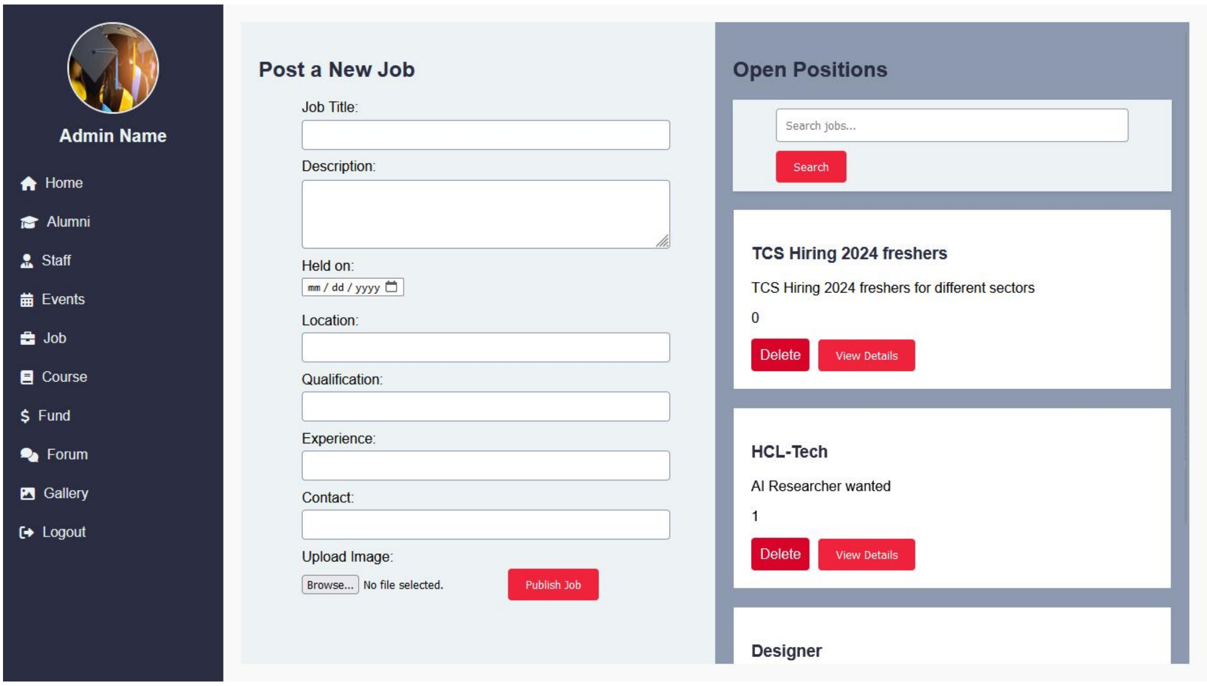
Description:

Venue:

Date & Time: mm / dd / yyyy , -- : -- --

Image Upload:

Fig. 8.7 Manage Event Page



Post a New Job

Job Title:

Description:

Held on: mm / dd / yyyy

Location:

Qualification:

Experience:

Contact:

Upload Image:

Open Positions

TCS Hiring 2024 freshers

TCS Hiring 2024 freshers for different sectors

0

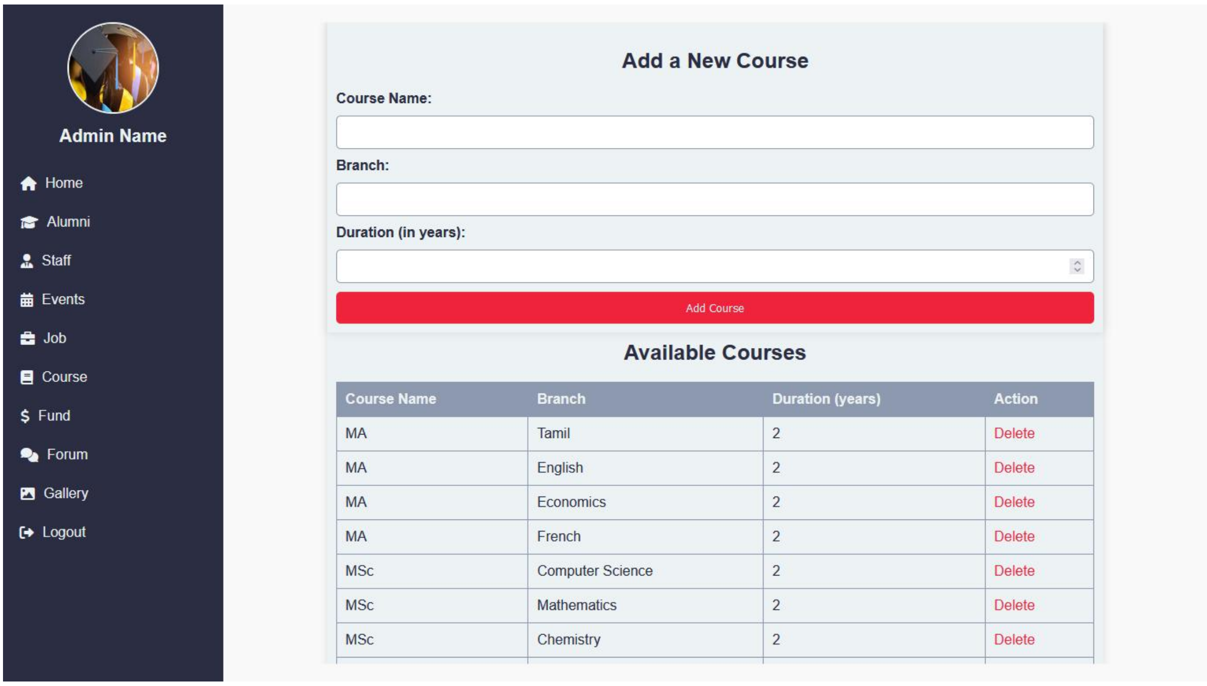
HCL-Tech

AI Researcher wanted

1

Designer

Fig. 8.8 Manage Job Page



Add a New Course

Course Name:

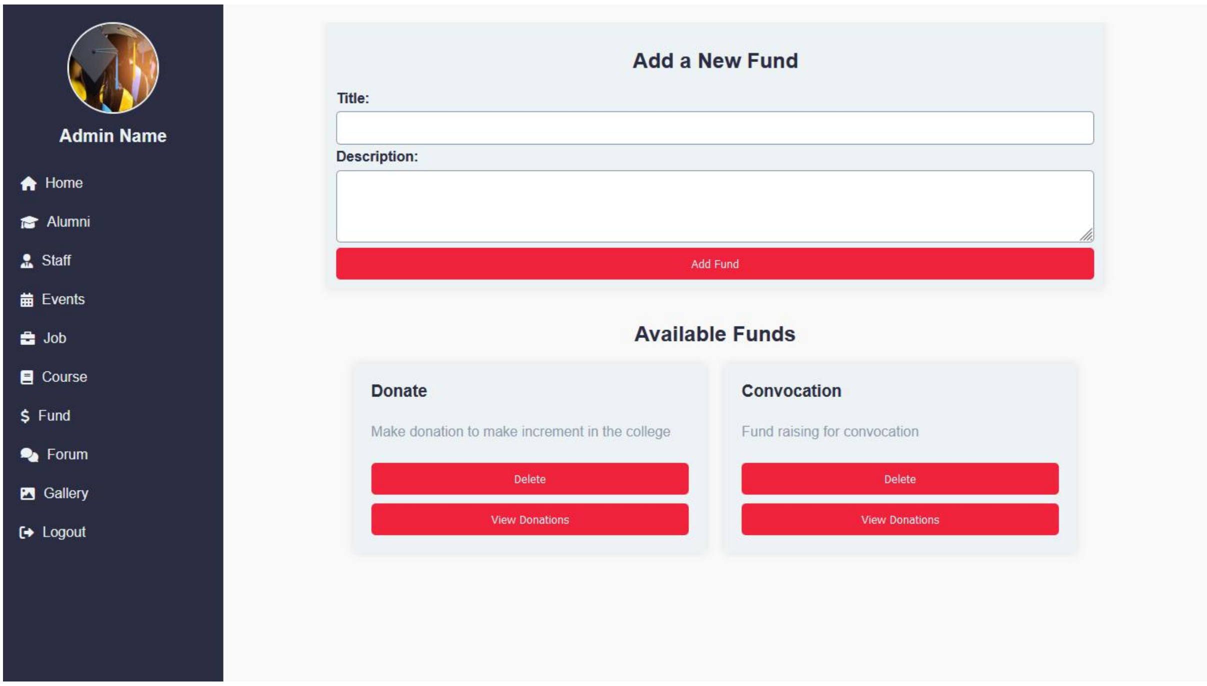
Branch:

Duration (in years):

Available Courses

Course Name	Branch	Duration (years)	Action
MA	Tamil	2	Delete
MA	English	2	Delete
MA	Economics	2	Delete
MA	French	2	Delete
MSc	Computer Science	2	Delete
MSc	Mathematics	2	Delete
MSc	Chemistry	2	Delete

Fig. 8.9 Manage Course Page



Add a New Fund

Title:

Description:

Available Funds

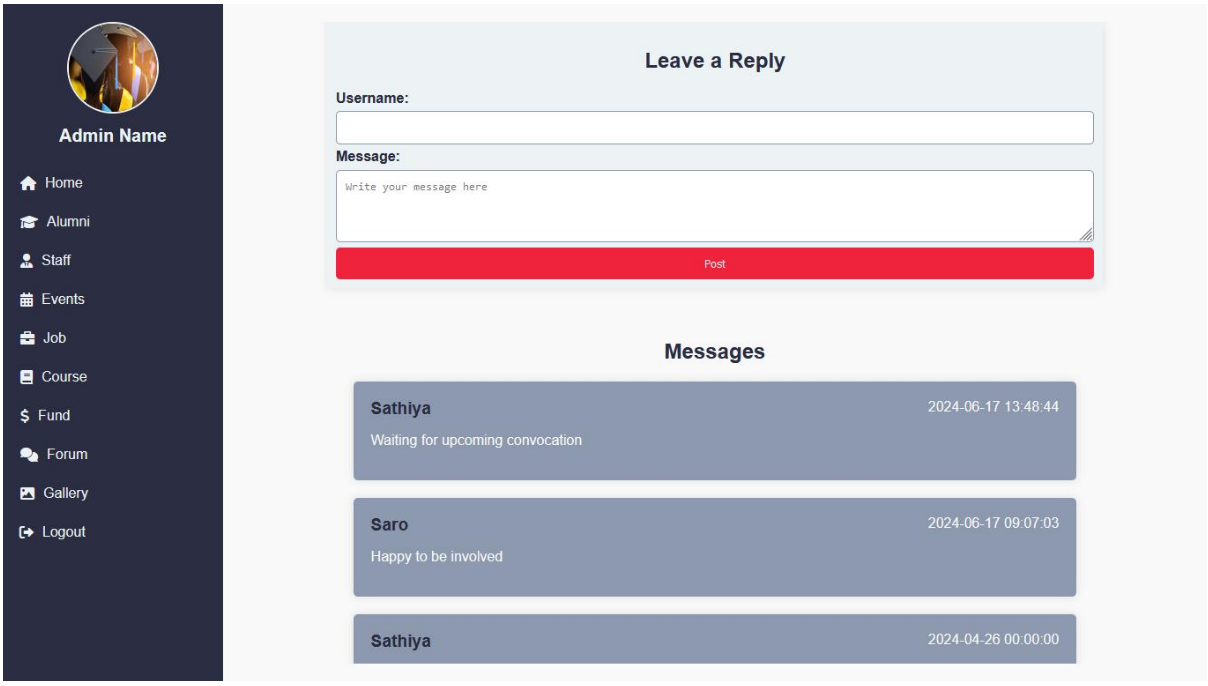
Donate

Make donation to make increment in the college

Convocation

Fund raising for convocation

Fig. 8.10 Manage Fund Page



Leave a Reply

Username:

Message:

Write your message here

Messages

Sathiya 2024-06-17 13:48:44

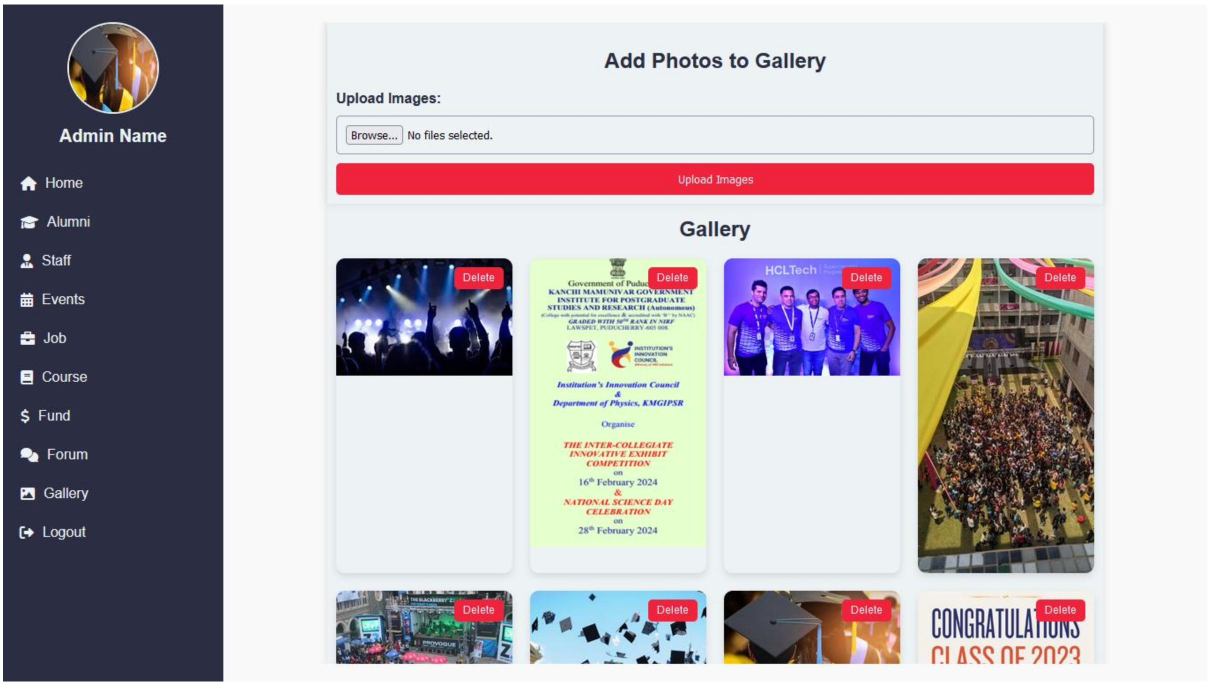
Waiting for upcoming convocation

Saro 2024-06-17 09:07:03

Happy to be involved

Sathiya 2024-04-26 00:00:00

Fig. 8.11 Forum Page



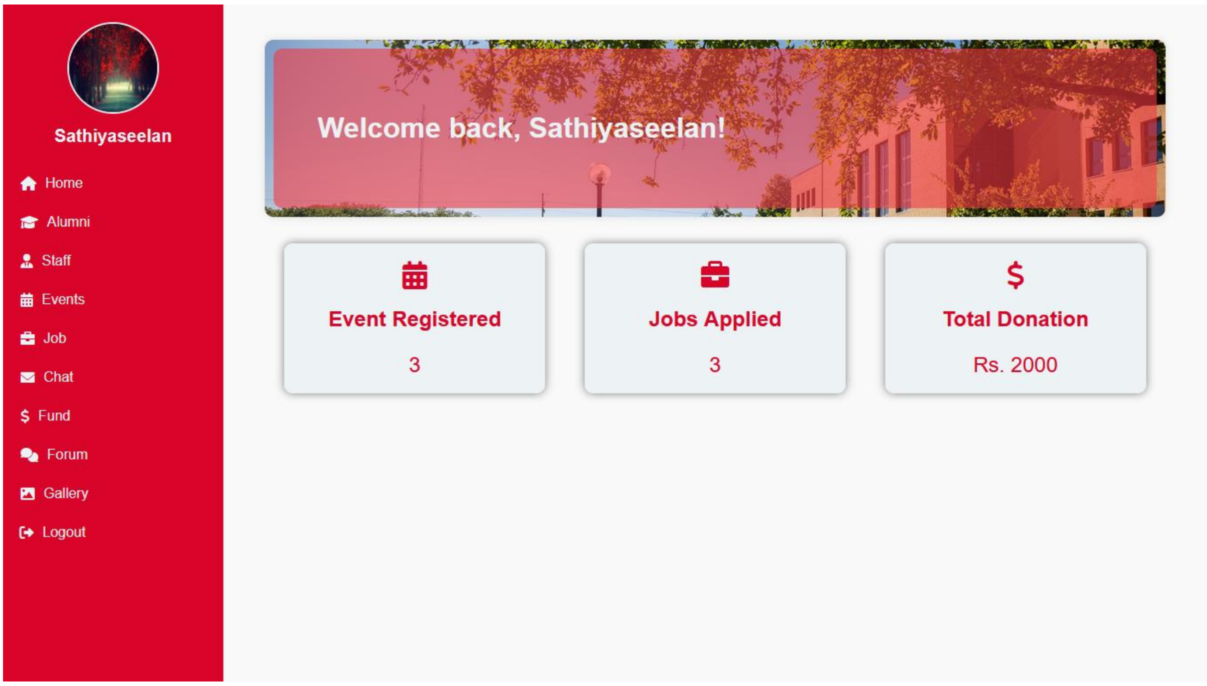
Add Photos to Gallery

Upload Images:

Browse... No files selected.

Gallery

Fig. 8.12 Manage Gallery Page



Welcome back, Sathiyaseelan!

Event Registered

3

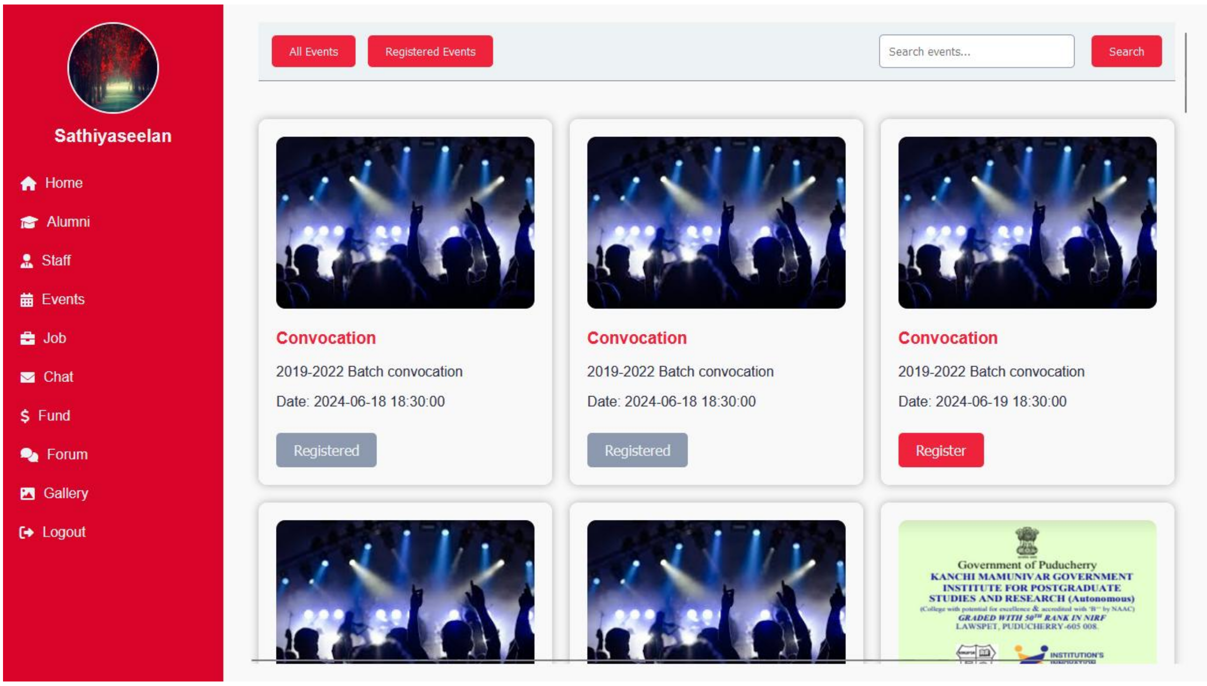
Jobs Applied

3

Total Donation

Rs. 2000

Fig. 8.13 Alumni Dashboard Page


Sathiyaseelan
Home
Alumni
Staff
Events
Job
Chat
Fund
Forum
Gallery
Logout
All Events
Registered Events
Search events...
Search
Registered
Registered
Register

Convocation

2019-2022 Batch convocation

Date: 2024-06-18 18:30:00

Convocation

2019-2022 Batch convocation

Date: 2024-06-18 18:30:00

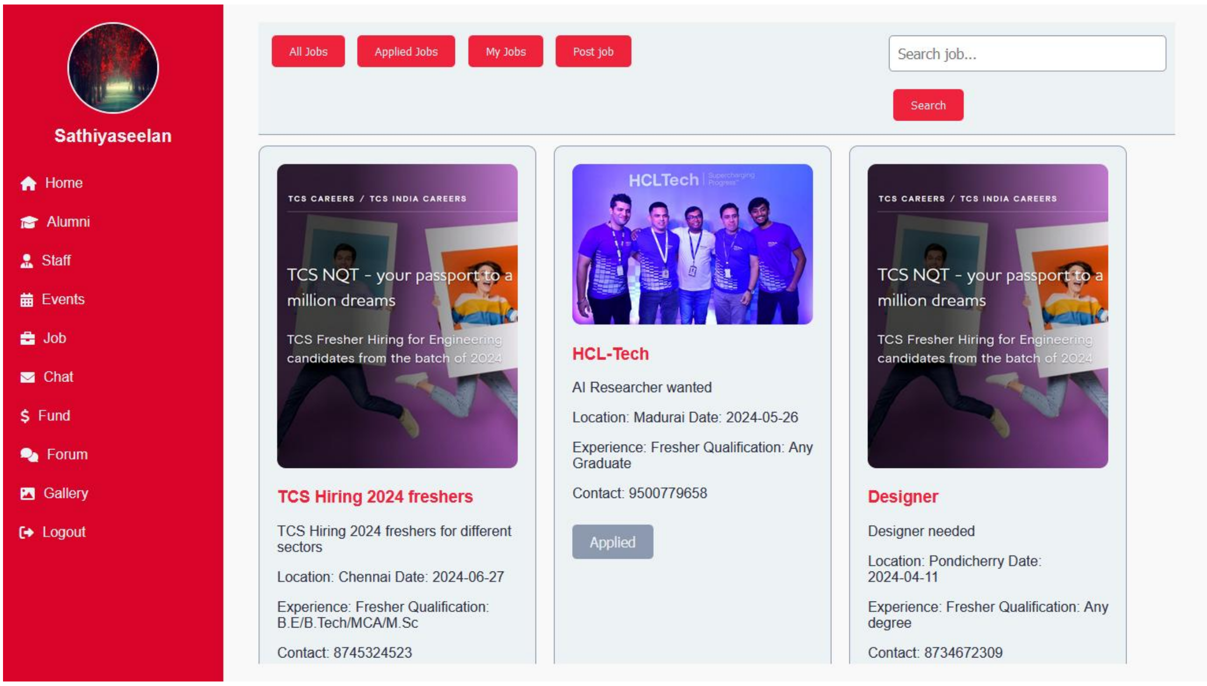
Convocation

2019-2022 Batch convocation

Date: 2024-06-19 18:30:00

Government of Puducherry
KANCHI MAMUNIVAR GOVERNMENT INSTITUTE FOR POSTGRADUATE STUDIES AND RESEARCH (Autonomous)
(College with potential for excellence & accredited with "B" by NAAC)
GRADED WITH 50TH RANK IN NIRF
LAWSPET, PUDUCHERRY-605 008.
INSTITUTION'S

Fig. 8.14 Events Page


Sathiyaseelan
Home
Alumni
Staff
Events
Job
Chat
Fund
Forum
Gallery
Logout
All Jobs
Applied Jobs
My Jobs
Post job
Search job...
Search
TCS CAREERS / TCS INDIA CAREERS
TCS NQT - your passport to a million dreams
TCS Fresher Hiring for Engineering candidates from the batch of 2024
HCLTech
Applied

TCS Hiring 2024 freshers

TCS Hiring 2024 freshers for different sectors

Location: Chennai Date: 2024-06-27

Experience: Fresher Qualification: B.E/B.Tech/MCA/M.Sc

Contact: 8745324523

HCL-Tech

AI Researcher wanted

Location: Madurai Date: 2024-05-26

Experience: Fresher Qualification: Any Graduate

Contact: 9500779658

Designer

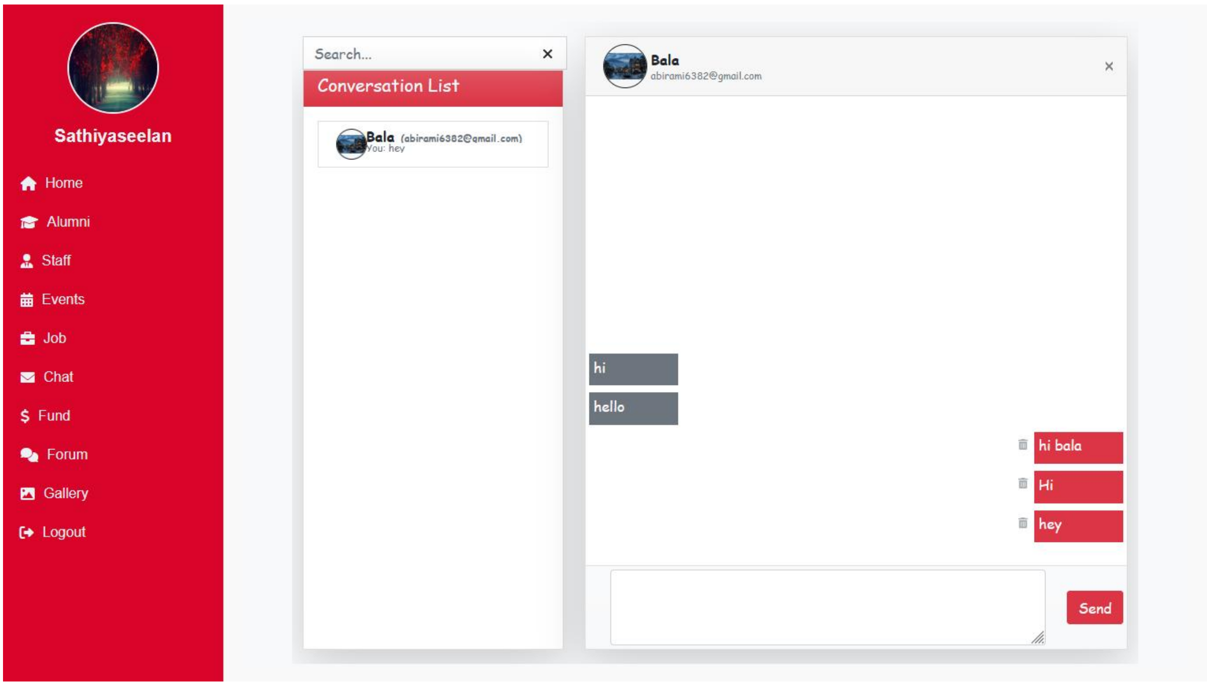
Designer needed

Location: Pondicherry Date: 2024-04-11

Experience: Fresher Qualification: Any degree

Contact: 8734672309

Fig. 8.15 Job Postings Page



Bala (abirami6382@gmail.com)
You: hey

Bala
abirami6382@gmail.com

hi

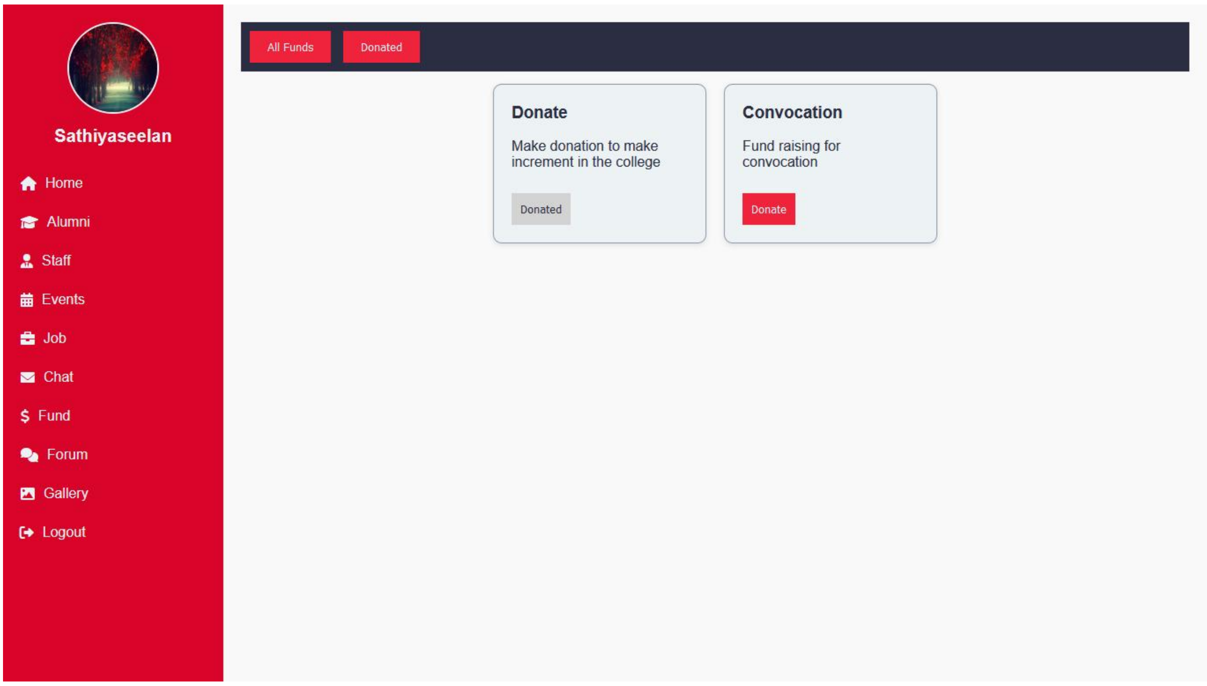
hello

hi bala

Hi

hey

Fig. 8.16 Alumni Chat Page



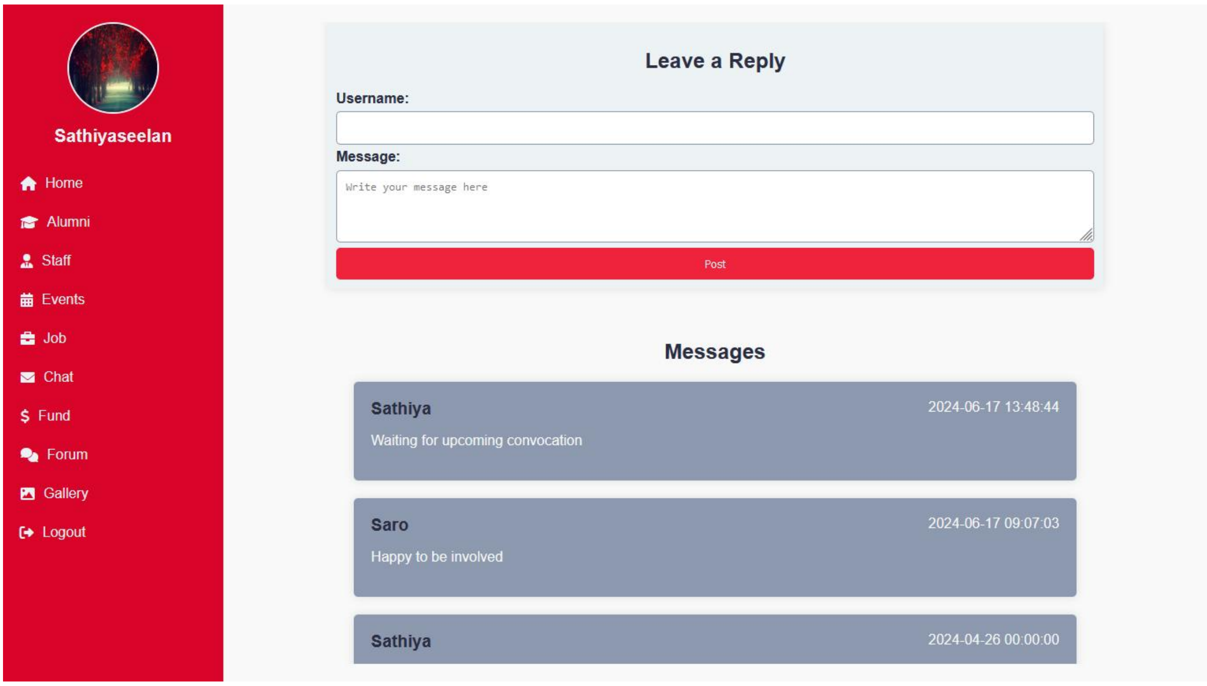
Donate

Make donation to make increment in the college

Convocation

Fund raising for convocation

Fig. 8.17 Donate Page



Leave a Reply

Username:

Message:

Write your message here

Messages

Sathiya 2024-06-17 13:48:44

Waiting for upcoming convocation

Saro 2024-06-17 09:07:03

Happy to be involved

Sathiya 2024-04-26 00:00:00

Fig. 8.18 Forum Page

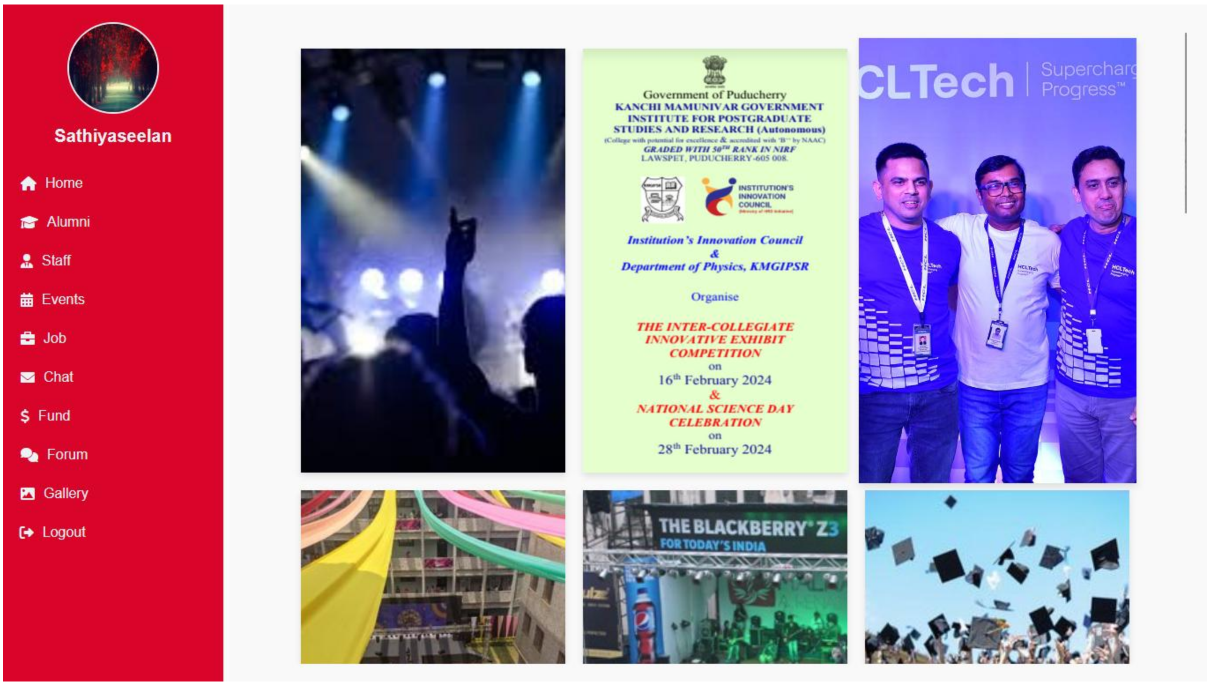
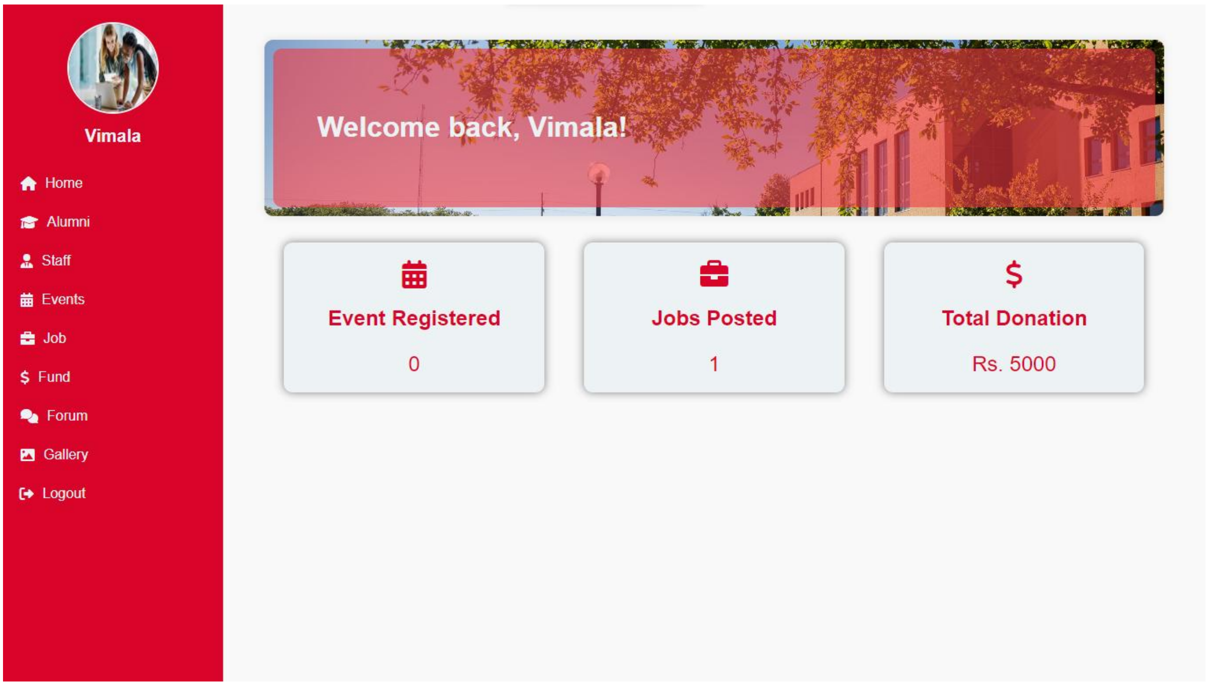

Sathiyaseelan
Home
Alumni
Staff
Events
Job
Chat
Fund
Forum
Gallery
Logout
Government of Puducherry
KANCHI MAMUNIVAR GOVERNMENT INSTITUTE FOR POSTGRADUATE STUDIES AND RESEARCH (Autonomous)
GRADED WITH 50TH RANK IN NIRF
LAWSPET, PUDUCHERRY-605 008.
INSTITUTION'S INNOVATION COUNCIL
Institution's Innovation Council
&
Department of Physics, KMGIPSR
Organise
THE INTER-COLLEGIATE INNOVATIVE EXHIBIT COMPETITION
on
16th February 2024
&
NATIONAL SCIENCE DAY CELEBRATION
on
28th February 2024
CLTech
Supercharg
Progress™
THE BLACKBERRY Z3
FOR TODAY'S INDIA

Fig. 8.19 Gallery Page



Welcome back, Vimala!

Event Registered

0

Jobs Posted

1

Total Donation

Rs. 5000

Fig. 8.20 Staff Dashboard Page