

BiruniSync: Syncing the College and Its Employees for Effective Teamwork and Progress.

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**DEPARTMENT OF COMPUTER SCIENCES
COMSATS UNIVERSITY ISLAMABAD, WAH CAMPUS
WAH CANTT – PAKISTAN**

SESSION 2020-2024

BiruniSync: Syncing the College and Its Employees for Effective Teamwork and Progress.

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**DEPARTMENT OF COMPUTER SCIENCES
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WAH CANTT – PAKISTAN**

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DEDICATION

We begin with the name of ALLAH who is gracious and most merciful. We are indeed blessed by Almighty, who strengthens us with wisdom and acumen to fulfil our project. With the clemency blessings of lord of Wisdom, we were able to do the project with confidence and utmost satisfaction.

This project is also whole heartedly dedicated to our beloved parents, who have been our source of inspiration and gave us strength when we thought of giving up, who continually provide their moral, spiritual, emotional, and financial support. Without their support, we would not be able to complete our project.

We specially thank to our teachers who always motivated and helped us out in our difficult times. To our brothers, sisters, mentors, and friends who share their words of advice and encouragement to finish this project. And lastly, once again we dedicated this project to the Almighty ALLAH who has blessings upon us and with His help, we can complete our project within stipulated time, thank You for Your guidance, strength, power of mind, protection, and skills and for giving us a healthy life. All of these, we offer to You.

Sofia Haider

Mohsin Ali

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All praises to Almighty ALLAH the most merciful and compassionate, without his help and blessing, we were unable to complete this project. This project could not have come above the help, encouragement, and the guidance of the following peoples.

Our respected project supervisor lecturer Main Muhammad Talha. He was available for our guidance whenever we consulted him, he always reserved sometimes for us though being very busy, whenever we needed any help of any nature from him.

We are highly obliged to our teachers, who motivated us from time to time and made us work hard to complete our project.

Salutations to our loving parents whose invaluable prayers, salutary advises and emboldening attitude kept our spirit alive to strive for knowledge and integrity which enabled us to achieve this milestone.

We are short of praising words that express our gratitude for our parents, who patiently faced discomfort just for us.

We can't narrate all emotions just we would like to thank everyone for help from the core of our hearts.

PROJECT BRIEF

PROJECT NAME	BIRUNISYNC
ORGANIZATION NAME	COMSATES UNIVERSITY ISLAMABAD, WAH CAMPUS
OBJECTIVE	ONLINE PLATFORM OFFERS VERIFIED INFORMATION ABOUT COLLEGES, STREAMLINING ADMISSIONS WITH AN ONLINE SYSTEM PROVIDING EDUCATIONAL COUNSELING THROUGH A CHATBOT, ENHANCING ADMINISTRATIVE EFFICIENCY THROUGH AN EMPLOYEE PORTAL
UNDERTAKEN BY	MOHSIN ALI SOFIA HAIDER
SUPERVISED BY	MIAN MUHAMMAD TALHA LECTURER DEPARTMENT OF COMPUTER SCIENCE COMSATS UNIVERSITY ISLAMABAD-WAH CAMPUS
STARTED ON	FEBRUARY 2023
COMPLETED ON	JANUARY 2024
COMPUTER USED	HP LAPTOP.
SOURCE LANGUAGE	HTML, BOOTSTRAP, CSS, JAVASCRIPT AND LARAVEL
OPERATING SYSTEM	WINDOWS
TOOLS USED	VISIO STUDIO

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1. INTRODUCTION

In the digital era, the contours of education are constantly evolving, and our website emerges as a beacon of progress within the realm of academia. This chapter unfolds the narrative of our project, illuminating the purpose-driven path that led to the creation of a digital agora where education meets innovation. From empowering students with streamlined access to educational resources to facilitating staff in managing administrative tasks with efficiency, our website is the embodiment of our commitment to advancing the holistic experience within our college community. As we navigate through the chapters that follow, the story of our digital initiative unfolds—a story of connectivity, accessibility, and a commitment to shaping the future of education.

The main purpose of this system is to facilitate the students and parents and provide authenticated information about the college through an online platform. Parents and students don't need to visit the college. Another feature of this system is that it provides an online admission process for both college staff and the students.

Furthermore, it has an employee portal which reduces the paperwork to streamline HR process by providing online leaves system, training and development programs and HR updates.

1.1 Background of the System

We are developing the system from starch. This college does not have any online portal.

1.2 Objectives of the System

The main objectives are as follows.

- This platform provides verified information about the college to the students and the parents online.
- It simplifies the admission process through an online admissions system.

- For helping students and parents, it provides a chatbot for educational counselling and questions.
- An employee portal will be created to streamline the administrative processes by implementing the online leave system.
- It provides information about academic programs, admission procedures, campus facilities, job postings, online admissions, and latest news to prospective students.
- Employee portal will provide information about their benefits, payroll, policies, and other related topics.

1.3 Significance of the System

The proposed system consists of college website and employee portal. It increases students' and parents' access to verified information, by eliminating the physical visit. This improved accessibility attracts more people and raises public awareness of the college. By means of an online admissions system, it streamlines the admissions process, reducing the paperwork and increasing productivity. Moreover, it provides a chatbot for educational counselling, helping students and parents even more. By streamlining administrative procedures like leave administration and other updates, the employee portal reduces paperwork and improves productivity.

2 REQUIREMENT SPECIFICATIONS

The requirement specification serves as a comprehensive guide, ensuring that the website is tailored to meet the diverse needs of students, staff, and other stakeholders, fostering an enriched and efficient digital environment for educational pursuits.

2.1 Product Scope

The project scope involves developing a college website with employee portal. The website will offer an online admissions system, information management sections, and a chatbot for educational counseling. The employee portal will streamline administrative processes such as leave management and provide access to HR-related information. The system will be designed to be responsive and integrate with databases and external systems. Thorough testing, deployment, and ongoing support are included in the scope to ensure a functional and user-friendly system.

2.2 Product Description

This section encapsulates a detailed overview of our college website's specifications and features, aiming to create a user-friendly and comprehensive digital space for students and staff. The website is meticulously designed to cater to diverse needs, ensuring accessibility, seamless communication, and efficient administrative processes. Together, these specifications contribute to the overall goal of providing an enriched and connected online experience for our college community.

2.2.1 Product Perspective

The college website and employee portal provide a comprehensive platform for employees, parents, and students to access information and communicate. It is made to offer a user-friendly interface that meets the requirements of each user group. The product aims to improve enhance accessibility, streamline workflows, and improve communication within the college community.

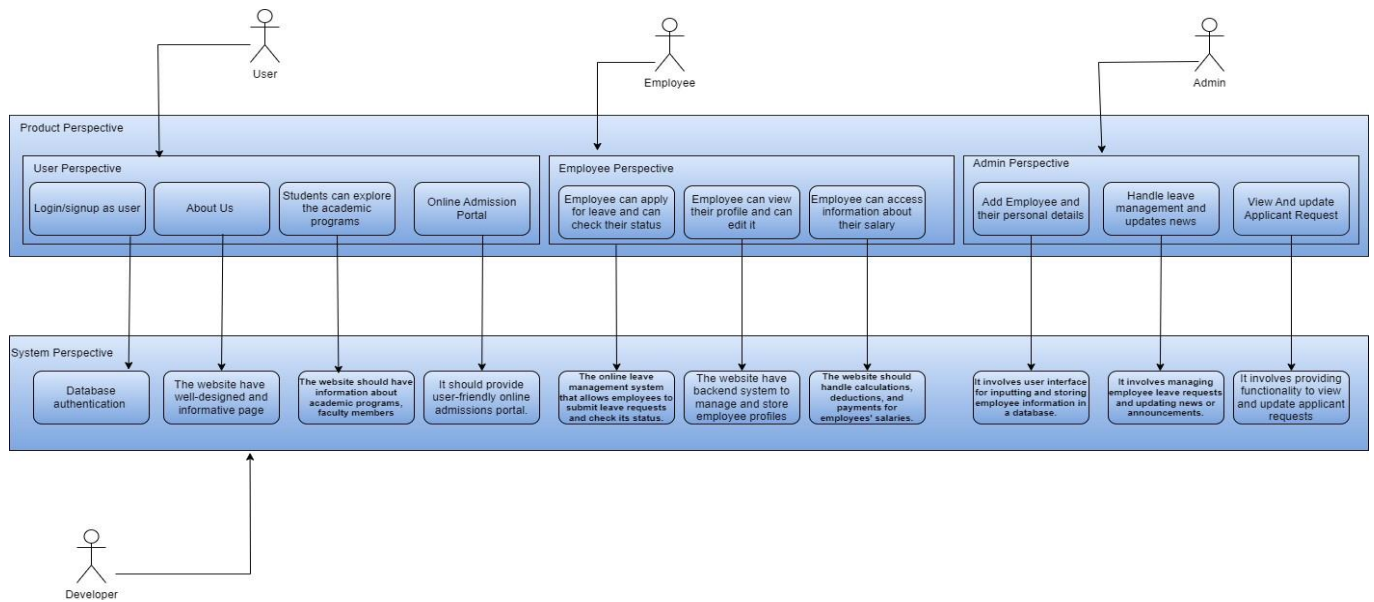


Figure 2.1 Project Perspective

2.2.2 Product Functionality

The product functionalities are as follow:

- **Academic Program Information:** It provides detailed information about the college's academic programs and admission process.
- **Online Admissions System:** It simplifies the application process for students, allowing them to submit applications.
- **Job Postings:** It provides information about the latest jobs which are available.
- **News and Events:** It keeps the college community updated on the latest news, events, conferences, workshops, and guest lectures.
- **Chatbot:** It provides a live chat option for solving the different queries.
- **Employee Portal:** It offers faculty and staff access to leave management, HR policies, payroll details, and benefits.

2.2.3 Users and Characteristics

Students: The need for accurate and up to date information on academic programs, admissions, campus facilities, and career resources characterizes students as one of the primary users.

Parents: It provides comprehensive information about the college, including admission procedures and other information about the college.

Employee: The employees used to access the employee portal for the leave administration systems, payroll details, benefits.

2.2.4 Operating Environment

Operating environments are as follows.

- Windows
- macOS Mojave

2.3 Specific Requirements

In this section we will be discussing the functional requirements of the system

2.3.1 Functional Requirements

- **Online Admission Process**

The website can provide an online application method to make the admissions process easier. Applications should be electronic, with the option for applicants to add additional information and check the status of their submissions.

- **Job Postings**

Website should be devoted to job opportunities internships, and career possibilities. Employees and recent graduates should be able to search for and apply for these jobs.

- **News and Announcements**

The college administration can post announcements, updates, and important events. To keep viewers up to date on the most recent events on campus, this section needs to be updated frequently.

- **Chatbot:**

The website should have a chatbot or live chat feature to answer the questions. It must be able to respond to frequently asked questions, direct visitors through the website's capabilities.

- **Employee Portal:**

The employees used to access the employee portal for the leave administration systems, payroll details, benefits.

- **Online Leave Management:**

The employees can apply for the leave through employee portal online, it is used to reduce the manual work.

- **Academic Program Information:** It provides detailed information about the college's academic programs and admission process.

2.3.2 Behavioral Requirements

Embarking on the journey to design a college website, our focus extends beyond technical functionalities to the behavioral requirements that define the user experience. A fundamental aspect of this digital space lies in the intuitive user registration and login processes, ensuring secure and effortless access for students, staff, and administrators.

2.3.3 Use Case

In the context of our college website development, use cases serve as vital scenarios outlining practical interactions. These detailed narratives, woven into the fabric of our report, guide the development process by offering insight into real-world situations. Figure 2.2 represents the use case diagram.

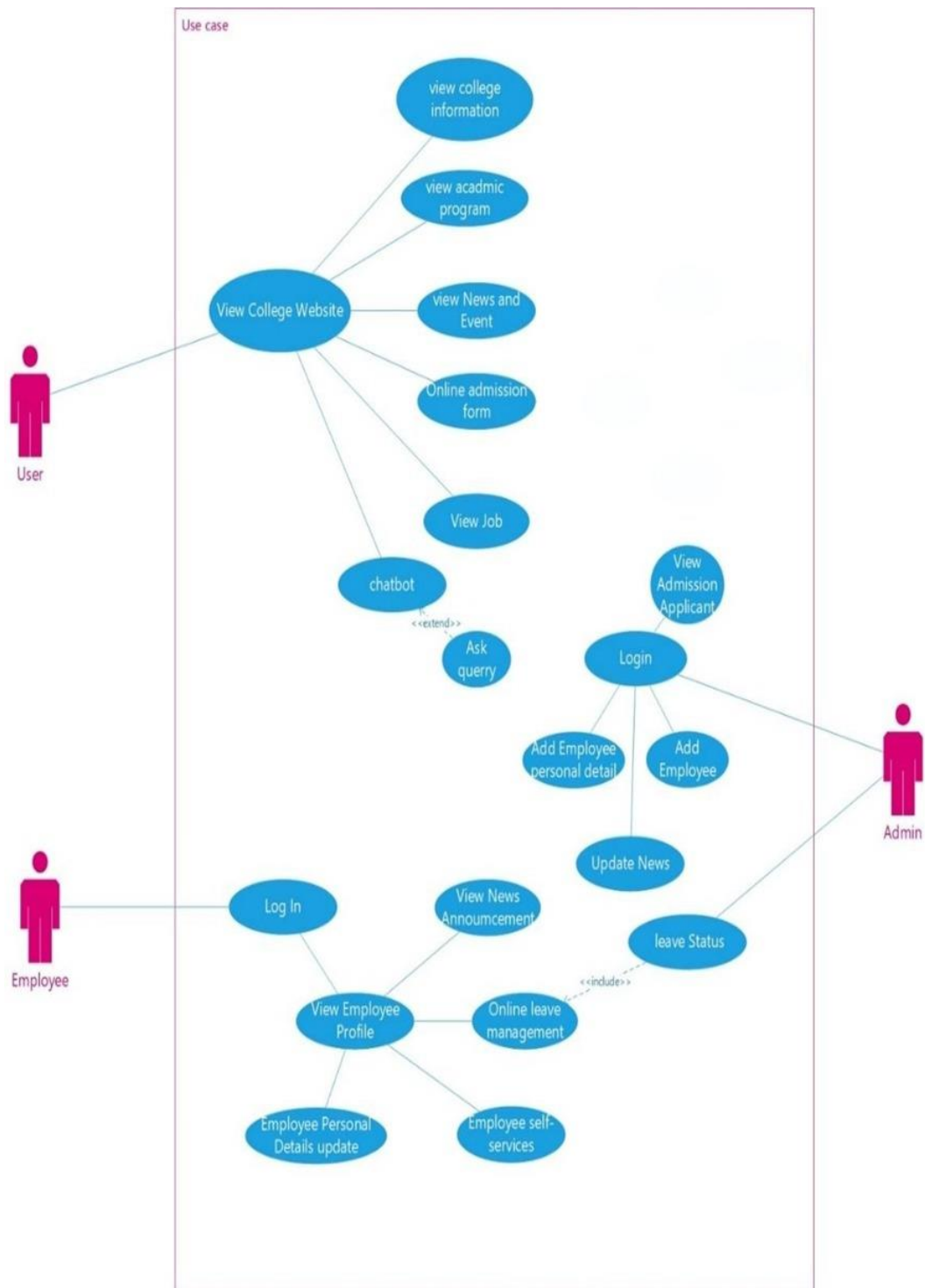


Figure 2.2 Use Case

2.3.4 External Interface Requirements

Navigating the digital landscape of our college website is a visually compelling experience, offering an inviting and organized interface. The homepage serves as a central hub, providing quick access to critical sections such as admissions, course details, and campus announcements. The design is responsive and user-friendly, ensuring an optimal viewing experience across devices. Aesthetic simplicity meets functional clarity, making information easily accessible for students, staff, and external visitors alike.

- *User Interface*

The following Figure 2.3 shows the interface of the website of the educational institution.

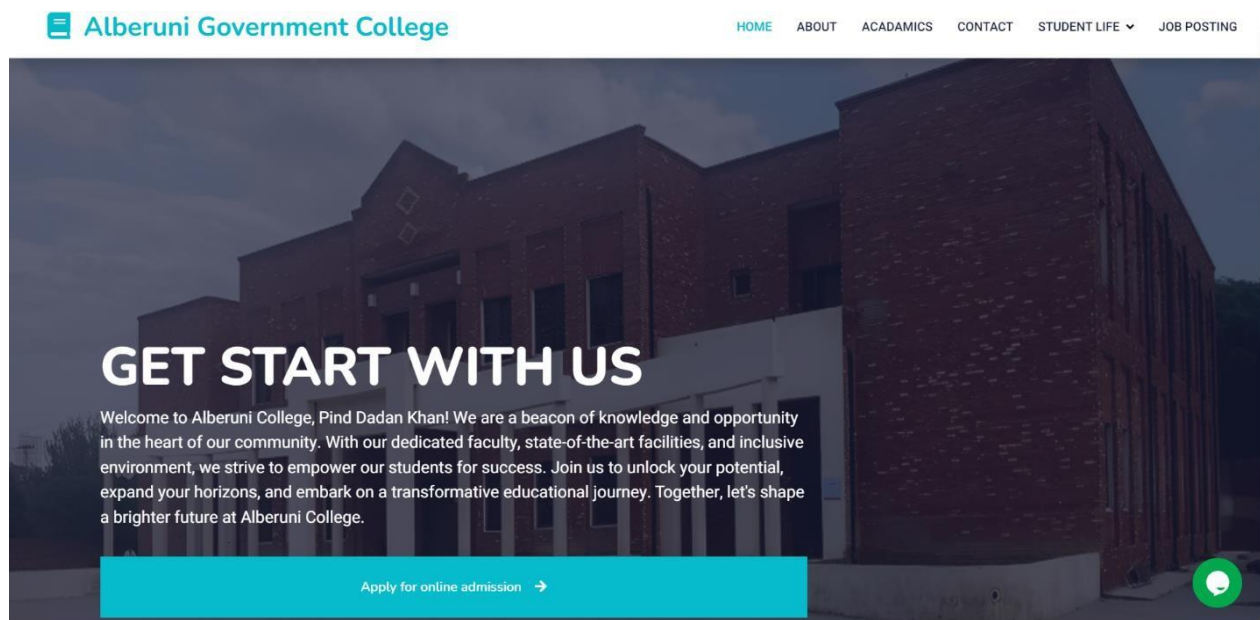


Figure 2.3 Web frontpage

- ***Live chatting option***

The following figure shows the live chat option from the website of the Institution to facilitate the students and their parents.

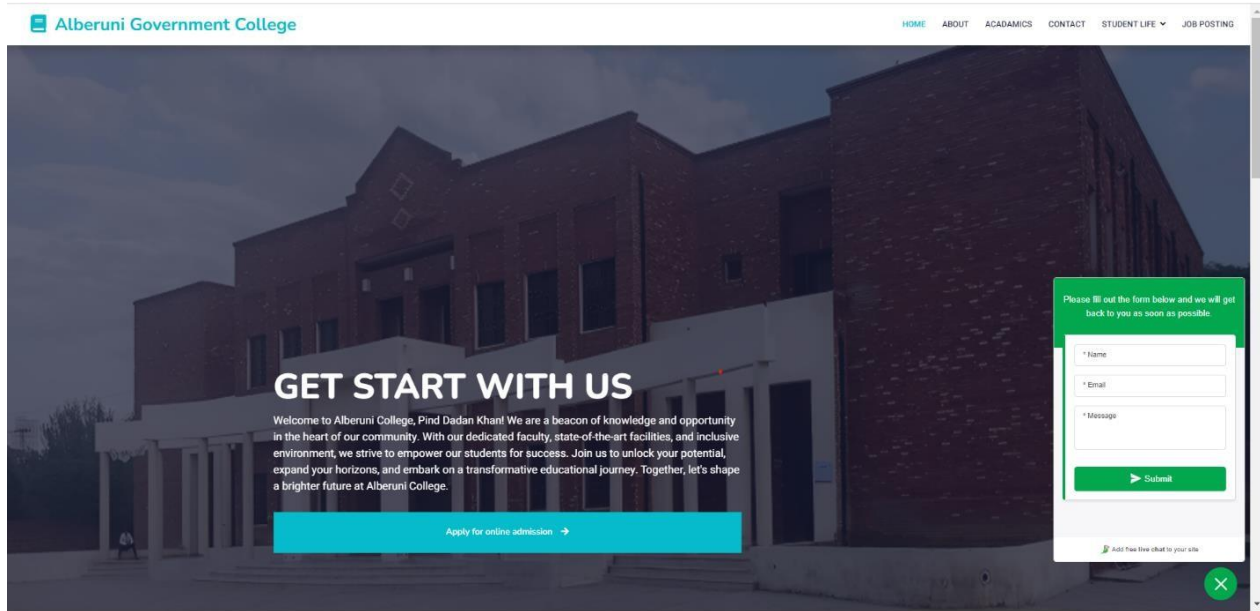


Figure 2.4 Live chatting option

- ***Interface of the page about college***

The following figure shows the interface about college.

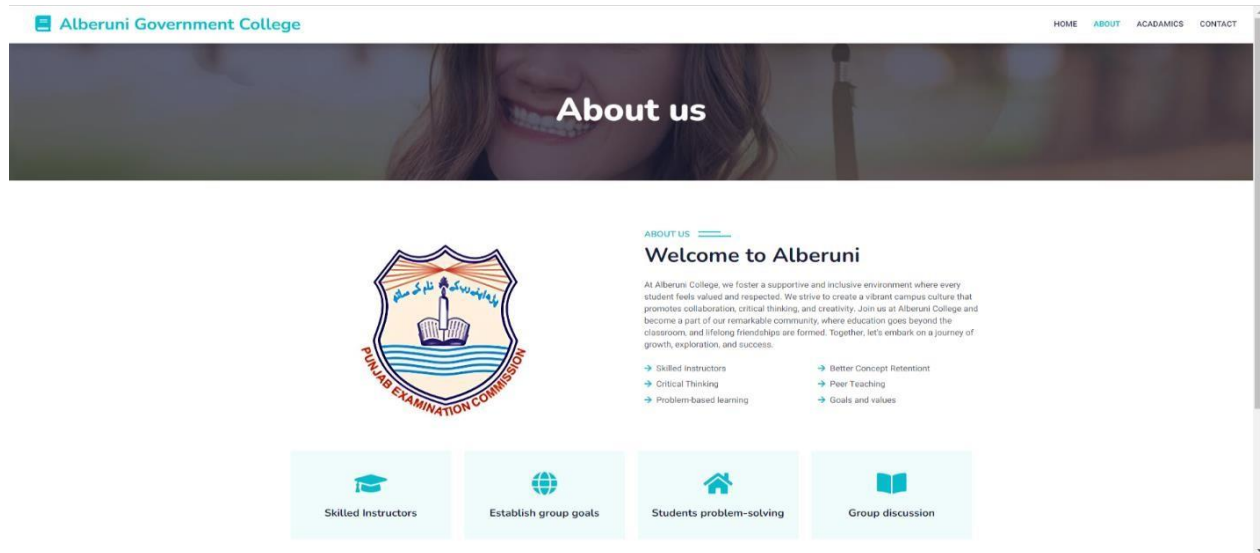


Figure 2.5 About college

- *Selection of courses*

From the following page, students can select the courses to study from the programs that are available in the college.

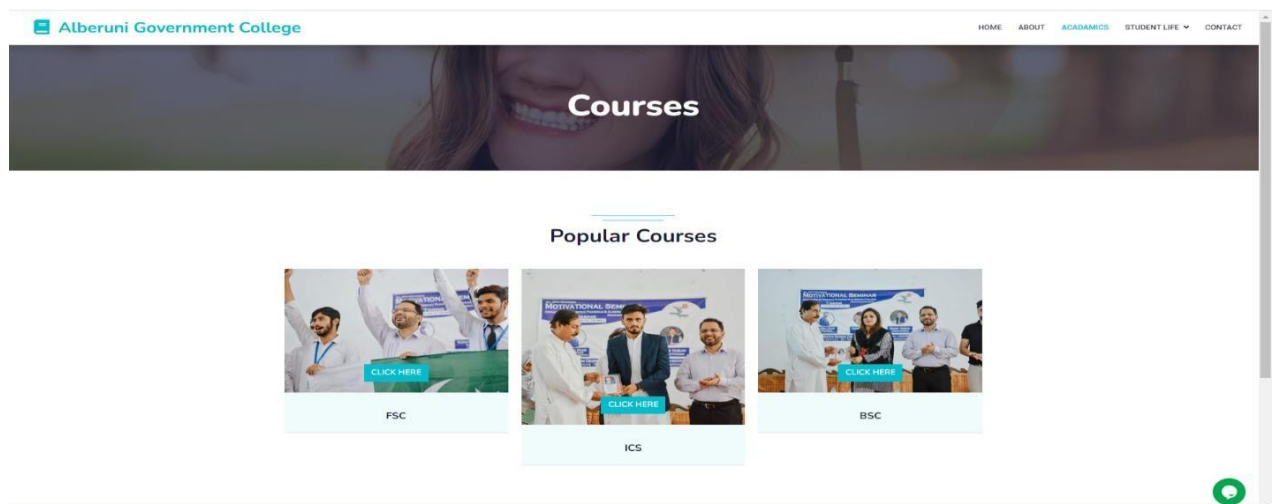


Figure 2.6 Offered courses.

- *News and events*

The following figure shows the webpage for news and events.

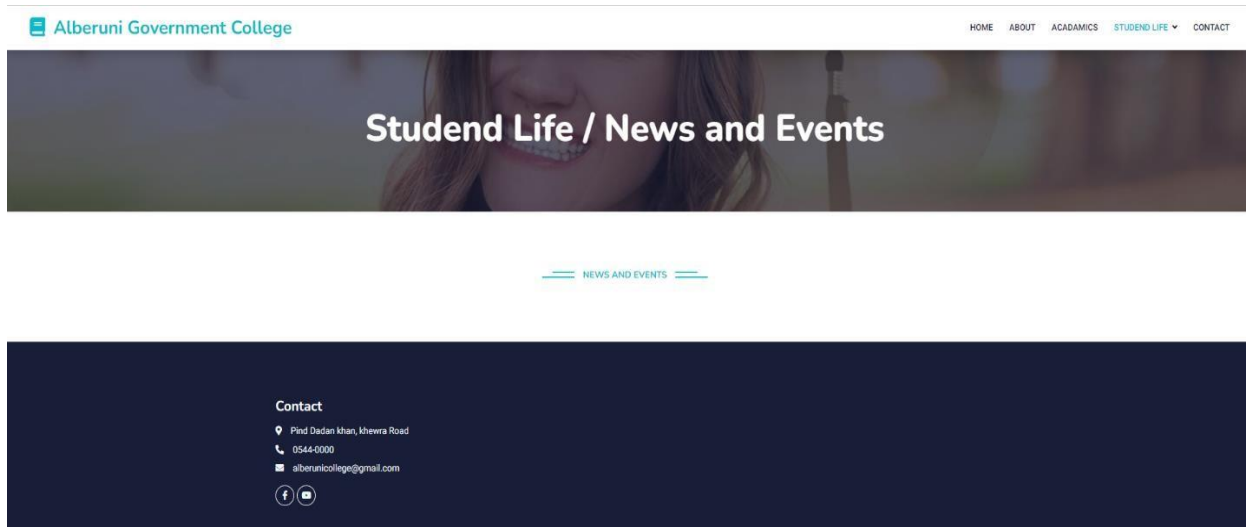


Figure 2.7 news and events

- *College contacts*

Following figure shows the webpage for the contacts of the institution.

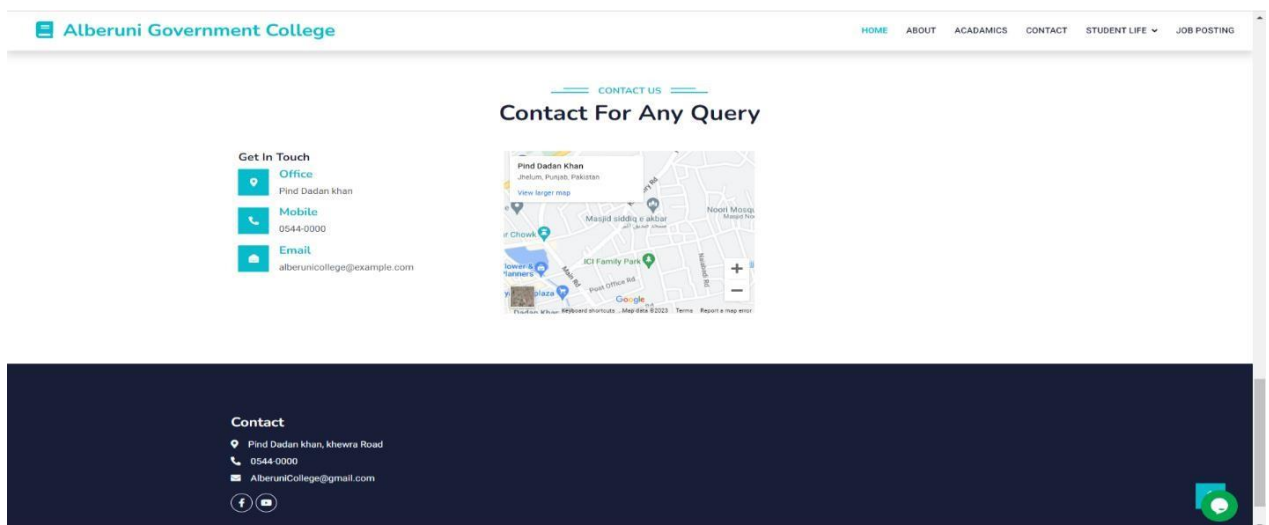


Figure 2.8 College contact

- ***Job Portal***

The following page demonstrates the job portal where the new vacancies will be available for the candidates for teaching and nonteaching staff for the institution.

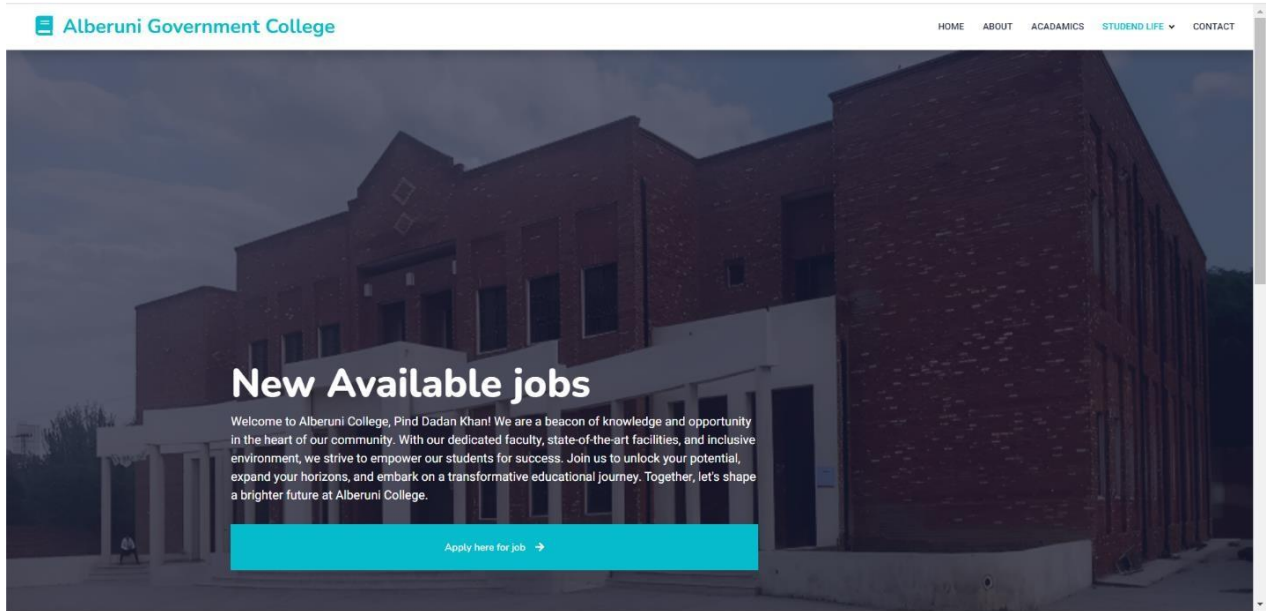


Figure 2.9 Apply for job.

- ***Employee form***

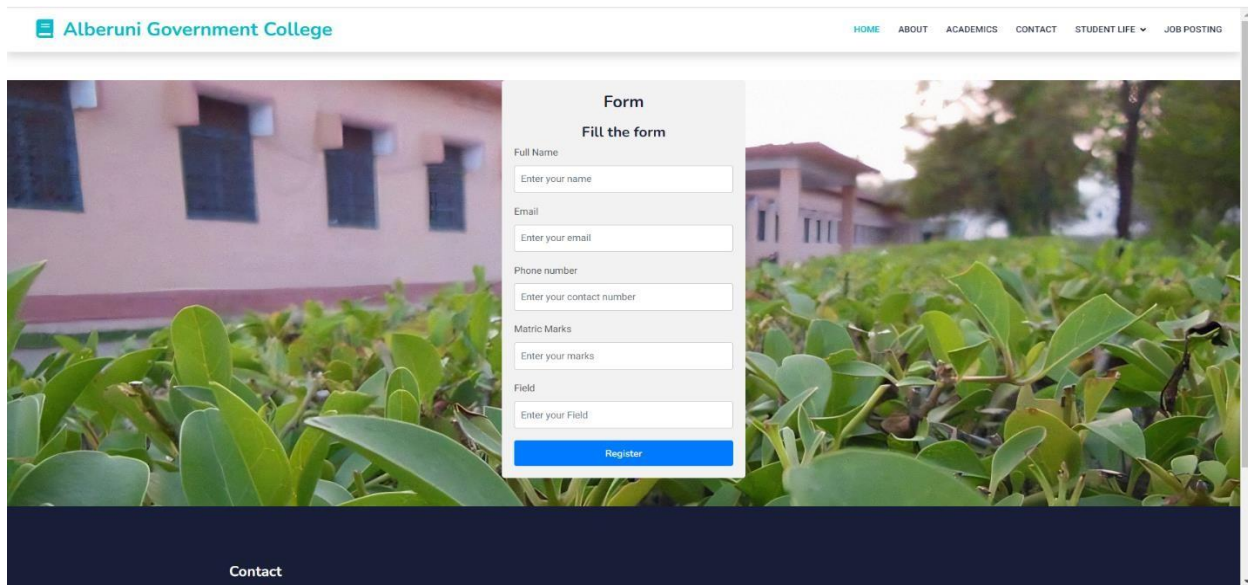
The following webpage is showing the employee form.

The screenshot displays the 'Employee's Information' form on the Alberuni Government College website. The form is a light blue overlay on a background image of green foliage. It contains several input fields: 'Employee Name', 'Employee Registration #', 'Employee Email', 'Employee Phone Number', a password field with 'saad' entered, and a 'Confirm Password' field. There is a checkbox for 'Accept the Terms and Conditions' and a 'Choose file' button. At the bottom of the form is a large blue button labeled 'ADD Employee'. The website's header and navigation menu are visible at the top.

Figure 2.10 Employee Form

- ***Admission Form***

Following is the webpage for the students to apply for admission in the college.



The screenshot shows the website for Alberuni Government College. The header includes the college name and a navigation menu with links: HOME, ABOUT, ACADEMICS, CONTACT, STUDENT LIFE, and JOB POSTING. The main content area features a large background image of a building and greenery. Overlaid on this is a 'Form' titled 'Fill the form'. The form contains five input fields: 'Full Name' (with placeholder 'Enter your name'), 'Email' (with placeholder 'Enter your email'), 'Phone number' (with placeholder 'Enter your contact number'), 'Matric Marks' (with placeholder 'Enter your marks'), and 'Field' (with placeholder 'Enter your Field'). A blue 'Register' button is positioned at the bottom of the form. A dark blue footer bar at the bottom of the page contains the word 'Contact'.

Figure 2.11 Admission Form

- ***Admin/Employee Portal***

The following figure 2.12 is demonstrating the view for Admin and employee panel. This portal asks for the login before using the further functionality. Figure 2.13 and Figure 2.14 shows the view for before and after login of the admin in the system respectively. Figure 2.15 and 2.16 shows the view for before and after login for employee in the system respectively.

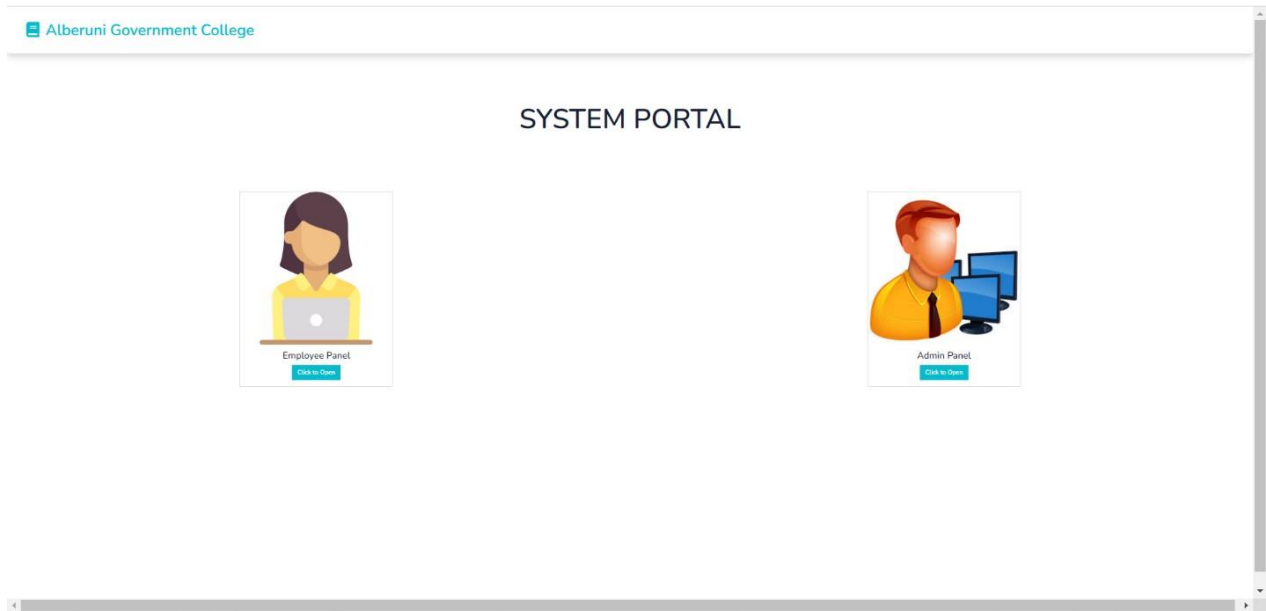


Figure 2.12 Admin and employee portal

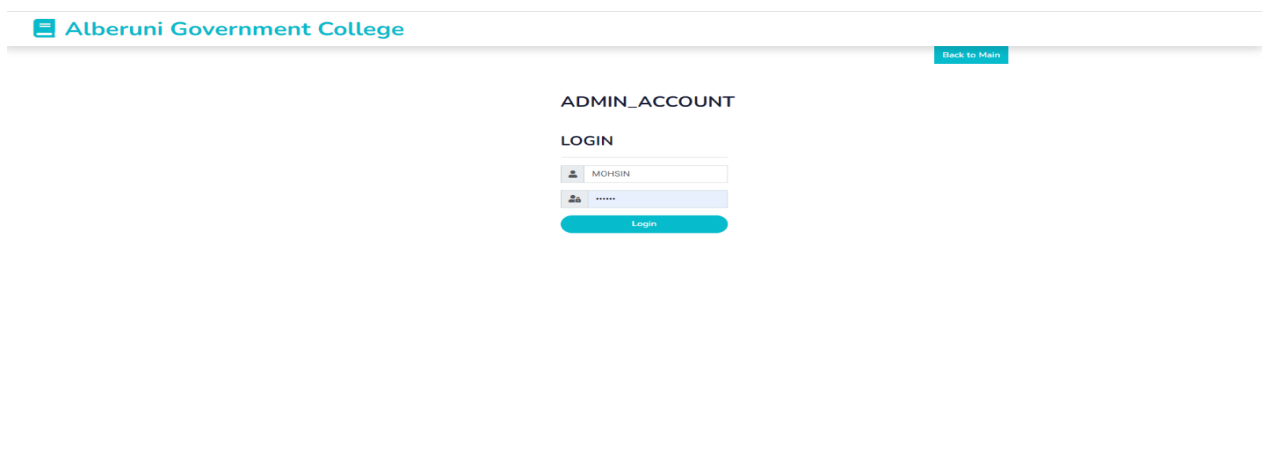


Figure 2.13 Admin panel before login

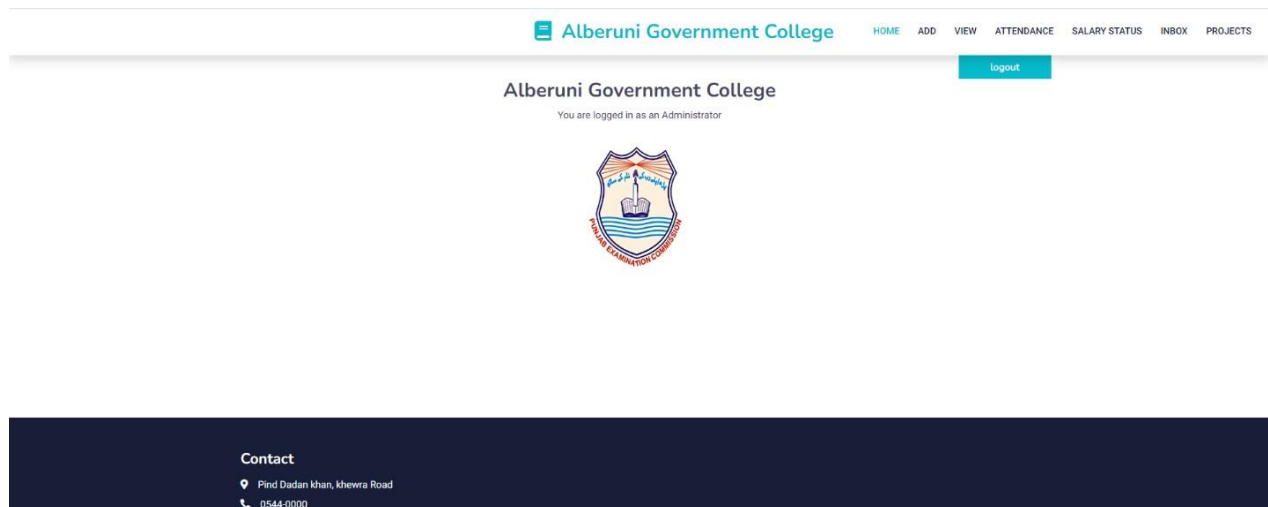


Figure 2.14 Admin panel after login

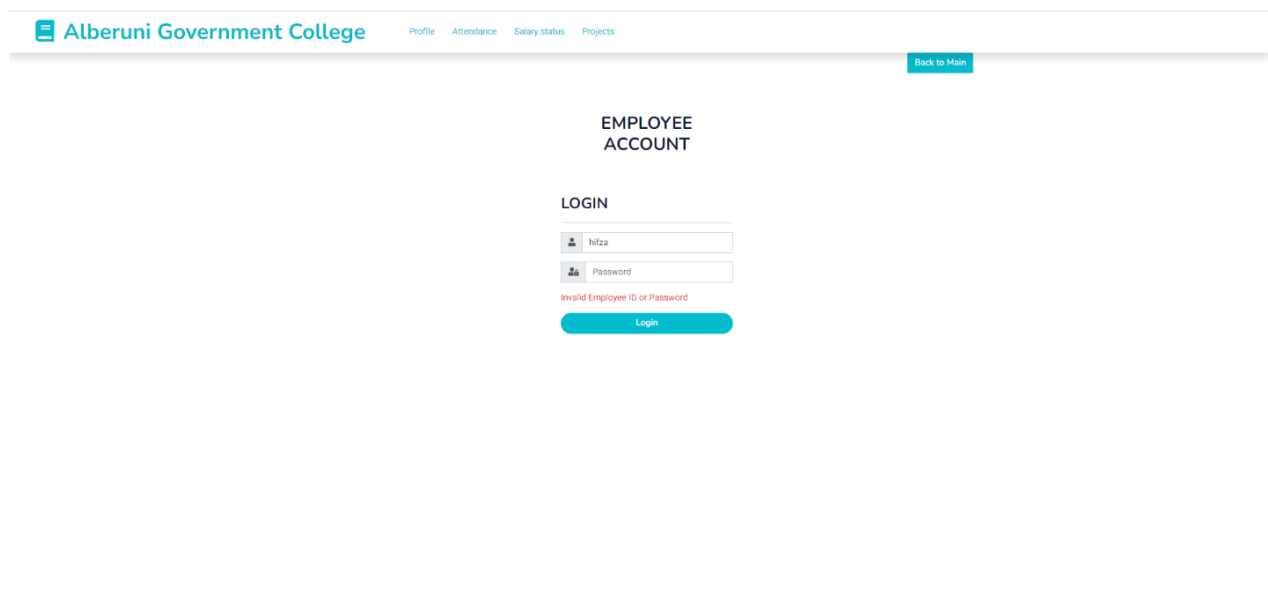


Figure 2.15 Employee panel before login

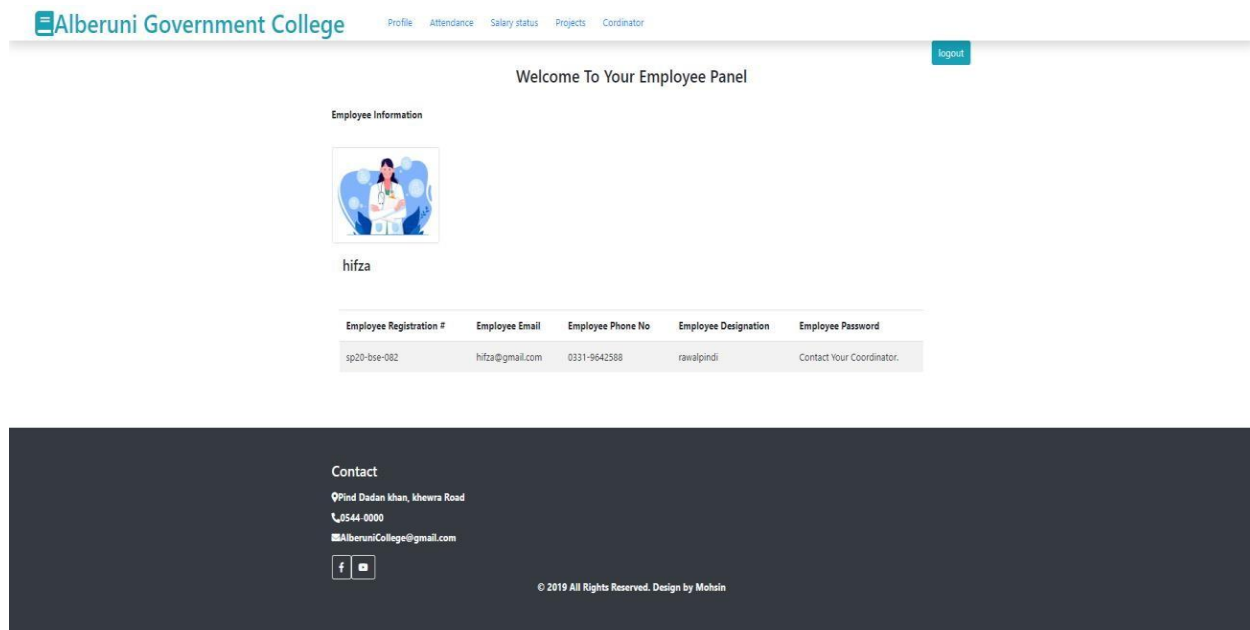


Figure 2.16 Employee panel after login

2.4 Non-functional Requirements

The non-functional requirements are given below:

2.4.1 Performance Requirements

Performance requirements includes:

- **Website Performance**
 - **Page Load Time**

The website should load within 3 seconds to ensure a smooth user experience and minimize user frustration.

- **Responsiveness**

All user interactions, such as clicks and form submissions, should have a response time of less than 1 second to provide real-time feedback to the users.

- **Concurrent Users**

The website should be able to manage a minimum of 500 concurrent users without significant degradation in performance.

2.4.2 Online Admissions Portal

Application Submission: The online admissions portal should allow applicants to submit their applications within 5 minutes to ensure a seamless application process.

Application Processing: Once submitted, the system should process and provide confirmation of application receipt within 1 hour to keep applicants informed about the status of their applications.

2.4.3 Employee Self-Service

Employee self-services are given below:

- ***Employee Profile Update***

Any updates made to the employee profile should be reflected immediately to ensure accurate and up-to-date information for all users.

- ***Leave Request Processing***

The system should process leave requests within 1 business day and provide confirmation to the employee, enabling efficient leave management.

- ***Messaging Response Time***

The messaging feature should have a response time of less than 1 second to support real-time communication and collaboration between employees.

File Upload and Download: Uploading and downloading files should be fast and efficient, with an average transfer rate of at least 1 MB per second, to facilitate smooth collaboration and file sharing.

2.4.4 Performance Management:

Performance Evaluation Submission: The system should allow managers to submit performance evaluations for employees within 2 weeks of the evaluation period to ensure timely feedback and performance reviews.

2.4.5 Safety and Security Requirements

Safety Requirements of the system are as follows:

- The college portal and employee portal are completely safe to use.
- The system should be able to protect the privacy of employee data.

2.4.6 Software Quality Attributes

Software quality attributes are given below:

- ***Reliability***
 - The college website and employee portal shall have a high level of reliability, minimizing the occurrence of failures or errors.
 - The system should be available for at least 99.9% of the time, excluding scheduled maintenance windows, to ensure uninterrupted access for users.
 - The website and portal should have mechanisms in place for graceful error handling and recovery, ensuring minimal disruption to user experience in case of errors or failures.
 - The system should have proper logging and monitoring capabilities to detect and respond to any potential reliability issues promptly.
- ***Usability***
 - The college website and employee portal should have a user-friendly interface, with intuitive navigation and clear instructions, to facilitate ease of use for both students and employees.
 - The system should provide appropriate feedback to user actions, ensuring that users understand the outcome of their interactions and can easily recover from errors.
 - The website and portal should be designed with responsive and accessible features, accommodating users with diverse needs, such as those with disabilities or using assistive technologies.
 - Usability testing should be conducted to gather feedback from users and identify areas for improvement in the user interface and overall user experience.

- ***Maintainability***

- The website and employee portal should be designed and developed using modular and well-structured code, following coding best practices and design patterns, to facilitate ease of maintenance and future enhancements.
- Documentation, including code comments and system architecture documentation, should be provided to aid developers in understanding and maintaining the system.
- The system should have version control in place, enabling efficient tracking of changes and ensuring proper management of code and configuration files.
- Regular code reviews and refactoring should be conducted to maintain code quality and reduce technical debt.
- The system should be designed for change, allowing for easy modification and extension as the college's requirements evolve.

- ***Security***

- The college website and employee portal shall have robust security measures in place to protect against unauthorized access, data breaches, and malicious activities.
- Secure coding practices should be followed to prevent common vulnerabilities, such as SQL injection or cross-site scripting (XSS).
- Regular security assessments and penetration testing should be performed to identify and address any security vulnerabilities.
- The system should comply with relevant security standards and regulations, ensuring the protection of user data and maintaining privacy.

- ***Performance***

- The college website and employee portal should be designed to deliver optimal performance, providing a smooth and responsive user experience.
- Response times for common actions, such as page loading or form submissions, should be within acceptable limits (e.g., less than 3 seconds) to avoid user

frustration.

- Load testing should be conducted to ensure that the system can handle expected user traffic and perform efficiently even during peak usage periods.
- Performance monitoring and optimization should be performed regularly to identify and address any bottlenecks or performance issues.

3 DESIGN SPECIFICATIONS

3.1 Introduction

This section of the design document consists of fundamental design which represents logical and the structural view of the system, and the algorithm that highlights an abstract view of functional requirements of this system Composite Viewpoint.

3.1.1 Deployment

The following figure shows the deployment strategy of the website in mobile phone and PCs.

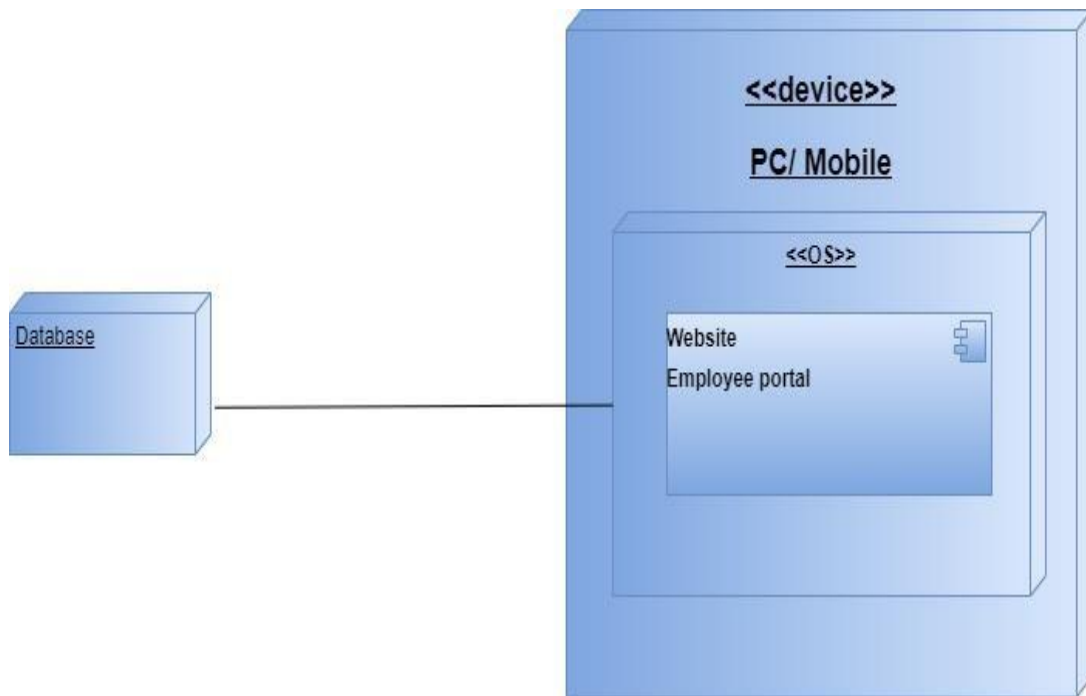


Figure 3.1 Deployment strategy

3.2 Logical Viewpoint

In this section the logical viewpoint of the system is represented.

3.2.1 Class Diagram

Following is the class diagram of the website.

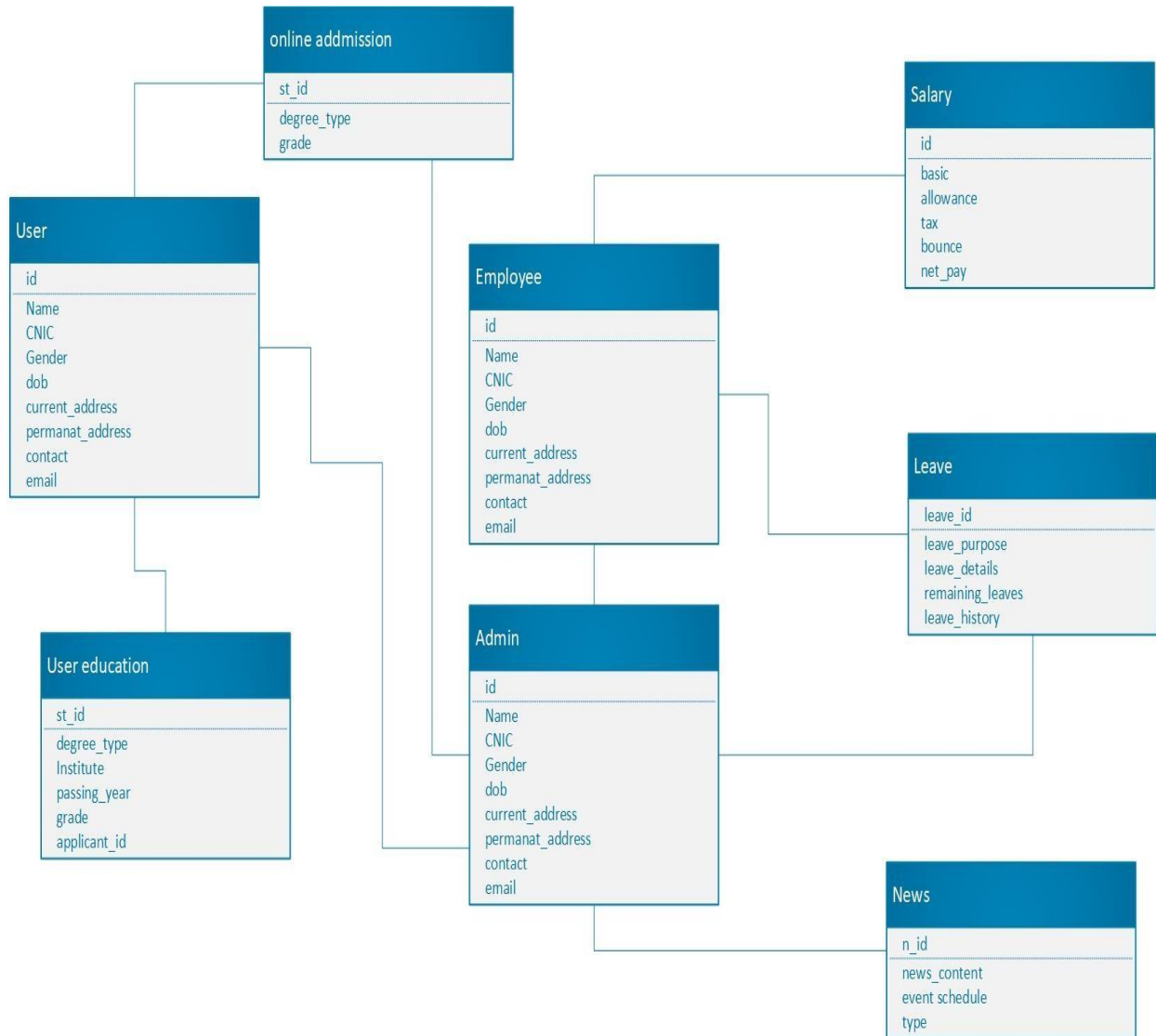


Figure 3.2 Class diagram

3.3 Information Viewpoint

This section is demonstrating the entire system in more informative way with the help of entity-Relationship diagram ERD.

3.3.1 ERD diagram

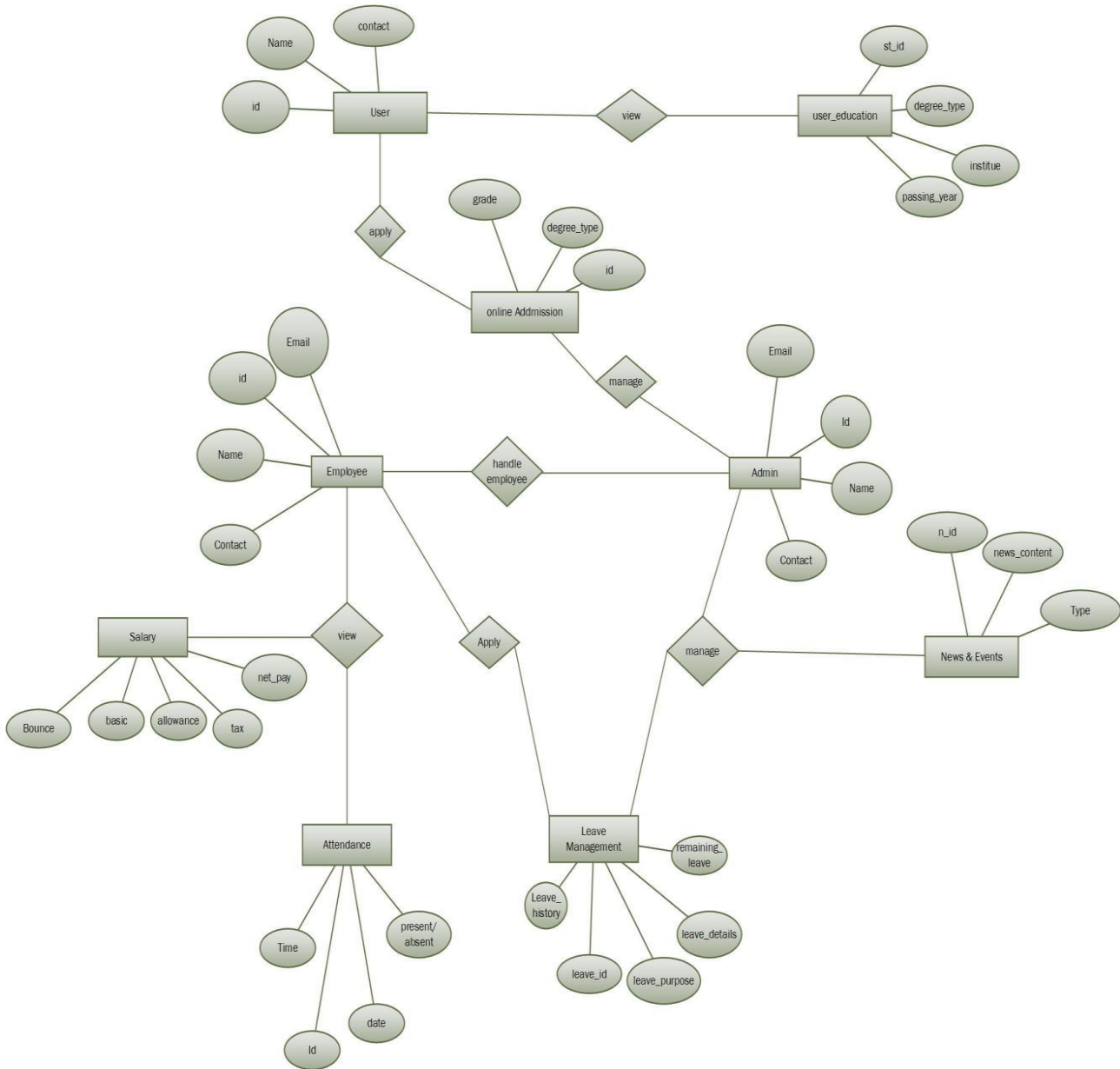


Figure 3.3 ERD

3.4 Interaction Viewpoint

This section represents the website in term of sequence diagram.

3.4.1 User Sequence

The following diagram demonstrates the sequence diagram of users.

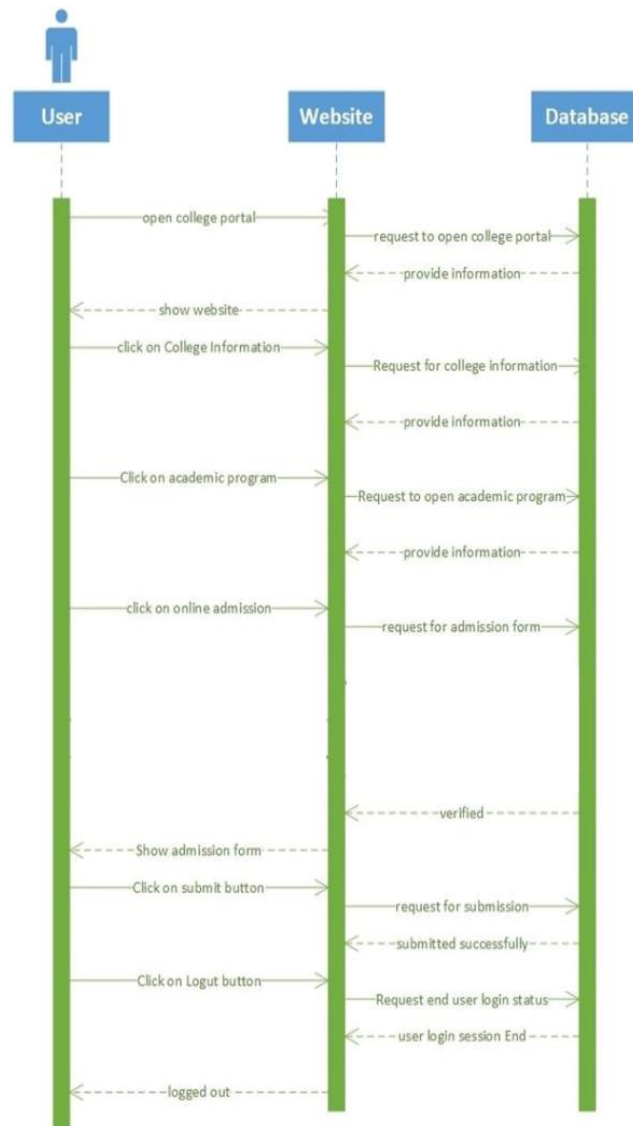


Figure 3.4 User sequence diagram

3.4.2 Employee Sequence

Following is the sequence diagram of the employee.

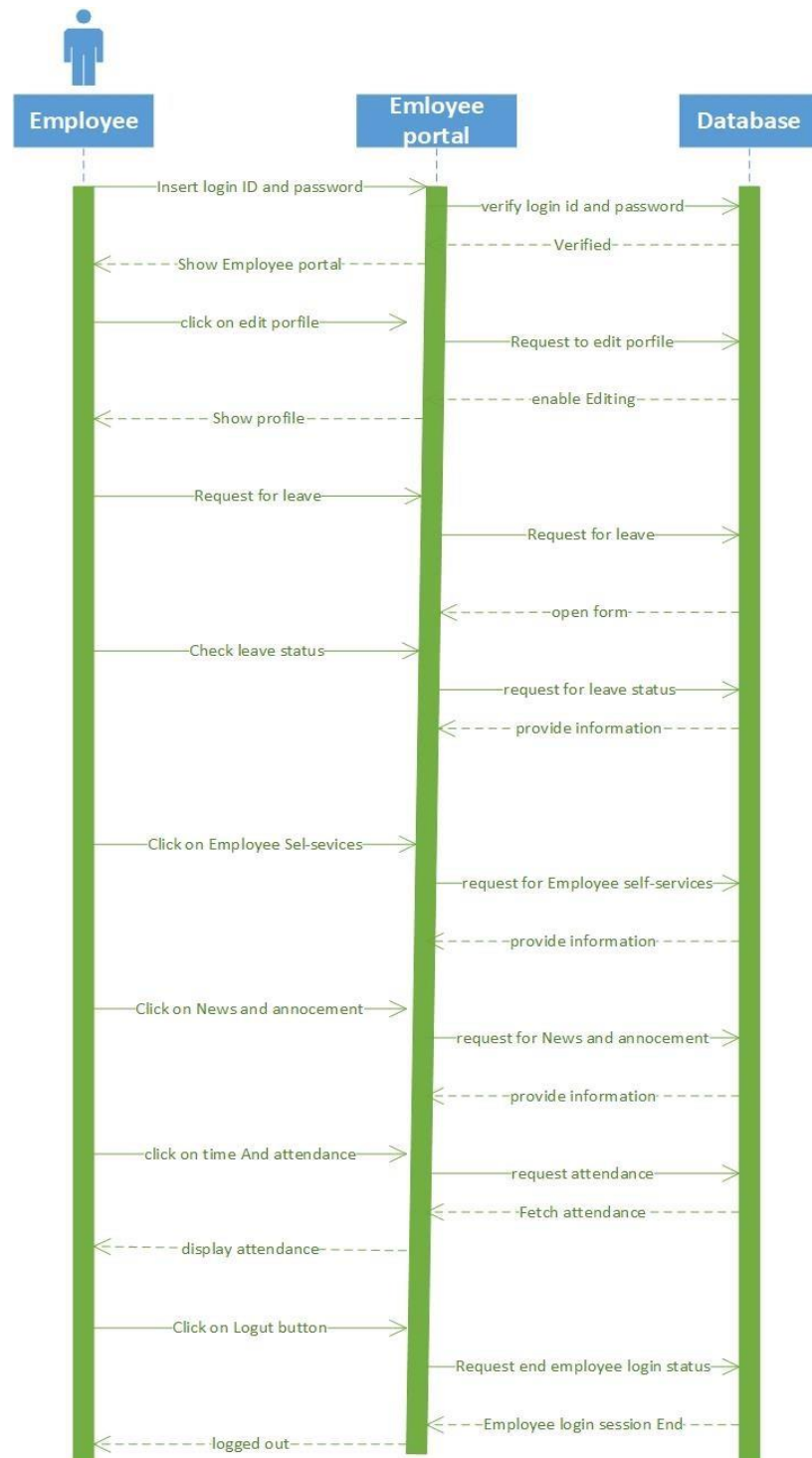


Figure 3.5 Employee sequence diagram

3.4.3 Admin Sequence

Following is the sequence diagram of the admin.

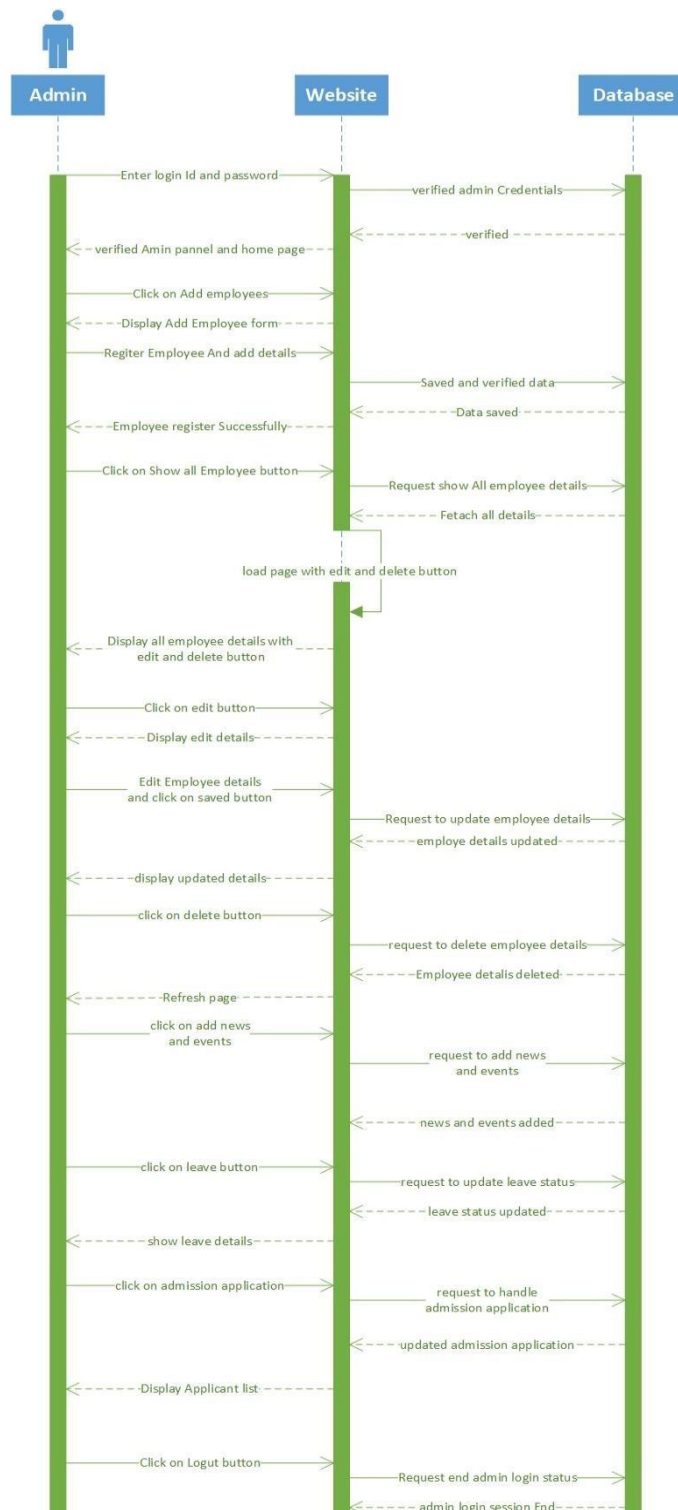


Figure 3.6 Admin sequence diagram

3.5 State Dynamics Viewpoint

The following figure is about the state dynamics viewpoint.

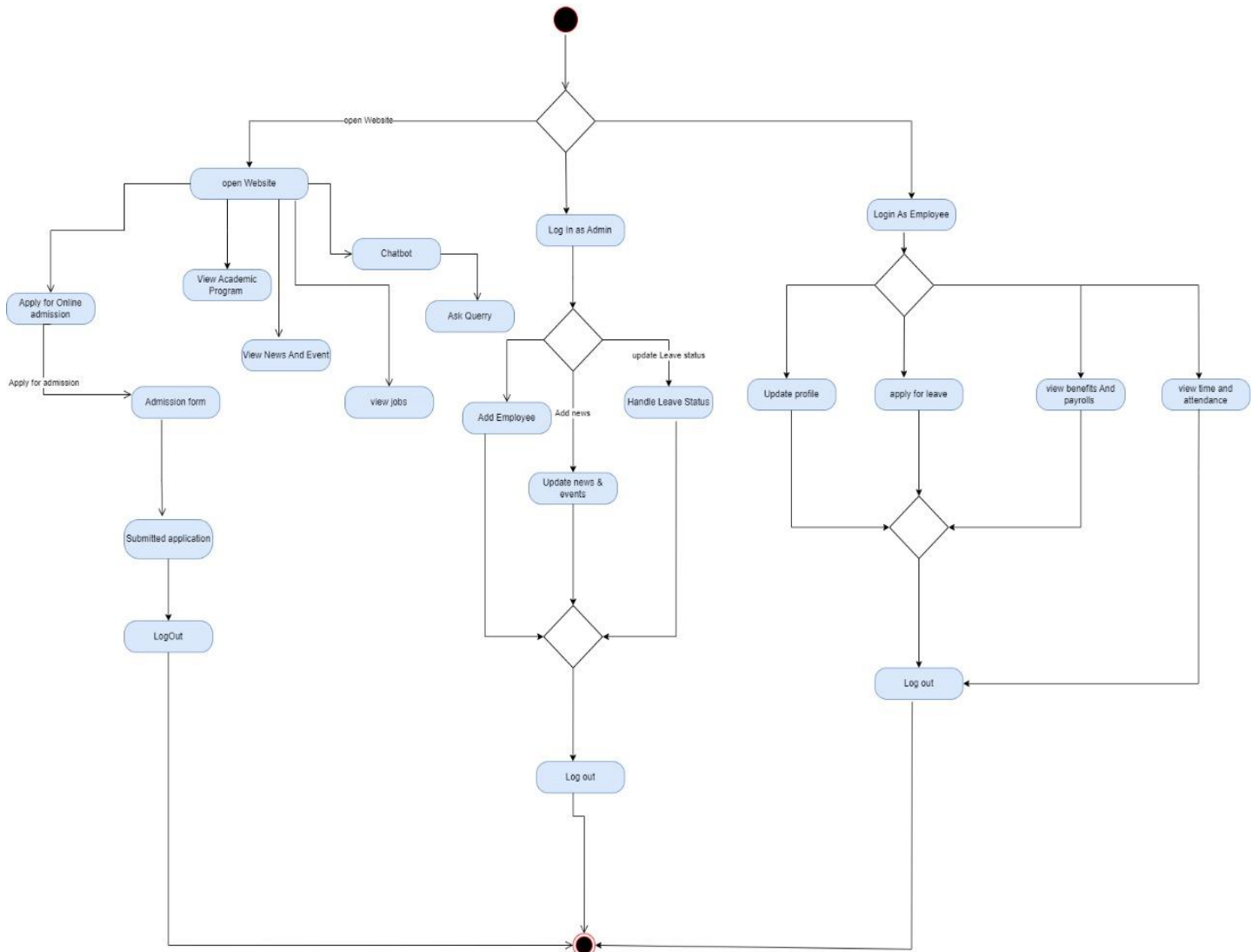


Figure 3.7 State dynamic viewpoint

3.6 Algorithmic Viewpoint

3.6.1 Algorithmic viewpoint of the user is presented in Table 3.1.

Table 3.1 Algorithmic viewpoint of the user

Academic	
Description: This section includes details about the academic programs offered, faculty members, research, and curriculum.	
Attributes	Description
Program Offerings	This attribute represents the various academic programs offered by the college, such as pre-engraining, ICS and BSC.
Course Catalog	This attribute provides information about each course, including its title, description, prerequisites, credit hours, and any specific requirements.
Methods	Description
Academics ()	Pseudo Code
	Display the information about the course offered by the college. Display the information of the selected course.

3.6.2 Algorithmic Viewpoint of About Us

Following table is representing the algorithm viewpoint of webpage about us.

Table 3.2 Algorithmic viewpoint of About us

About us	
Description: This section provides information about the institution, its history, mission, vision, and values.	
Attributes	Description
Mission Statement	This attribute describes the college's overall mission, vision, and core values. It articulates the institution's purpose and the principles it upholds.
History	This attribute provides a brief overview of the college's history, including its founding year, key milestones, and significant achievements.
Accreditation and Affiliations	This attribute provides information about the college's accreditation status, affiliations with professional organizations, and memberships in educational networks or associations.
Methods	Description
About us ()	Pseudo Code
	<ul style="list-style-type: none">• Click on mission statement it will display the overall mission statement, vision, and other details.• Click on history it will display the college's history, milestones, and significant achievements.• Click on Accreditation and Affiliations it will display the college's accreditation status.

3.6.3 Algorithmic viewpoint

Following table shows the algorithmic viewpoint of the admission portal.

Table 3.3 Algorithmic viewpoint of Admission portal

Online Admission Portal	
Description: This section allows prospective students to apply to the institution's academic programs online, providing information on application requirements, deadlines, and admission procedures.	
Attributes	Description
Name	The name of the applicant is stored in the attribute.
Methods	Description
Login()	A method is used to login the user.
	Pseudo Code
	<ul style="list-style-type: none"> • Get the username and password from the user, from the input fields. • Match both password and email with the email and password in the Database. • If one of these is incorrect Show the error message: “Invalid Credentials or Get Register.” • Else • If both matches show the success code and message: “Successfully Login “and show the application form
Application Form ()	A method is used to apply for the admission.
	Pseudo Code
	<ul style="list-style-type: none"> • Click on the application form. • Check if the application form is available or not. • If application form is available shows • details. • Click on Apply Now • Else • Print “No data to Show.”
Check status ()	A method used to check applied applicant status.
	Pseudo Code
	<ul style="list-style-type: none"> • Show the applicant status. • Search for classes schedule • If schedule is uploaded • Show the schedule • Else <p style="text-align: right;">Print “Schedule not Uploaded.”</p>

3.6.4 Algorithmic viewpoint of Employee Portal

Following table shows the algorithmic viewpoint of Employee Portal.

Table 3.4 Algorithmic viewpoint of Employee

Employee Profile	
Description: It contains the personal and professional information of each employee, such as contact details, job title, work location, and department.	
Attributes	Description
Name	The name of the employee is stored in the attribute.
Methods	Description
Login ()	A method is used to login the user.
	Pseudo Code
	<ul style="list-style-type: none">• Get the username and password from the user, from the input fields.• Match both password and email with the email and password in the Database.• If one of these is incorrect Show the error message: “Invalid Credentials.”• Else If both matches show the success code and message: “Successfully Login” and navigate to the dashboard page
ApplyForleave ()	A method is used to apply for the leave.
	Pseudo Code
	<ul style="list-style-type: none">• Click on Request Leave• Check if any remaining leaves are present.• If show form of leave request• Else• Print “All your Leaves have been Used.”
Check_status ()	A method used to check applied applicant status.
	Pseudo Code
	<ul style="list-style-type: none">• Show the leave status.• Else Print “leave status is not Uploaded.”

3.6.5 Algorithmic viewpoint of Admin

Following table is representing the algorithmic viewpoint of admin portal.

Table 3.5: Algorithm viewpoint of Admin

Admin	
Description: It is used to add employee and update the required information.	
Attributes	Description
Name	The name of the admin is stored in the attribute.
Methods	Description
Login ()	A method is used to login the user.
	Pseudo Code
	<ul style="list-style-type: none">• Get the username and password from the user, from the input fields.• Match both password and email with the email and password in the Database.• If one of these is incorrect Show the error message: “Invalid Credentials or Get Register.”• Else• If both matches show the success code and message: “Successfully Login “and show the application form
Add Employee ()	A method is used to apply for the admission.
	Pseudo Code
	<ul style="list-style-type: none">• Click on add employee.• Show add employee form.• Fill details and click Add Employee• If details already present• Print “Employee Exist”• Else• Print “Employee Added”
Delete Employee ()	A method used to delete employee.
	Pseudo Code

	<ul style="list-style-type: none"> • Click on delete employee. • Print “Confirm Delete Employee” • If user confirm delete • Print “Employee Deleted” • Else • Refresh page
Update News ()	A method used to update news and event.
	Pseudo Code
	<ul style="list-style-type: none"> • Click on update news and event. • Show update news and event form. • Fill out details and click update news. • Print “news / event added”.

4 DEVELOPMENT AND TOOLS

This section shortly describes the development plans and technology adopted to achieve these goals by executing our plan. The highest motivation of planning is to get work done to meet academic deadlines and to keep our work aligned. Moreover, there are several tools and ways to perform a task. This section best describes choices made by our own team.

4.1 Introduction

In the development phase, we provide a full development plan in which we describe how and what work is done by which team member, which tools are used for development and in last conclusion and future work plan for the application is described.

4.2 Development plan

Following table are representing the development plan of the project including Gantt chart.

Table 4.1 Development plan

Mohsin Ali	1: Back End 2: Documentation
Sofia Haider	1: Front End 2: Documentation
Lecturer Mian Muhammad Talha	Verified Testing

Table 4.4.2 Gantt Chart

ID	Task Name	Start date	Finish date	Duration	Completion %
1	Planning	10/02/23	21/02/23	11 days	100%
2	Proposal	21/02/23	03/03/23	10 days	100%
3	Review Proposal	03/03/23	17/03/23	14 days	100%
4	Approve Proposal	17/03/23	20/03/23	3 days	100%
5	Set Requirements	20/03/23	26/03/23	6 days	100%
6	UML Diagram	26/03/23	09/04/23	15 days	100%
7	SRS	09/04/23	25/04/23	17 days	100%
8	Developing frontend	25/04/23	23/06/2022	59 days	100%
09	Developing backend	10/09/23	01/11/23	51 days	100%
10	SRS submission with Demo video	01/11/23	15/11/23	14 days	100%
11	Connectivity of backend and frontend	15/11/23	20/11/23	5days	100%
12	Develop final TestCases	20/11/23	25/11/23	5 days	100%

4.3 Development Tools

4.3.1 Configuration management tools



Figure 4.4.1 Configuration tools

4.4 Conclusion and Future Work/Extensions

In conclusion, the creation of the college website and Employee Portal is a big step toward improving communication, collaboration, and efficiency within the college community. From academic programs and student activities to staff profiles and leave management, the integrated platform successfully consolidates critical information. Accessibility and scalability are ensured by the user-friendly design and usage of cutting-edge web technology.

Future work might involve ongoing enhancements to user interfaces, the incorporation of emerging technologies for increased interactivity, and the expansion of functionality. Furthermore, given the college's evolving needs and technological advancements, potential extensions could include AI-driven chatbots for user assistance, integration with learning management systems, and further automation of administrative processes to streamline operations and provide an even more personalized experience.

5 QUALITY ASSURANCE

In the system development paradigm, quality has equal importance as functional requirements. This section was built to propose some highly recommended quality goals necessary for our system to be chosen by clients. There are some predefined sets of rules that uniformly determines the quality of our system. We will try to cover all in the section below.

5.1 Introduction

In quality assurance phase, to ensure satisfaction of end user, a proper testing mechanism was devised in the form of test cases and to trace each test case against desired functional requirement a requirement traceability matrix have been devised which include test case ID against each functional requirement desired by user.

5.2 Traceability Matrix

5.2.1 Requirement Traceability Matrix

Following figure is representing the requirement traceability matrix.

REQUIRMENTS TRACABILITY MATRIX										
	Test Case ID	TC-1	TC-2	TC-3	TC-4	TC-5	TC-6	TC-7	TC-8	# Test cases of the Respective Requirement
REQ.ID										
Req-1		✓								1
Req-2			✓							1
Req-3				✓						1
Req-4					✓					1
Req-5						✓				1
Req-6							✓			1
Req-7								✓		1

Figure 5.5.1 Requirement Traceability matrix

5.3 Test Plan

The following table is representative of test case.

Table 5.1 Test cases

Test Case ID	TC-1
Test name	Enter Valid password
Date of test	11/11/2023
Name of application	User has opened the website
Actions	System Response
1. User enter the password using	○ Input screen displays.

<p>the keypad/keyboard.</p> <p>2. User press enter button.</p>	<ul style="list-style-type: none"> ○ System moves to next page
Expected result	System will appear next Interface
Actual result	System appeared next interface
Test Role (Actor)	Team Member
Test verified by	Team member and Prof. Mian Talha
Test case status	Pass

Test Case ID		TC-2
Test name	Submit Online Application	
Date of test	11/11/2023	
Pre-condition	User is on the admissions portal	
Actions	System Response	
<ol style="list-style-type: none"> 1. Applicants fill in the required fields. 2. Applicant attaches additional documents. 3. Applicant submits the application. 	<ul style="list-style-type: none"> ○ Confirmation message is displayed. ○ Application status is updated. 	
Expected result	Application is successfully submitted, and the system provides confirmation.	
Actual result	Return to home page	
Test Role (Actor)	Team Member	
Test verified by	Team member and Prof. Mian Talha	
Test case status	Pass	

Test Case ID TC-3	
Test name	Search and Apply for Job
Date of test	11/11/2023
Pre-condition	User is on the job postings page
Actions	System Response
<ol style="list-style-type: none"> 1. User searches for a job. 2. User clicks on a job listing. 3. User applies for the job. 	<ul style="list-style-type: none"> ○ Relevant jobs are displayed. ○ Job details are shown. ○ Application is successfully submitted.
Expected result	User can successfully search for and apply for a job.
Actual result	Return to home page
Test Role (Actor)	Team Member
Test verified by	Team member and Prof. Mian Talha
Test case status	Pass

Test Case ID TC-4	
Test name	Chatbot Interaction
Date of test	11/11/2023
Pre-condition	User is on the website with the chatbot feature
Actions	System Response
1. User asks a frequently asked question.	<ul style="list-style-type: none"> ○ Chatbot provides a correct and relevant response.
Expected result	The chatbot effectively answers the user's question.
Actual result	Return to home page
Test Role (Actor)	Team Member
Test verified by	Team member and Prof. Mian Talha
Test case status	Pass

Test Case ID		TC-5
Test name	View Latest Announcement	
Date of test	11/11/2023	
Pre-condition	User is on the news and announcements page	
Actions	System Response	
2. User checks the date of the latest announcement. 3. User refreshes the page.	<ul style="list-style-type: none"> ○ The date of the latest announcement is visible. ○ Date is updated after refreshing the page. 	
Expected result	The system updates the announcement date upon page refresh.	
Actual result	Return to home page	
Test Role (Actor)	Team Member	
Test verified by	Team member and Prof. Mian Talha	
Test case status	Pass	

Test Case ID	TC-6
Test name	Log into Employee Portal
Date of test	11/11/2023
Pre-condition	User is on the employee portal login page
Actions	System Response
<ol style="list-style-type: none"> 1. User enters valid employee credentials. 2. User clicks on the "Login" button. 	<ul style="list-style-type: none"> ○ Employee is successfully logged into the portal.
Expected result	User can access the employee portal after successful login.
Actual result	Show employee profile
Test Role (Actor)	Team Member
Test verified by	Team member and Prof. Mian Talha
Test case status	Pass

Test Case ID	TC-7
Test name	Apply for Leave Online
Date of test	11/11/2023
Pre-condition	User is on the leave management section in the employee portal
Actions	System Response
<ol style="list-style-type: none"> 1. User applies for leave by filling in the required details. 2. User submits the leave application. 	<ul style="list-style-type: none"> ○ Show leave application form. ○ Leave application is successfully submitted.
Expected result	User can apply for leave, and the system processes the application
Actual result	Show leave application form.
Test Role (Actor)	Team Member
Test verified by	Team member and Prof. Main Talha
Test case status	Pass

Test Case ID	TC-8
Test name	View Academic Program Details
Date of test	11/11/2023
Pre-condition	User is on the academic program information page
Actions	System Response
1. User navigates to the academic program information section.	○ Detailed information about academic programs and admission process is displayed.
Expected result	User can access comprehensive details about academic programs.
Actual result	Show academic details
Test Role (Actor)	Team Member
Test verified by	Team member and Prof. Main Talha
Test case status	Pass

6 USER MANUAL

Every device comes with a precise user guide. This basically the set of rules and interactions created by programmer and developer of the system. To catch right customers and right usage of system. There are also some technical issues to cover that we will mention in our user manual. This is a universal document that is made on behalf of every programmer or non-programmer user of the system to get maximum benefit out of product.

6.1 Introduction

In user manual phase, to provide user a guide to interact with our system we provide user manual in which hardware and software requirements of the system are given for the installation with an operating manual to access all the functionalities of the application.

6.2 Hardware/Software Requirements for the System

- Internet connection
- Laptop
- Androids
- iOS

6.3 Installation guide for Application

This is a website that does not need any installation.

6.4 Operating Manual

- User will visit the website. The user may a Student or Employee.

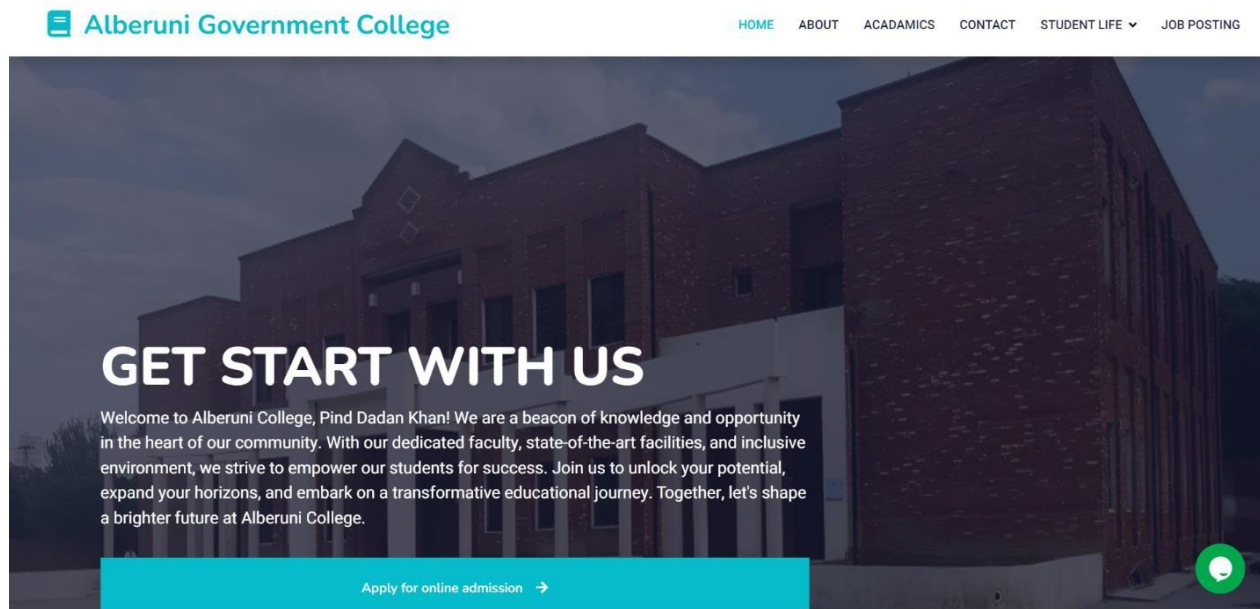


Figure 6.1 Detailed interface of web

- There is also a Live Chat option through which a user can communicate with the admin of college for quires and get desired information related to admission. and jobs.

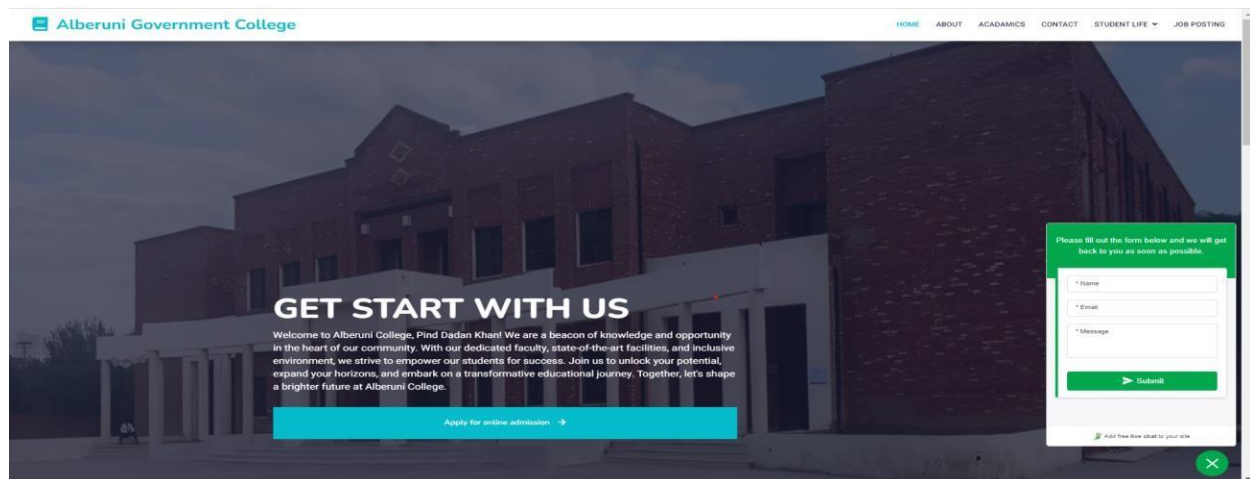


Figure 6.2 Live chatbot option

- **Information about the College**

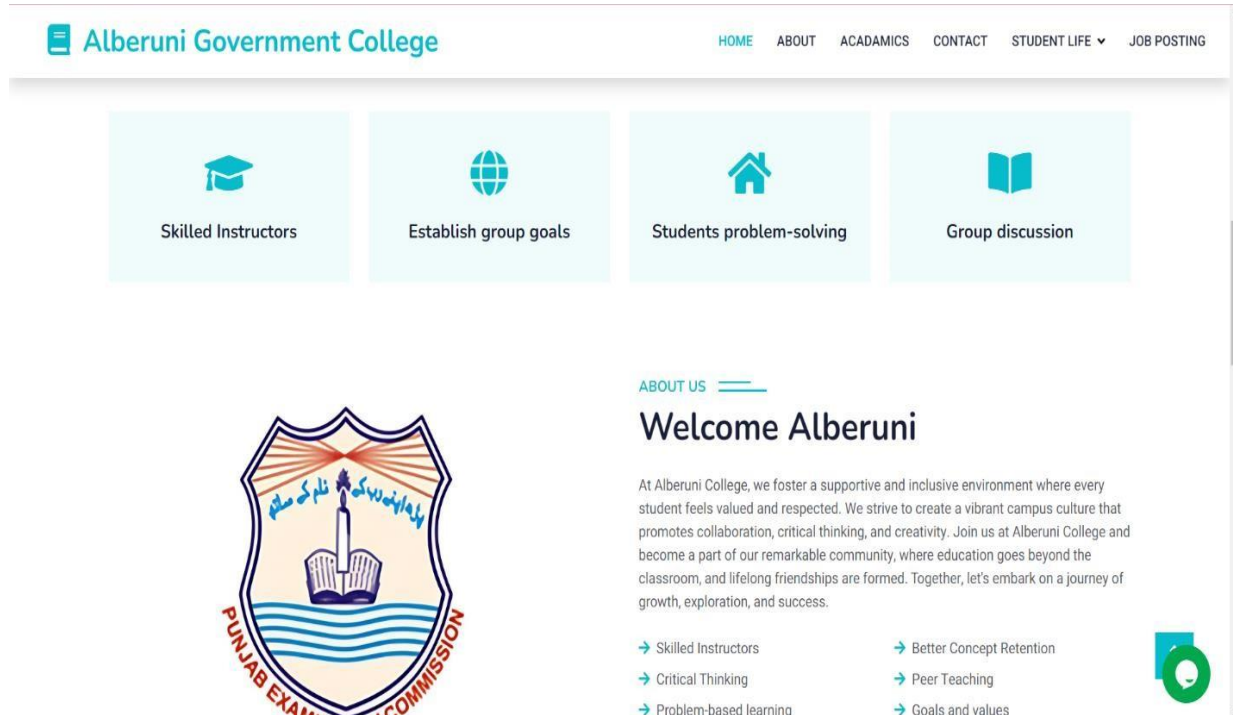


Figure 6.3 College details

- For contact and queries the address of the college, email and contact number is provided.

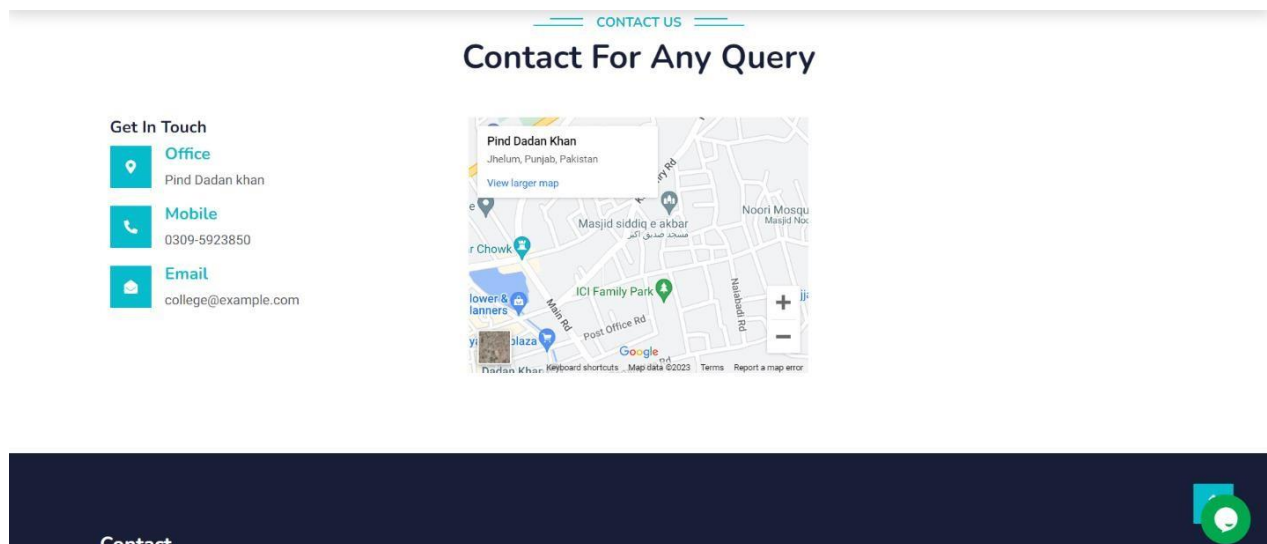


Figure 6.4 Contact and queries

- Academic page shows the popular courses offered by the college.

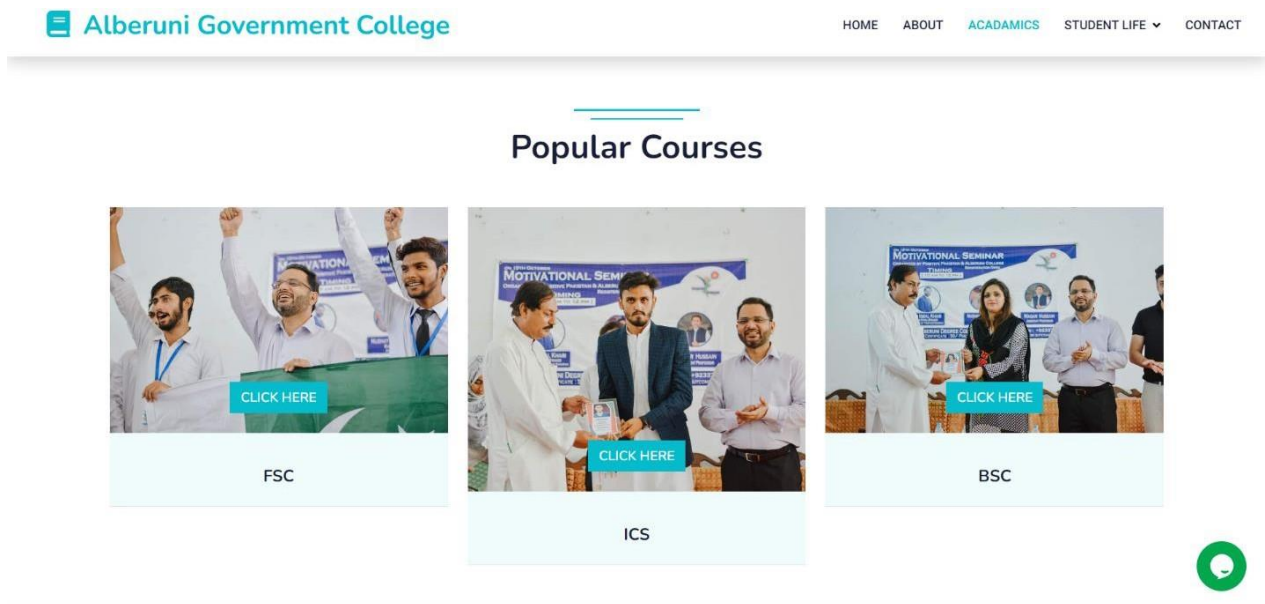


Figure 6.5 Offered courses.

- The admin will login here by giving his Name and Password.
- This will appear after an employee is selected, so he can login to employee panel to see his statistics by using his name and email provided by the admin.

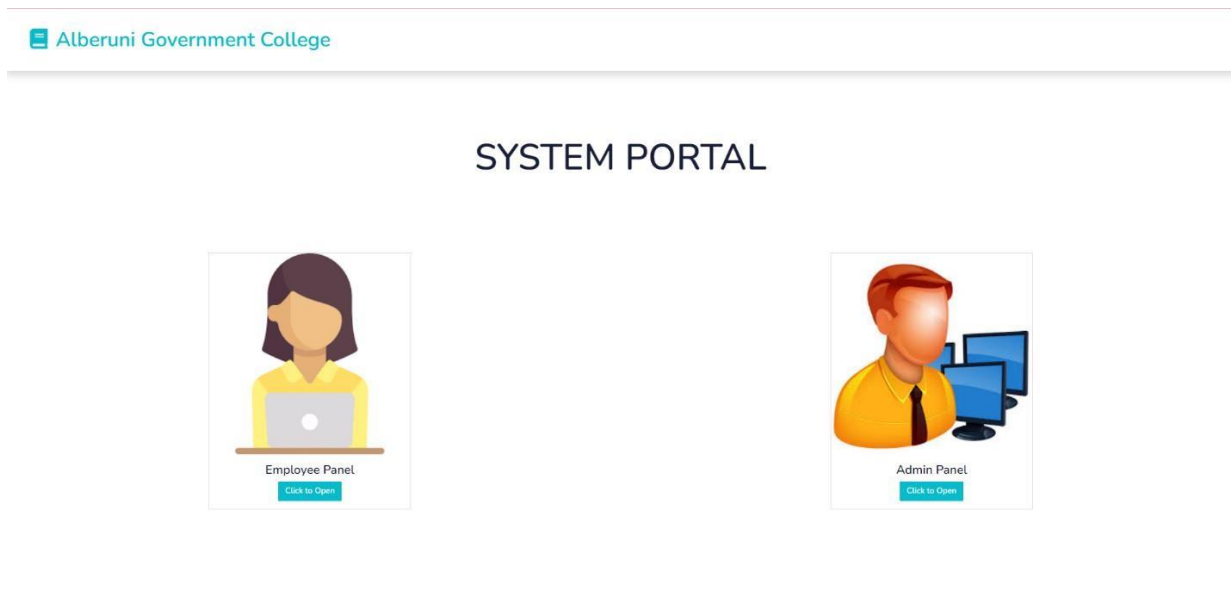
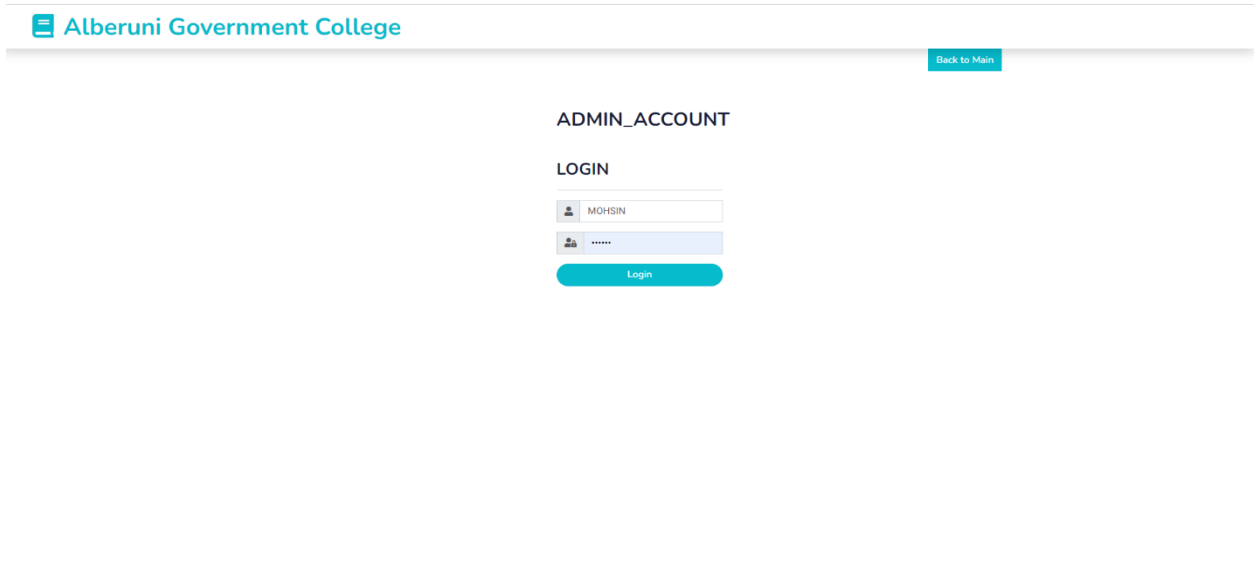


Figure 6.6 Interface of Admin / Employee

- The admin will login through this page by using name and password.



Alberuni Government College

Back to Main

ADMIN_ACCOUNT

LOGIN

MOHSIN

Login

Figure 6.7 Admin Login Page

- From there the admin will perform different functionalities like add, view delete, employee attendance and many more functions.

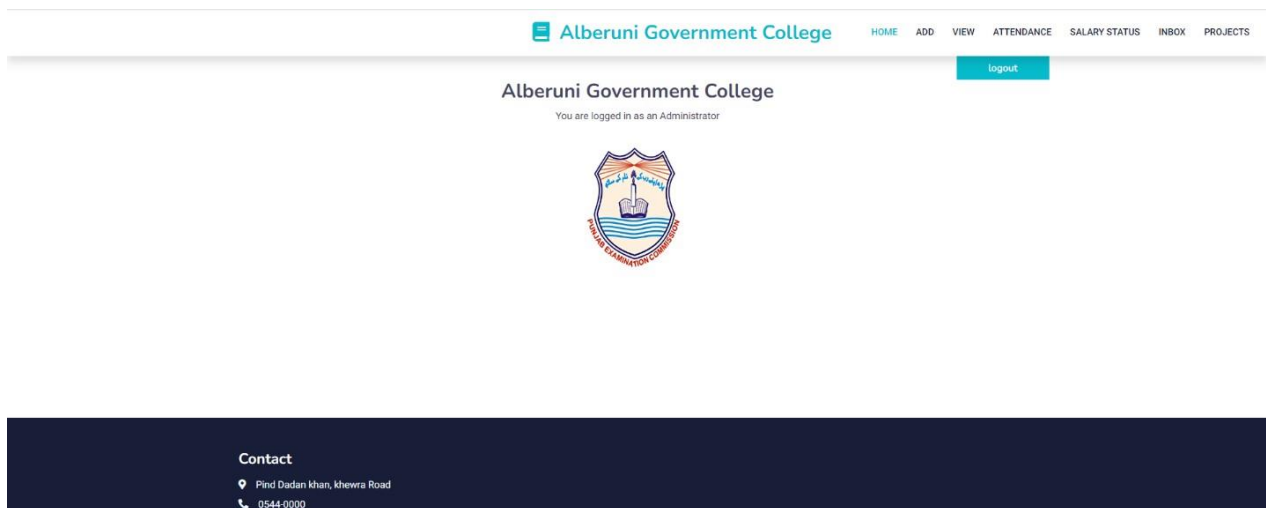


Figure 6.8 Interface Admin Panel

- Here the admin can see the selected employees and can edit or delete their information.

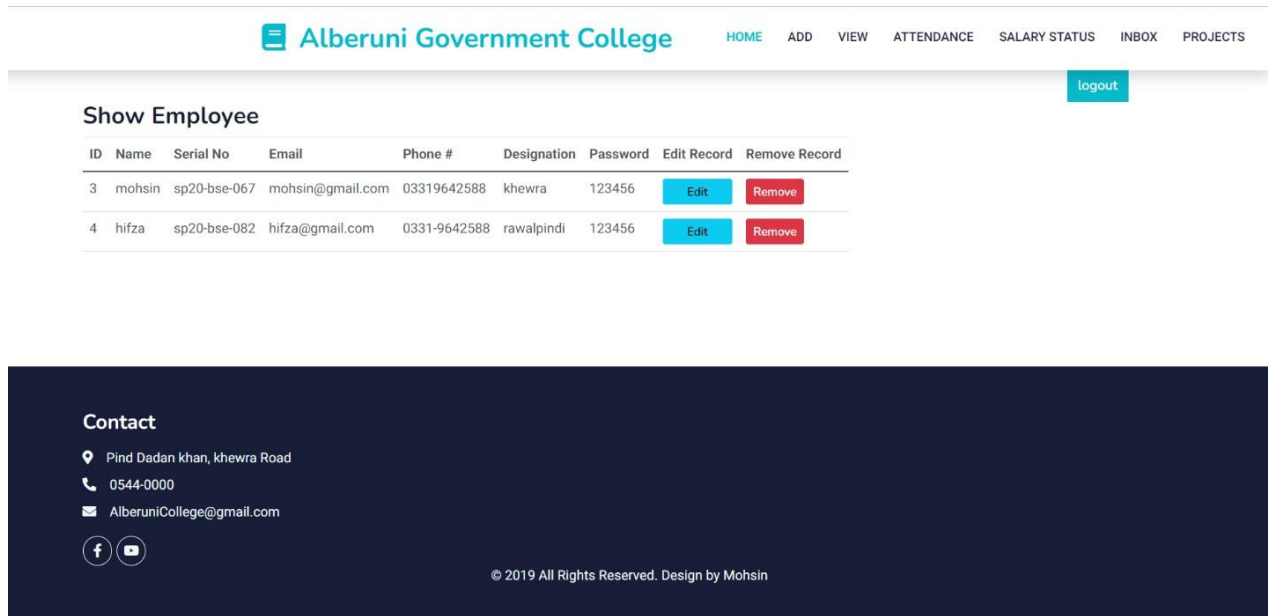


Figure 6.9 Update and Delete Employee

- In this section the admin can assign different projects and tasks to the employee. The instructions about the project will appear on the employee panel.

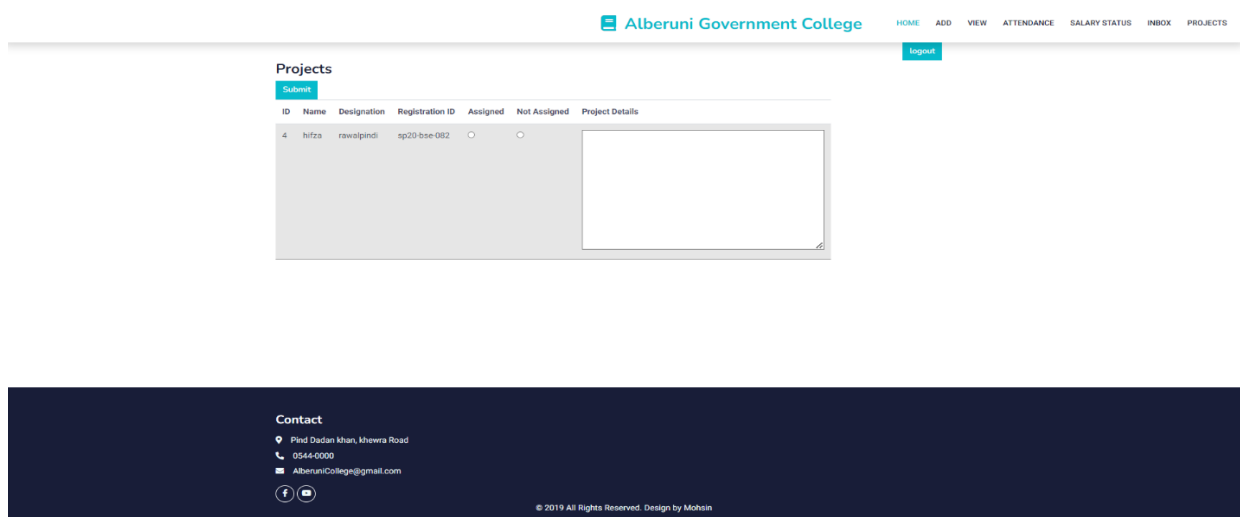


Figure 6.10 Assigning Projects to Employee

- In “view” the admin will check the job applications and then contact with the applicants

Alberuni Government College

HOME ADD VIEW ATTENDANCE SALARY STATUS INBOX PROJECTS

logout

Show Job Applicants

ID	Name	CNIC	DOB	Current Address	Permanent Address	Phone #	Email	Job Title	Gender
1	saad	34101-8319776-1	2023-10-03	race crose road	race corse road	0331-9642588	saad4@gmail.com	other	male
4	khawaja saadulsh sajjad	34101-8319776-1	2023-01-31	race crose road	race corse road	0331-9642588	saad1214@gmail.com	Graphic & Web Designer	male
90	Sofia Haider	34202-8319776-1	2023-11-01	racecrose road	race corse road	0331-9642588	sofia@gmail.com	Graphic & Web Designer	female

Contact

📍 Pind Dadan Khan, Khewra Road

☎ 0544-0000

✉ AlberuniCollege@gmail.com

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Figure 6.11 Job Applications

- Admin can also see the student applicants who applied for the admission.

Alberuni Government College

HOME ADD VIEW ATTENDANCE SALARY STATUS INBOX PROJECTS

logout

Student Applicants

Name	Phone #	Email	Matric Marks	Field
saad	03319642588	saadulshbut124@gmail.com	1060	fsc
mohsin	03319642588	mohsin@gmail.com	1100	fsc
sofia	03319642588	sofia@gmail.com	1150	fsc
SOFIA HAIDER	0331-9642588	SOFIA@GMAIL.COM	500	FSC
mohsin Ali	0331-9642588	mohsinali@gmail.com	500	FSC
mohsin ali	03095923850	ali@gmail.com	881	fsc
jarar haider	03095923850	jerry@gmail.com	882	ics
saad	03319642588	saadulshbut124@gmail.com	1060	fsc

Contact

📍 Pind Dadan Khan, Khewra Road

☎ 0544-0000

✉ AlberuniCollege@gmail.com

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Figure 6.12 Admission Applications

- Here the admin can see the requests generated by the users.

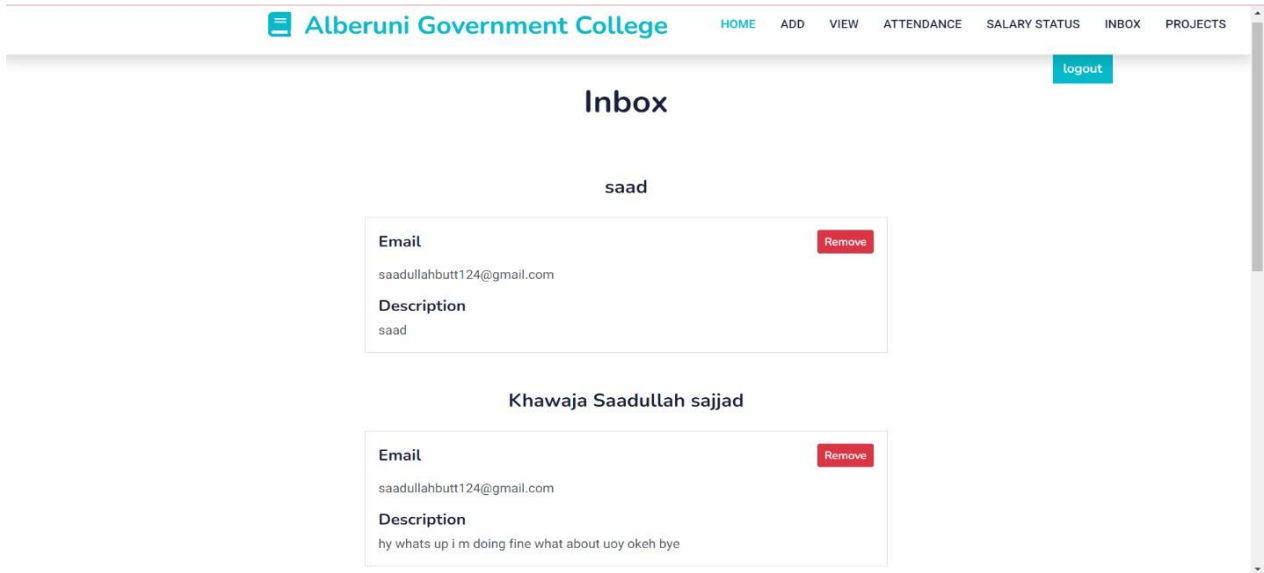


Figure 6.13 Admin Inbox

- The admin can also update the salary and attendance of the employee.

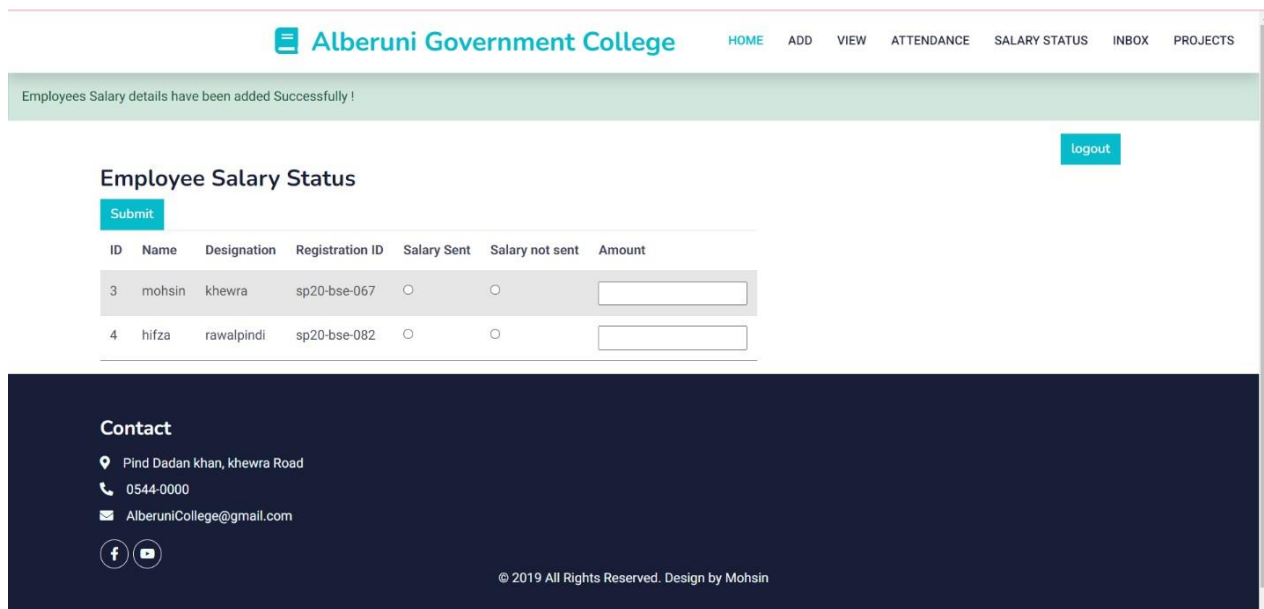


Figure 6.14 Updating Salary

- Through the following form attendance can be updated.

The screenshot displays the 'Alberuni Government College' web interface. At the top, a navigation bar includes links for HOME, ADD, VIEW, ATTENDANCE, SALARY STATUS, INBOX, and PROJECTS. A green banner below the header states 'Employees attendance have been marked Successfully !'. On the right, there is a 'logout' button. The main section is titled 'Show Employee' and contains a 'Submit' button. Below this is a table with columns: ID, Name, Designation, Registration ID, Present, Absent, and Date. Two rows of employee data are visible. At the bottom, a dark blue footer contains contact details.

ID	Name	Designation	Registration ID	Present	Absent	Date
3	Mohsin	Khewra	Sp20-bse-067	<input type="radio"/>	<input type="radio"/>	mm/dd/yyyy
4	Hifza	Rawalpindi	Sp20-bse-082	<input type="radio"/>	<input type="radio"/>	mm/dd/yyyy

Contact
 Pind Dadan khan, khewra Road
 0544-0000
 AlberuniCollege@gmail.com

Figure 6.15 Updating attendance.

- Here the Employee will login by using the password provided by the admin.

The screenshot shows the 'EMPLOYEE ACCOUNT' login page. The header includes the college name and navigation links for Profile, Attendance, Salary status, and Projects. A 'Back to Main' button is located in the top right. The main content area is titled 'EMPLOYEE ACCOUNT' and 'LOGIN'. It features two input fields for 'hifza' and 'Password', followed by a red error message: 'Invalid Employee ID or Password'. A blue 'Login' button is at the bottom.

EMPLOYEE ACCOUNT

LOGIN

hifza
 Password

Invalid Employee ID or Password

Login

Figure 6.16 Employee Login Page

- After login the user will have this interface where he can look his statistics and will be aware of his personal statistics.

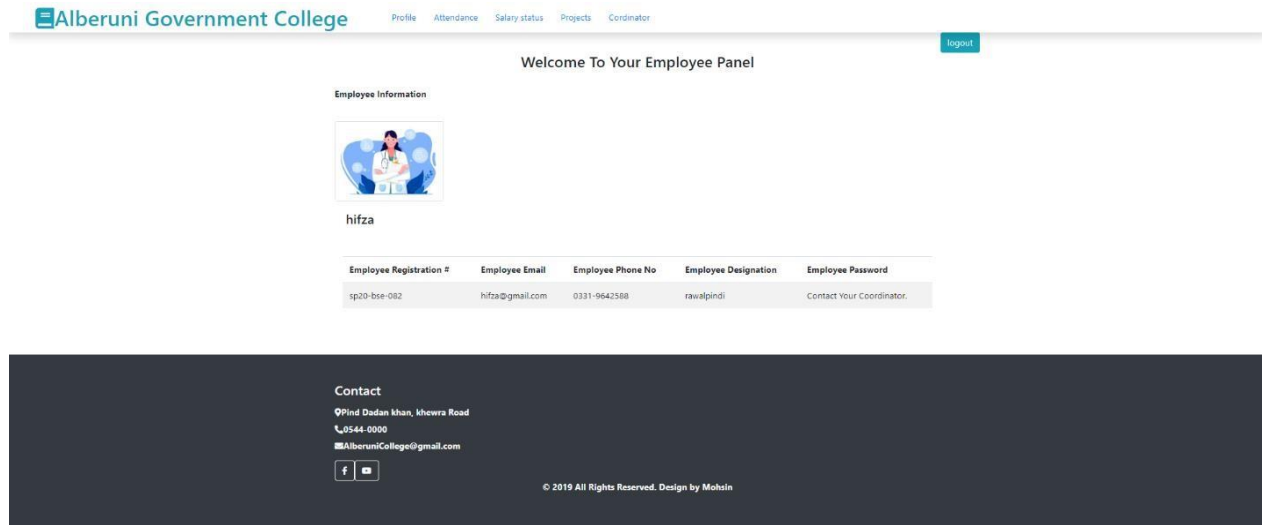


Figure 6.17 Interface Employee Panel

- From the coordinate option the employee can make requests to admin for different issues like updation of profile and for other queries related to job.

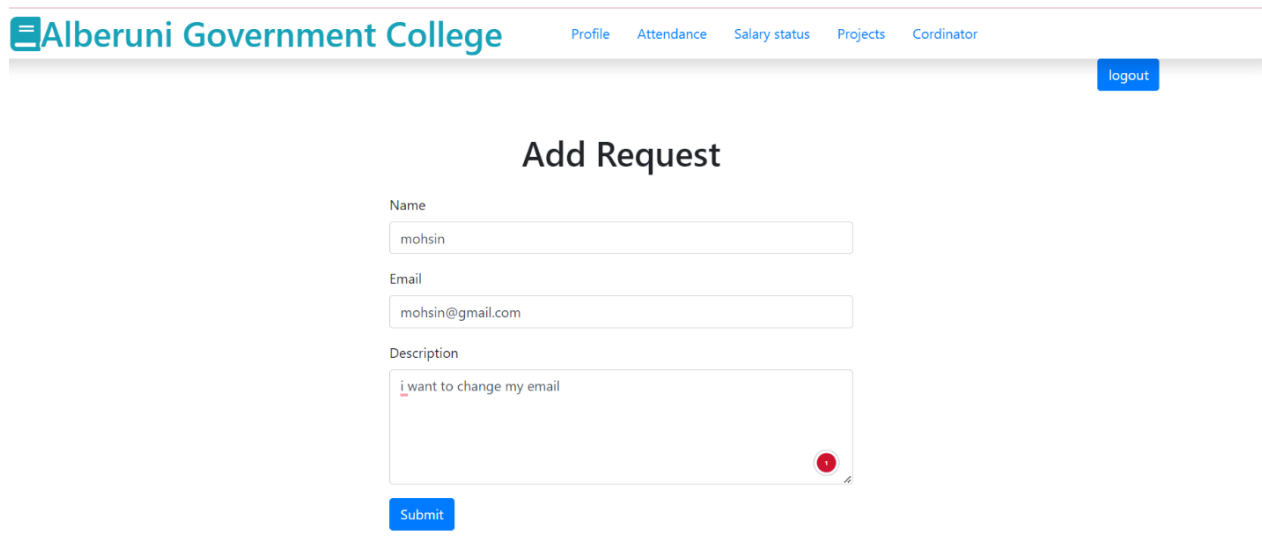


Figure 6.18 Employee ADD requests.

- Here an employee can add his information like: Email, Contact number, picture.

Employee's Information

Employee Name

Employee Registration #

Employee Email

Employee Phone Number

saad

Confirm Password

☐ Accept the Terms and Conditions

Choose file

ADD Employee

Figure 6.19 Employee Adding information.

- From here the employee the Projects that are assigned by the admin.

Alberuni Government College Profile Attendance Salary status Projects Coordinator

logout

Status	Date	Description
HasProject	2023-11-04 07:02:57	u need to perform Laravel project

Contact
 Hind Dadan Khan, Khewra Road
 0544-0000
 AlberuniCollege@gmail.com

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Figure 6.20 Assign Projects by Admin