Tribhuvan University

Faculty of Humanities and Social Sciences

A PROJECT REPORT ON

ONLINE STUDENT ADMISSION SYSTEM

Submitted to

Department of Computer Science and Applications

Mechi Multiple Campus

Bhadrapur, Jhapa

In partial fulfillment of the requirement for Bachelors in Computer Applications

Submitted by

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Semester: 4th

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Supervisor's Recommendation

I hereby recommend that this project prepared under my supervision by **Pawan Bhandari** and **Saugat Ghimire** entitled **Online Student Admission System (TU Bachelor Level)** in partial fulfillment of the requirements for degree of Bachelor of Computer Application is recommend for the final evaluation.

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LETTER ON APPROVAL

This is to certify that this project prepared by **Pawan Bhandari** and **Saugat Ghimire** entitled "**Online Admission System based on TU Bachelor Level**" in partial fulfillment of the requirements for the degree of Bachelor in Computer Application has been evaluated. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

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SIGNATURE OF INTERNAL EXAMINER --- Internal Examiner	SIGNATURE OF EXTERNAL EXAMINER --- External Examiner

ABSTRACT

Today all the work at the time of admission of the students is done manually by ink and paper, which is very slow and consuming much efforts and time. In the traditional education system, the entire process from admission to graduation typically requires physical presence at schools, colleges, or universities. However, this project aims to modernize the admission process by allowing students to submit their details online, offering a more streamlined and realistic selection of appropriate colleges and universities based on their chosen courses.

The primary goal of this project is to develop a professional web-based application in the most cost-effective manner possible. JavaScript and JavaScript Library J-Query will be used for the front-end, while PHP and MySQL will power the back-end. The system entitled **Online Student Admission System** is a system which is totally based on admitting the students in Bachelor Level under TU colleges. It is a system that aims to digitalize the admission procedure by providing smooth process of admission as applying their personal and graduation details in the system. The process begins by the first step for students that is to apply directly to the university through a custom online form. The data used by the system is stored in a database that will be the center of all information.

By digitizing the admission process, we aim to eliminate the hassle of manual paperwork and reduce delays. Students can now apply online, submit necessary documents electronically, and track the status of their applications conveniently. The system will also facilitate automated notifications to applicants regarding application status.

Keywords

Computerized, Digitalized, Graduation, Administrative, Notifications, Operation, Requirements, Application, Manual, Tracking

ACKNOWLEDGEMENT

With respect and honor, we are extremely glad and obligate to our all of the honorable senior, friends and lovely junior who helped us to organize this project and thankful for their kind opinions, suggestions and appropriate guidelines. We have received endless support and guidance in finalizing our project so we would like to take this opportunity to thank them all.

We would like to express our sincere gratitude to our honorable teacher and supervisor **Mr. Sunil Sharma**, BCA Deputy Director **Mr. Raju Poudel** and whole Faculty of Humanities and Social Sciences who has provided the golden opportunity to work in this project. We are really grateful for this kind support in our project.

We are deeply grateful to our supervisor, whose guidance and valuable suggestions have helped us prepare and complete this project report titled **Online Student Admission System.** This project has been a significant learning experience for us, providing a deeper understanding of how to design and manage an admission system. This project serves as a foundation for developing and improving various systems in the future. We believe this project has enriched our knowledge and creativity and we hope to apply this experience to our future works.

Similarly, we would like to acknowledge the support of our friends, relatives and teachers who have provided encouragement and motivation throughout this project.

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Chapter 1: Introduction

1.1 Introduction

The rapid advancement of digital technology in the 21st century has revolutionized communication, information sharing and management processes. The digital world enables seamless access to devices, media, and networks, fostering opportunities for innovation and efficiency. Systems created in this era are designed to address challenges dynamically, making processes more streamlined and accessible. In this context, digital systems play a crucial role in storing, processing, and communicating information effectively. Our system supports CRUD functionality, enabling users to Create, Read, Update and Delete data as needed.

An online student admission system is a digital platform that simplifies the application, admission, and monitoring processes for educational institutions. It helps manage student records, process applications, verify documents and monitor academic progress. This system reduces the dependency on traditional manual methods, ensuring a structured, time-saving approach to student enrollment. It is particularly beneficial for administrative staff, teachers, students and parents by facilitating easy access. It is a system that aims to digitalized the admission procedure by providing smooth process of admission as applying their personal and graduation details in the system.

We want to build this system to address the inefficiencies and challenges of the traditional manual admission process, which is time-consuming, prone to errors, and heavily reliant on paperwork. The current process often causes delays and requires significant effort from both students and administrative staff. By developing an online student admission system, we aim to modernize and simplify the admission procedure, ensuring a more efficient and transparent experience for all stakeholders.

The implementation of an online student admission system brings numerous advantages to educational institutions by enhancing operational efficiency and data accuracy. Additionally, it enhances accessibility for students, allowing them to apply from anywhere at any time. This digital transformation not only optimizes institutional workflows but also improves user experience, encouraging more transparent and convenient admission process.

1.2 Problem Statement

In every process, challenges can hinder the system's effectiveness if not addressed properly. The following are some key problems associated with the Online Admission System:

a) Limited Technical Support

Many users have trouble using the system but don't get help quickly. Without support, they find it hard to finish applications, which causes frustration and missed chances. This lack of assistance can be especially challenging for first-time users who are unfamiliar with the process.

b) Frequent Technical Issues

Systems often crash or go offline during peak admission times. Slow loading times and poor performance frustrate users. An Internet connectivity issues can disrupt the application process. Such disruptions can lead to incomplete applications, forcing students to restart the process multiple times.

c) Weak Security

Personal information like student details, academic records, and payment data is not always protected. Data breaches can expose sensitive information, leading to privacy concerns. Weak passwords and lack of proper security measures can make the system vulnerable to hacking.

d) Complex and Confusing Interface

Many systems are not user-friendly with complicated menus and unclear instructions. Students and parents often struggle to navigate the system that leads errors which make incomplete information to admit in particular college and course. A poorly designed interface increases the likelihood of mistakes, requiring additional administrative efforts to correct them.

e) Errors in Data Entry and Processing

Mistakes in entering or processing application details can cause delays or unfair rejections. A lack of proper validation checks leads to inaccurate data. Typing mistakes or incorrect information entered by users can result in misleading records, making it difficult to verify student details accurately.

These challenges highlight the need for constant monitoring and improvement by qualified administrators and users to ensure the system's effective functioning in the digital era.

1.3 Objectives

The Online Student Admission System has several key objectives that ensure its efficiency and usefulness. Some of the main objectives are:

a) To create a web-based platform which allows to get admission easily on particular course.

b) To make the admission process easy and error-free by reducing paperwork.

1.4 Scope and Limitations

Scope:

a) Online Data Submission:

Students can apply to multiple TU colleges through the system.

b) Online Document Upload:

Students can upload necessary documents like mark-sheets, certificates etc. electronically.

c) Application Tracking:

Students can track the status of their application online in real-time.

d) Campus and Course Information:

The system provides information about available courses, eligibility criteria and respective campus of that program. It provides all detailed information of campuses and courses.

e) Fee Payment Integration:

Online payment gateway integration for application fees and other applicable charges.

Limitations:

a) Technical Issues:

Internet connectivity issues, system downtime, or technical glitches can disrupt the application process.

b) Integration with Existing Systems:

Integrating the system with existing university databases and administrative systems can be complex.

c) System Maintenance:

The system requires regular maintenance, updates and security patches to ensure its smooth functioning.

1.5 Report Organization

The first chapter provides a summarized introduction of the entire report. It includes the overview, scope, limitations, problem statement and objectives of the project. Additionally, it highlights the importance of the system and its impact on the admission process.

The second chapter includes the background study, which consists of a description of fundamental theories, general concepts and terminologies related to the project. It also contains a literature review analyzing similar projects, previous research and existing theories by other researchers. This chapter helps in understanding the existing solutions and identifying gaps that the proposed system aims to address.

The third chapter covers the system analysis and design phase, which includes a detailed report of functional and non-functional requirements of the project. This phase uses use case diagrams and system diagrams to describe the system's behavior. It also includes a feasibility study to determine whether the system can be successfully developed based on available resources, budget and technology. The feasibility study covers technical, operational, economic and other aspects of the project. Additionally, this chapter explains the system design, including data modeling and process modeling, represented by ER diagrams and Data Flow Diagrams (DFD)**.** The architectural design, database design and user interface design are shown as detailed in this section.

The fourth chapter includes the implementation and testing phase of the proposed system. In the implementation phase, the choice of programming languages, frameworks, tools and database platforms is explained. The testing phase ensures the system functions correctly by using unit testing, integration testing, system testing and User Acceptance Testing (UAT)**.** This chapter also includes error handling and debugging strategies.

The fifth chapter contains the conclusion and future recommendations. It summarizes the final outcome of the system, presents the developer’s point of view and discusses challenges faced during the project. The lessons learned from all the phases of development are also included. Additionally, this chapter suggests future improvements and upgrades to enhance the system’s performance, security and usability.

Chapter 2: Background Study and Literature Review

2.1 Background Study

The education sector, especially at the university level, plays a critical role in shaping the future workforce and enhancing academic excellence. However, traditional admission processes in many universities, including Tribhuvan University (TU), often rely on manual workflows that are time-consuming, error-prone and inefficient. With growing student enrollments, the need for an optimized and streamlined admission system has become more important.

Existing methods of student admission frequently involve extensive paperwork, manual verification, and in-person interactions. This traditional approach not only delays the process but also increases the likelihood of errors, mismanagement and a lack of transparency. Applicants often face challenges in accessing accurate and timely information about application requirements, deadlines and the status of their submissions.

To address these challenges, the **Online Student Admission System** is designed as a digital solution to revolutionize the admission process for TU's Bachelor Level programs. The project aims to provide a user-friendly platform for managing the entire admission lifecycle, from application submission to document verification and result notifications. By digitizing the process, it seeks to reduce errors, minimize administrative burdens and improve accessibility for prospective students.

This background study underscores the urgent need for digitization in the admission processes at Tribhuvan University. The implementation of an online admission system enhances efficiency, ensure transparency and deliver a seamless experience for both applicants and administrative staff. Moreover, it aligns with the growing trend of adopting digital tools to modernize educational institutions, ensuring they remain competitive and capable of meeting contemporary demands.

2.1.1 Description of Fundamental Theories

a) **Data Management**: Organized storage of student data for easy access.
b) **Process Automation**: Simplifies tasks like form submission and application tracking.
c) **User-Friendly Design**: Ensures easy navigation for all users.
d) **Transparency**: Real-time updates on application status.
e) **Error Prevention**: Validations reduce mistakes during form submission.

2.1.2 General Concepts and Terminologies Related to the project

a) Admission System:

A digital platform for managing student admissions, including application submission, document uploads, status tracking and communication between applicants and administrators.

b) Applicants:

Students applying for admission to programs offered by the university. They must fill out forms, submit necessary documents and track their application progress.

c) User Roles:

Different levels of access for users, such as administrators who manage applications and applicants who submit and track their admission process. Additional roles may include reviewers or faculty members.

d) Document Upload:

The process of submitting required certificates and identification digitally, such as transcripts, provisional certificates, migration certificates and passport-size photos.

e) Validation:

Ensuring that form inputs, such as email, phone number, and required documents, meet specified criteria to prevent errors and incomplete submissions.

f) Application Status:

System provides a real time application to applicants about their admission status like pending, approved etc.

g) Dashboard:

A centralized interface where users can manage their applications, check notifications, update details or review submitted data. Administrators use dashboards to monitor applications and generate reports.

h) Authentication:

A login mechanism for secure access to the system.

i) Submission Confirmation:

A notification or message confirming successful form submission.

j) Database:

A structured storage system, typically using MySQL to securely manage student records, application details, uploaded documents and admission decisions while ensuring data integrity and easy retrieval.

2.2 Literature Review

2.2.1 Theory done by other researchers

The transition from traditional to online admission systems has been widely studied by researchers, emphasizing the need for digital transformation in educational institutions. Studies found that online systems reduce administrative burden, minimize errors in data entry, and improve overall efficiency by automating repetitive tasks. Their research highlights how such systems streamline application management, provide real-time updates to applicants, and ensure transparency. [1] Similarly, there is explored that the role of cloud-based platforms in enabling scalability during peak admission periods, reducing downtime and ensuring reliability. [2]

Security and user experience are pivotal in online admission systems. Research shows stressed the importance of data encryption and secure file uploads to protect sensitive student information from breaches. [3] Their study also emphasized integrating user-friendly designs, which are crucial for increasing accessibility among non-technical users. In addition, during investigation the role of Artificial Intelligence chatbots in assisting applicants during the admission process, finding that such tools improve response times and reduce administrative workload. [4]

Table 1: Literature Review Summarization

Study Focus	Key Findings	References
Digital Transformation in Admission System	Online systems reduce administrative workload, minimize errors, and improve efficiency by automating tasks.	[1]
Role of Cloud-Based Platforms	Enables scalability during peak admission periods, reduces downtime, and ensures system reliability.	[2]
Security in Online Admission System	Data encryption and secure file uploads are essential to protect student information.	[3]
User Experience in Online Admission System	User-friendly design increases accessibility for non-technical users.	[3]
AI Chatbots in Admission Process	Chatbots enhance response times and reduce administrative workload.	[4]

2.2.2 Review of similar projects

Here is the short review of existing system which is similar to our system including its features, strengths, weakness and areas for improvements.

Common Features

a) User registration and login.

b) Digital forms with data entry and document upload.

c) Admin dashboard for review and manage applications.

d) User dashboard to check application status.

Strengths

a) Saves time, reduces paperwork and improves transparency.

b) Provides real-time updates and ensures data accuracy.

c) Provides a centralized admin dashboard for efficient management.

d) Streamlines the admission process with digital forms and document uploads.

Weaknesses

a) Limited in responsive web-based design.

b) Lack of multi-language support.

c) Security vulnerabilities and server downtime issues.

d) No email or SMS notifications for application updates.

e) Single admin dashboard managing multiple records, which may create workload issues.

Areas for Improvement

a) Add device optimization.

b) Implement multi-language options.

c) Enhance security and authentication mechanisms.

d) Implement an email and SMS notification system to keep informed to the users.

e) Introduce campus-based access control to distribute admin responsibilities.

Chapter 3: System Analysis and Design

3.1 System Analysis

This system is designed with the series of processes starting with requirement gathering, design, implementation, testing maintenance and documentation. During requirement analysis, all the functional and nonfunctional requirement are analyzed and system is developed according to the requirement then designing of the system is carried out. After the design process, coding and development part is started then after integrating the system there is testing of the system. If the testing is positive then system is implemented otherwise some maintenance is done and system come in operation.

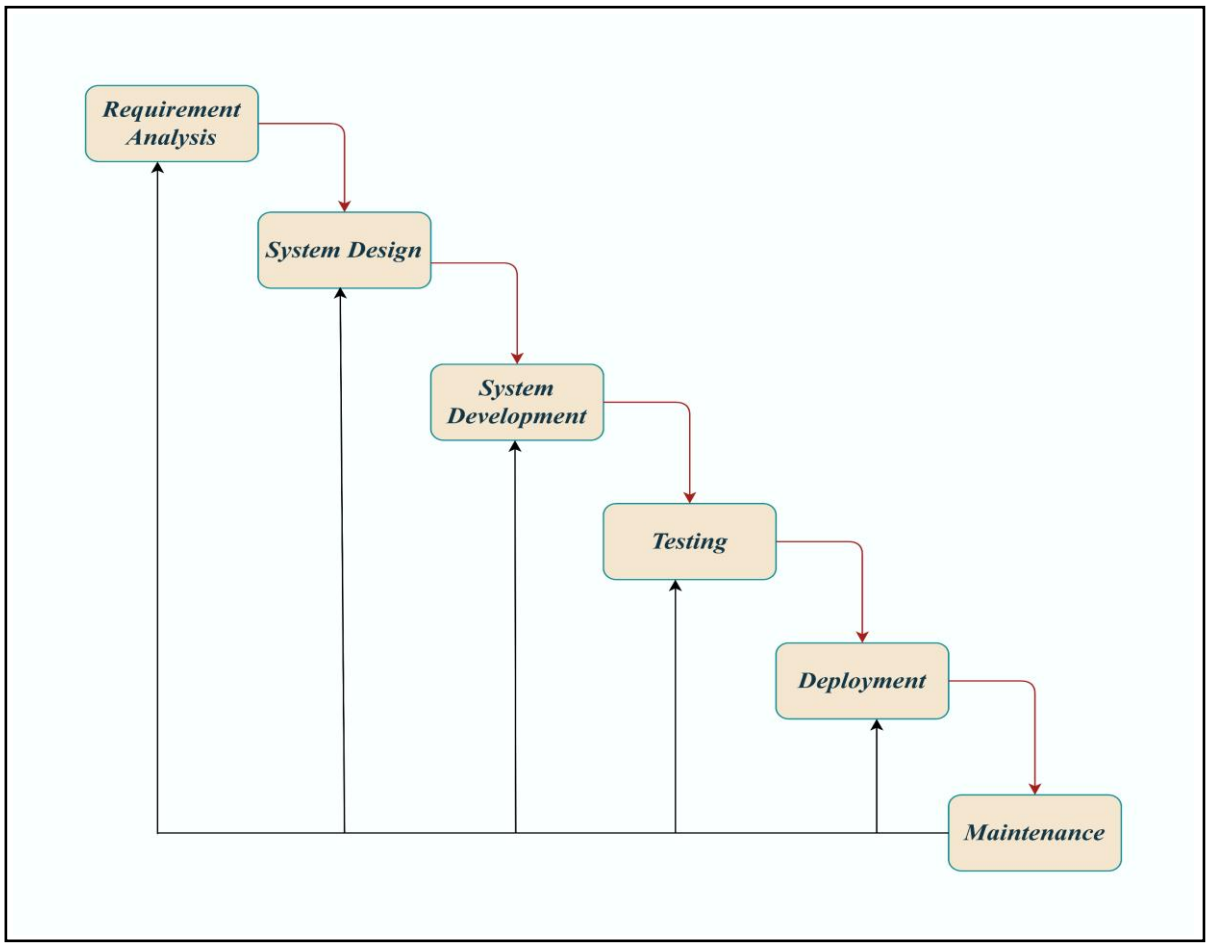


Figure 1: Methodology of Online Student Admission System (Waterfall)

We decided to choose the Waterfall model to proceed with the software development since our requirements are clear from the starting and it provides a clear structure with well-defined phases, making it suitable for projects with fixed requirements. The different phases are explained below:

a) Requirement Analysis:

Requirement Analysis is the first phase of system development in the Waterfall Model, as well as in many other methodologies. In the Requirement Analysis phase, the focus is on gathering and documenting the needs of the admission system, including functionalities like user registration, course selection and document uploads.

b) Design:

Design is the second phase of system development. This phase focuses on the outward development of any system. The Design phase involves creating the architecture of the admission system including database schemas, workflows and user interfaces. High-level designs like ER diagrams and flowcharts are developed to visualize data flow and interactions.

c) Development:

In this phase, system can build using programming language by development teams. Frontend development involves creating responsive and user-friendly forms with CSS and JavaScript. Backend development includes writing code in PHP to process and store data securely. The database is implemented with tables for user and other different information about campus, course, faculty etc.

d) Testing:

It is a process of evaluating the quality of system. It is an approach of evaluating an error or fault before marketing. For login, unit testing involves verifying that the system accepts a valid email and password combination, redirects users to the appropriate dashboard (user or admin) and denies access for invalid credentials. Form testing ensures that all fields to follow validation rules such as correct email formats, required fields and valid document uploads. Integration testing checks the interaction between components, like the form submission saving data in the database and notifying the admin for approval.

e) Deployment:

The Deployment phase is the final step in system development, where the product is launched in the market after thorough testing and development. This phase involves implementing the system in a specific environment, ensuring that all components are functional and accessible to users. Initially, our admission system is deployed on a localhost server after testing and evaluation.

f) Maintenance:

Maintenance involves the ongoing process of updating and managing the system after it has been delivered. Regular monitoring of the system on the localhost server helps identify and resolve performance issues, bugs or errors reported by users. Maintenance tasks include updating the system to accommodate changes in requirements, such as new courses or campuses, and refining features like document approval workflows.

3.1.1 Requirement Analysis

Requirement analysis for a Student Admission System involves gathering both functional and non-functional requirements to ensure the system effectively meets the needs of users. Functional requirements include core functionalities such as enabling students to register for courses, manage schedules, view course details and receive admitting notifications. Administrators must be able to manage course offerings, update student records and monitor admission activities.

On the other hand, non-functional requirements focus on system attributes like scalability, ensuring the system can handle large numbers of users during peak admission periods, security to protect sensitive student data with robust authentication and encryption, and usability, ensuring a user-friendly interface for both students and administrators. These requirements form the foundation for designing a reliable and efficient admission system.

A) Functional Requirements

The functional requirements of the system are demonstrated using the Use Case Diagram as shown below. A Use Case Diagram is a vital tool in system design, it provides a visual representation of how users interact with a system. Use case diagram consists actor, use case and system boundary. It can identify actors, use cases, connect actors and system boundary, define relationships etc. In use case diagram of the system there are two actors namely: system user (student) and admin.

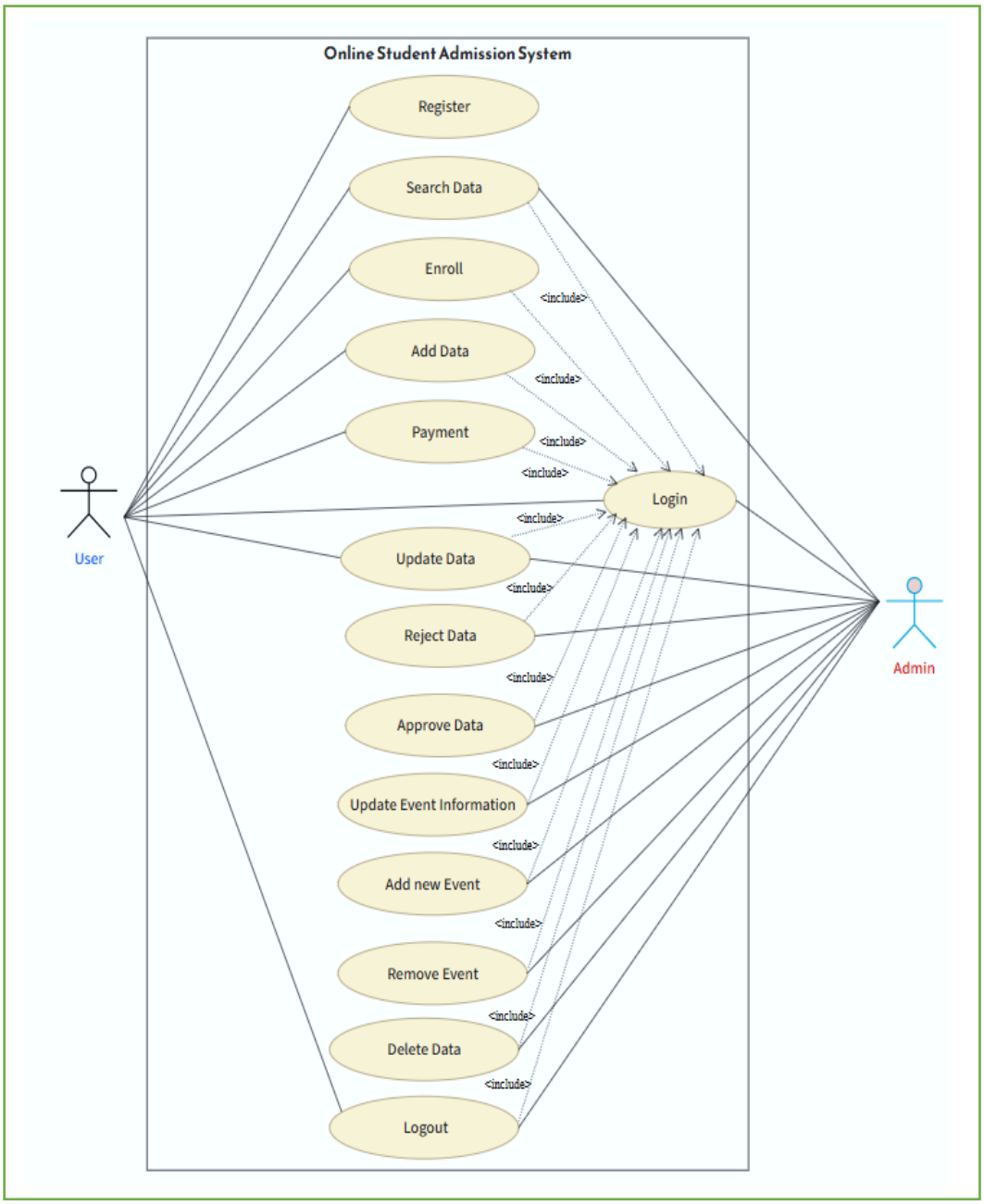


Figure 2: Use Case Diagram of Online Student Admission System

According to the picture activity we can success to see that user of the system **user** can access with register, login, payment, search data, enroll, add data and update data whereas admin can be accessible with search data, approve their information, update an event information, add new event and delete or remove event as well as reject and delete an information of invalid user.

B) Non-Functional Requirements

a) Performance:

The system must be capable of handling a high volume of concurrent users, especially during peak periods such as application deadlines. It should provide fast response times and ensure that users can access the system without delays even with multiple users interacting at the same time.

b) Maintainability:

Maintainability refers to how easily the admission system can be updated, improved, or fixed. The system is designed for quick and cost-effective changes, requiring minimal effort to implement updates or fixes. Its modular design, along with clear documentation, makes it easy to troubleshoot problems and add new features or enhancements over time.

c) Scalability:

The system efficiently manages low to moderate user loads, primarily serving admins with occasional user interactions. Data is stored securely in an online database and the system adapts to future increases in user traffic or data volume. The current infrastructure supports smooth operation without overloading.

d) Usability:

An admission system must be user-friendly, with a clean interface and clear instructions, allowing students and administrators to navigate easily. It should be responsive across devices, enabling smooth form submission, document uploads, and payment processing.

e) Availability:

The system ensures continuous access, allowing users to perform tasks like form submissions and data retrieval 24/7. It achieves an uptime of at least 99.99%, ensuring availability even during peak times. Backup and failover mechanisms are implemented to maintain operations in case of technical issues.

f) Security:

The system must ensure the protection of sensitive user data, such as personal details, academic records and payment information. All data transmitted between the user's device and the server should be encrypted using industry-standard protocols. Access to the system should be restricted through secure mechanisms.

3.1.2 Feasibility Analysis

a) Technical Feasibility:

The technical feasibility of the Student Admission System ensures that all necessary resources are available for successful implementation. The system uses reliable software technologies like JavaScript and MySQL and works on standard hardware, including servers, desktops, and mobile devices. With our combined skills, the two of us can efficiently develop the system, handling tasks like form validation, secure data storage and user-friendly dashboards.

b) Economic Feasibility:

The economic feasibility evaluates the cost-effectiveness of the system by analyzing its expenses and benefits. The benefits include a significant reduction in administrative workload, elimination of manual errors and improved efficiency in the admission process. The economic feasibility checks if the system is cost-effective. In our admission system if analyzing the total cost NPR 50,000–55,000 to develop including tools, development and testing. Annual maintenance costs NPR 5,000–10,000 for updates and support. It reduces paperwork, saves staff time, lowers printing costs and minimizes errors. With faster processing and better data management, the system is worth the investment.

c) Operational Feasibility:

The operational feasibility assesses the system's ability to meet user requirements effectively. For students, the system provides a simple and intuitive registration process with clear guidance. For administrators, it offers efficient data management, document verification and streamlined workflows to handle admissions effectively. Faculty members benefit from quick access to essential information for decision-making. By addressing the specific needs of its users, the system ensures operational efficiency and user satisfaction, demonstrating its feasibility in practical application.

d) Legal Feasibility:

The legal feasibility ensures that the system complies with all relevant laws and regulations. It adheres to data protection laws by securely handling sensitive student and user information. The software and tools used in the system are properly licensed and all regulatory requirements set by educational authorities for online admission systems are followed. This ensures that the system operates within the legal framework, avoiding potential legal barriers or conflicts.

e) Scheduled Feasibility:

The scheduled feasibility evaluates its ability to be developed and implemented within the planned timeframe. The project follows a structured timeline with defined phases, including requirement analysis, design, development, testing, deployment, maintenance and documentation. Tasks are allocated efficiently to ensure progress aligns with the academic calendar. This ensures the project meets deadlines without compromising quality, enabling smooth and timely use during the admission process.

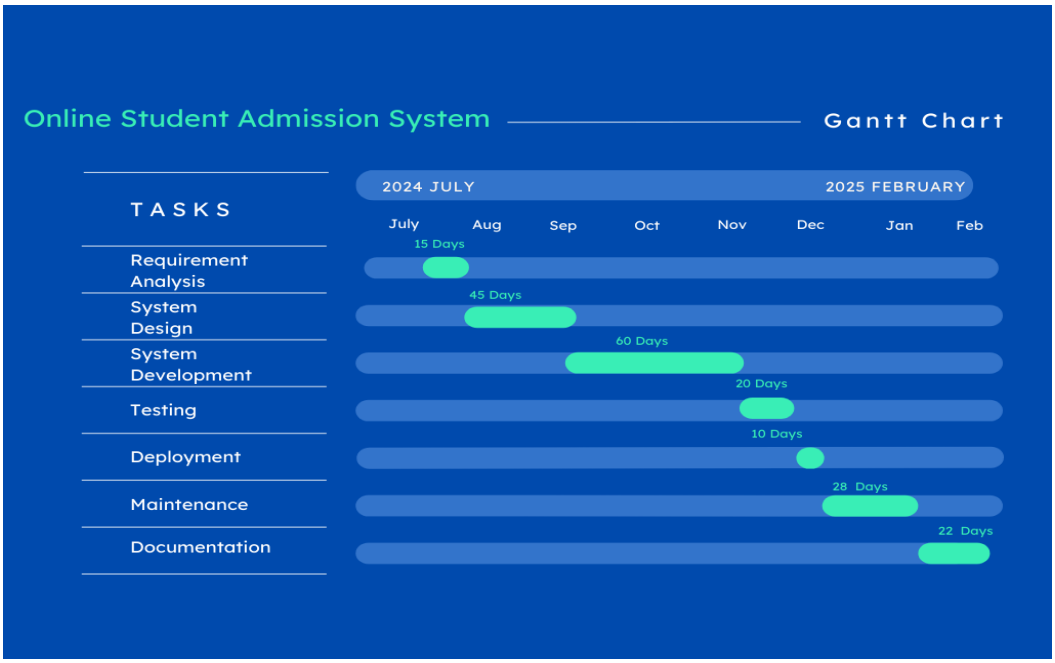


Figure 3: System Gantt Chart

Task	Total Duration (200 Days)	Start Date	End Date
Requirement Analysis	15	July 30, 2024	August 13, 2024
System Design	45	August 14, 2024	September 27, 2024
System Development	60	September 28, 2024	November 27, 2024
Testing	20	November 28, 2024	December 17, 2024
Deployment	10	December 18, 2024	December 27, 2024
Maintenance	28	December 28, 2024	January 24, 2025
Documentation	22	January 25, 2025	February 15, 2025

Figure 4: System Project Timeline

3.1.3 Data Modelling (ER diagram)

An Entity-Relationship Diagram for an online admission system visually represents the key entities, their attributes, and relationships within the system. It helps in database design and ensures data is stored and managed efficiently. It includes entities: Users, Photo, Certificate, Guardian, Admission, Campus, Faculty, Course, Level, Payment, Admin, Login, Notices and relationships like manages, has, is guided by, authenticate, owns, makes, creates, enrolled in, has level, belongs to, associated with, paid for.

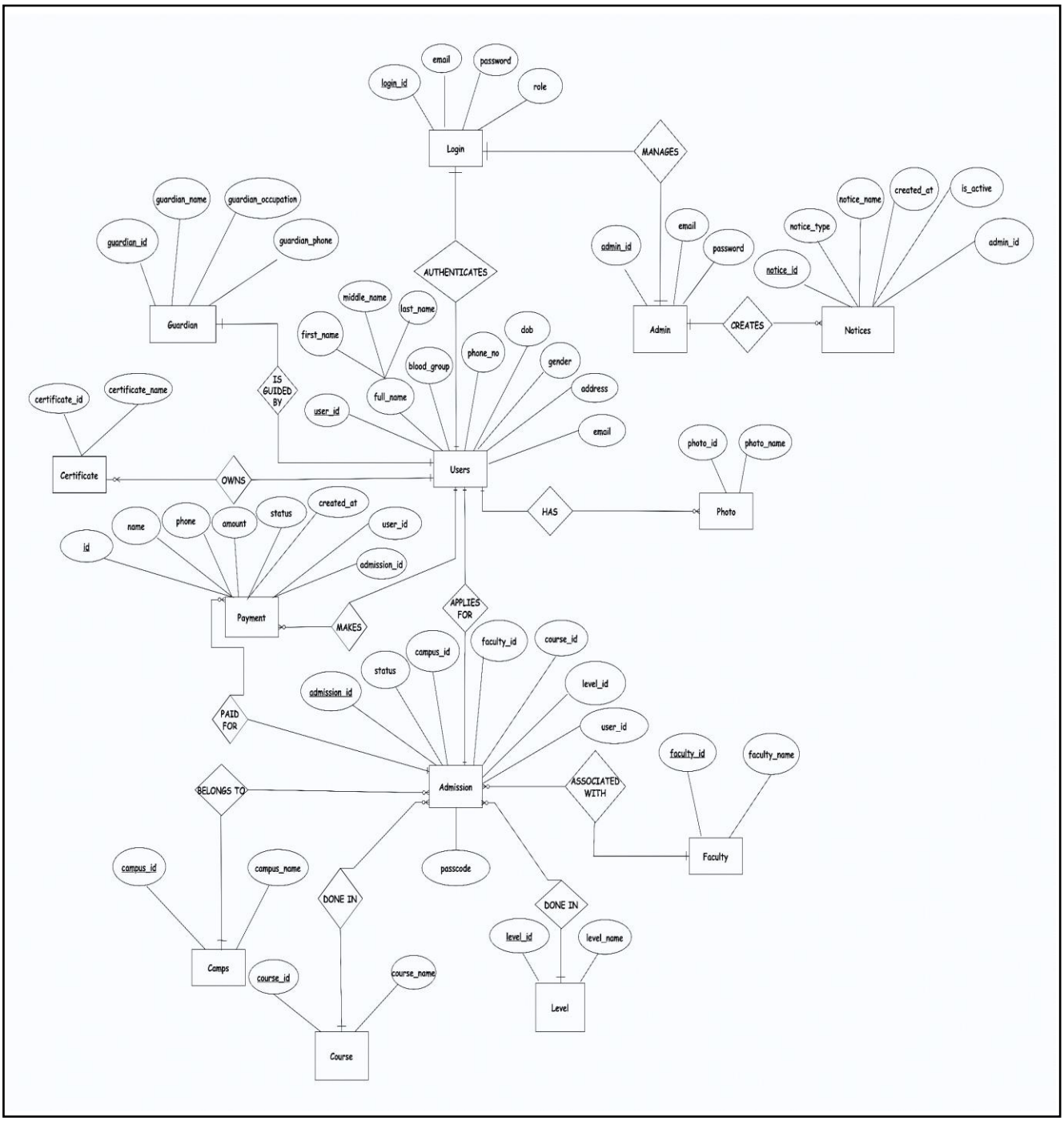


Figure 5: ER Diagram of Online Student Admission System

3.1.4 Process Modelling

Process modeling is a method used to visually represent the steps, activities, and flow of information in a system or business process. It helps in understanding, analyzing and improving how a process operates, ensuring efficient and effective outcomes. It includes DFD Levels. It is also called Context Diagram.

A. Context Diagram

A Context Diagram is a high-level Data flow diagram (DFD) that represents a system and its interactions with external entities. It provides a simple, big-picture view of how data flows between the system and its environment without detailing internal processes. Here is the context diagram of Admission system which provides the description of system process.

System Interaction: The diagram illustrates the interaction between users (students) and administrators with the Admission System, showing data flow between them.

User Operations: Users can register, log in, provide enrollment information, make payments, and receive enrollment reports from the system.

Admin Role: Administrators log in, manipulate student details, and generate reports, ensuring efficient admission management.

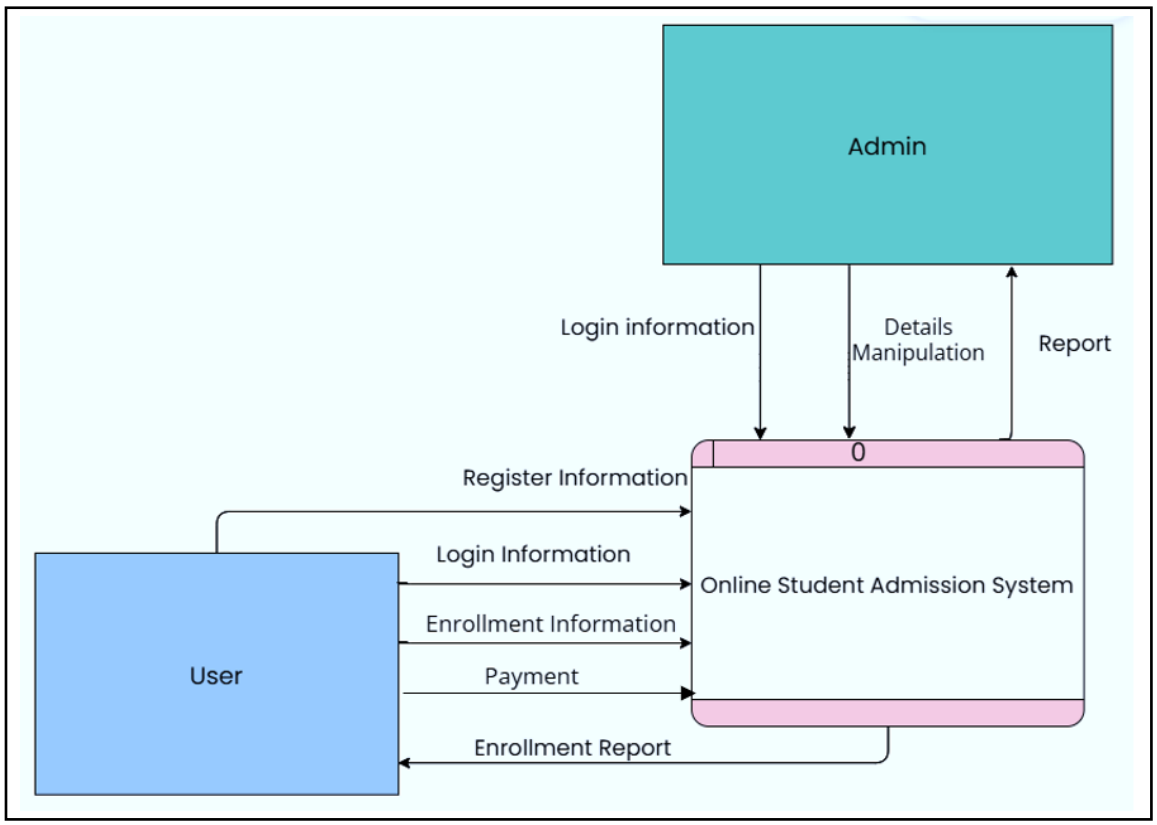


Figure 6: Context Diagram of Online Student Admission System

B. Top Level DFD (Level 0 DFD)

A **Level 0** is Top-Level DFD expands on the Context Diagram by breaking down the system into its main functional processes while maintaining external entities and data flows.

Process Flow: The diagram represents the structured process of an admission system, covering registration, login verification, enrollment, payment and report generation.

User and Admin Roles: Users provide login credentials, enroll in courses, make payments, and receive reports, while admins verify data, manipulate details, and generate reports.

Data Storage and Flow: The system stores login, enrollment, and payment details in databases, ensuring secure data handling and efficient admission management.

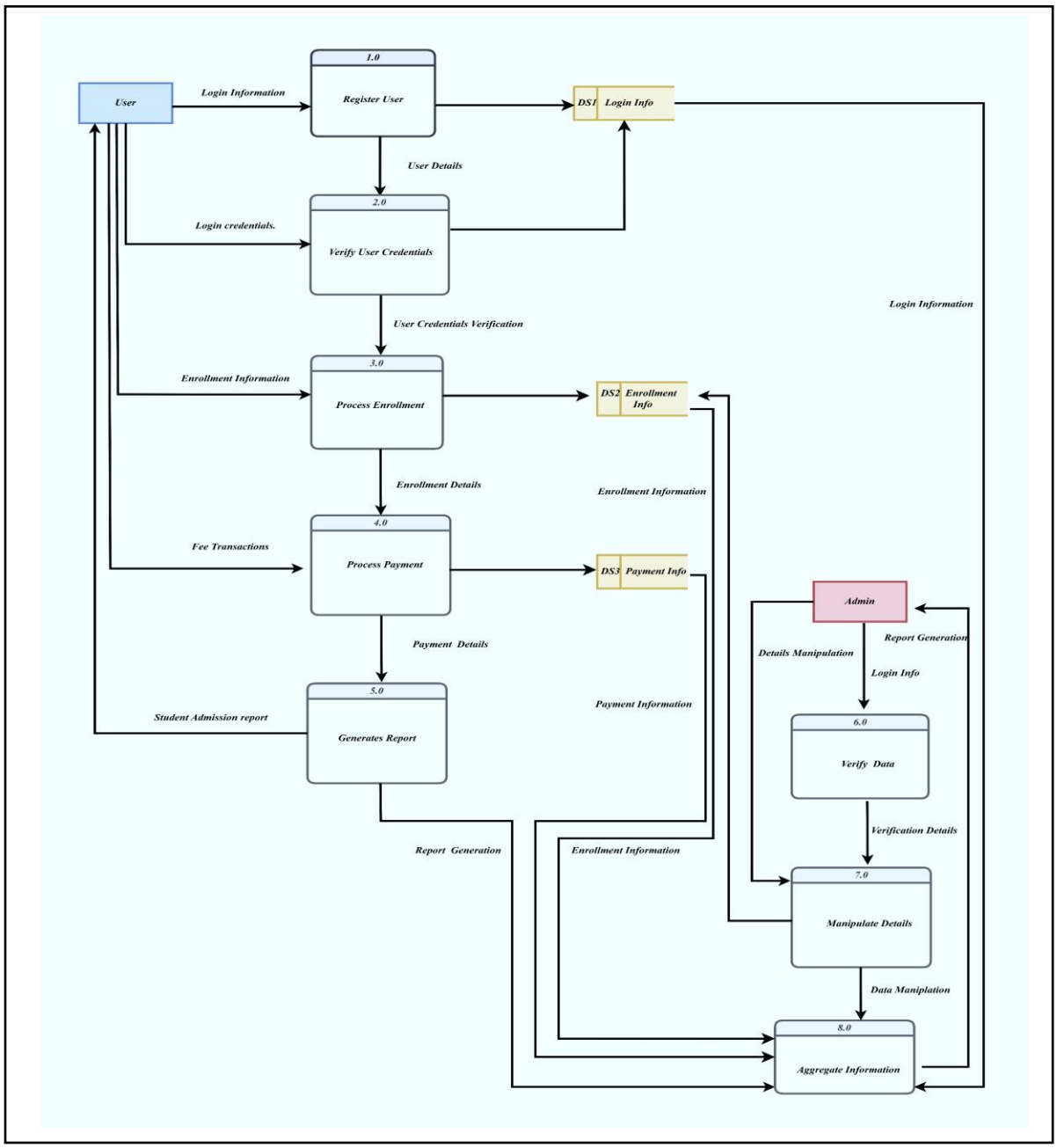


Figure 7: Top Level DFD of Online Student Admission System

3.2 System Design

System design is the process of structuring the architecture, components, and data flow of a system to meet specified requirements. The Online Admission System enables students to apply for academic programs digitally, streamlining the admission process. The design is achieved through various schema designs and the following detailed designs:

3.2.1 Architectural Design

The architecture includes three main layers:

Presentation Layer:

a) User interfaces such as login, registration forms and dashboards for students and administrators.
b) Built with CSS and JavaScript for responsiveness and interactivity.

Business Logic Layer:

a) Manages core functionalities such as student registration, validation and data processing.
b) Built with PHP for backend processing.

Data Layer:

a) Stores user data, documents and application records in a MySQL database.
b) Ensures data security and integrity.

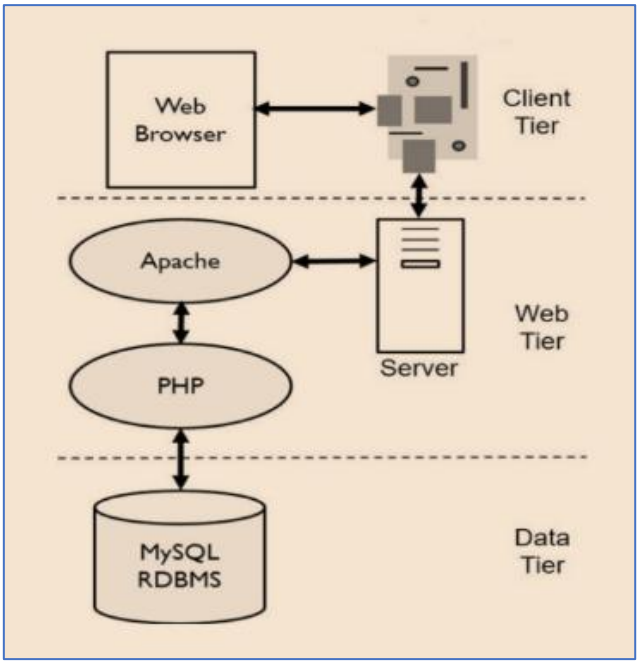


Figure 8: Architectural Design of Online Student Admission System

3.2.2 Database Schema Design

A database schema design is crucial for structuring data efficiently and ensuring smooth interactions between the system's components. The schema organizes the data into separate tables, defines the relationships among the tables and applies constraints like primary and foreign keys for data integrity.

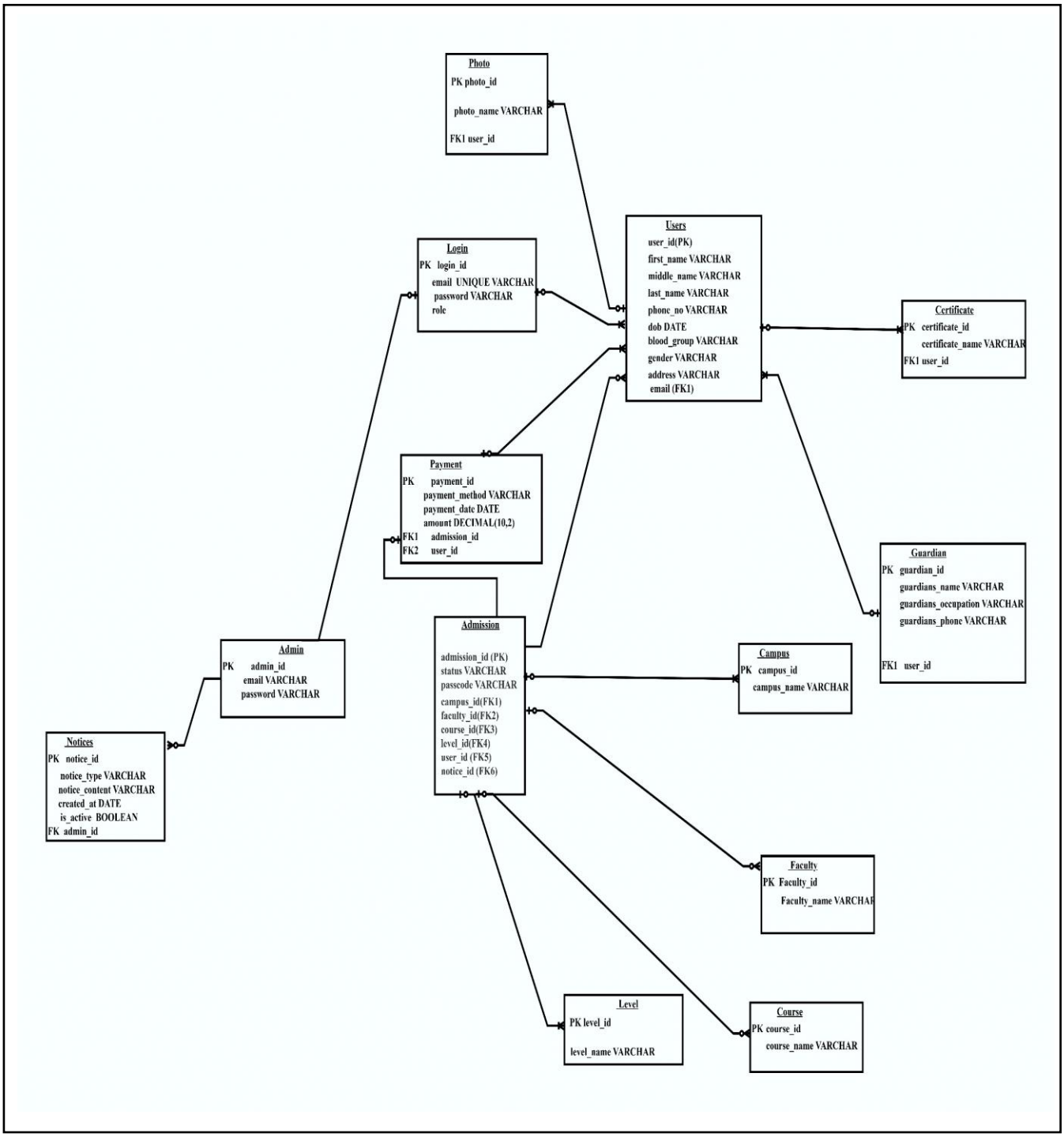


Figure 9: Database Design of Online Student Admission System

3.2.3 Interface Design

This admission system interface is designed to streamline the application process for both users and administrators. It provides a clear and structured workflow, allowing users to log in, fill out admission forms, make payments and view or update their details. Administrators have access to a comprehensive dashboard where they can manage tasks such as approving applications, updating or deleting records, managing payments and viewing detailed reports.

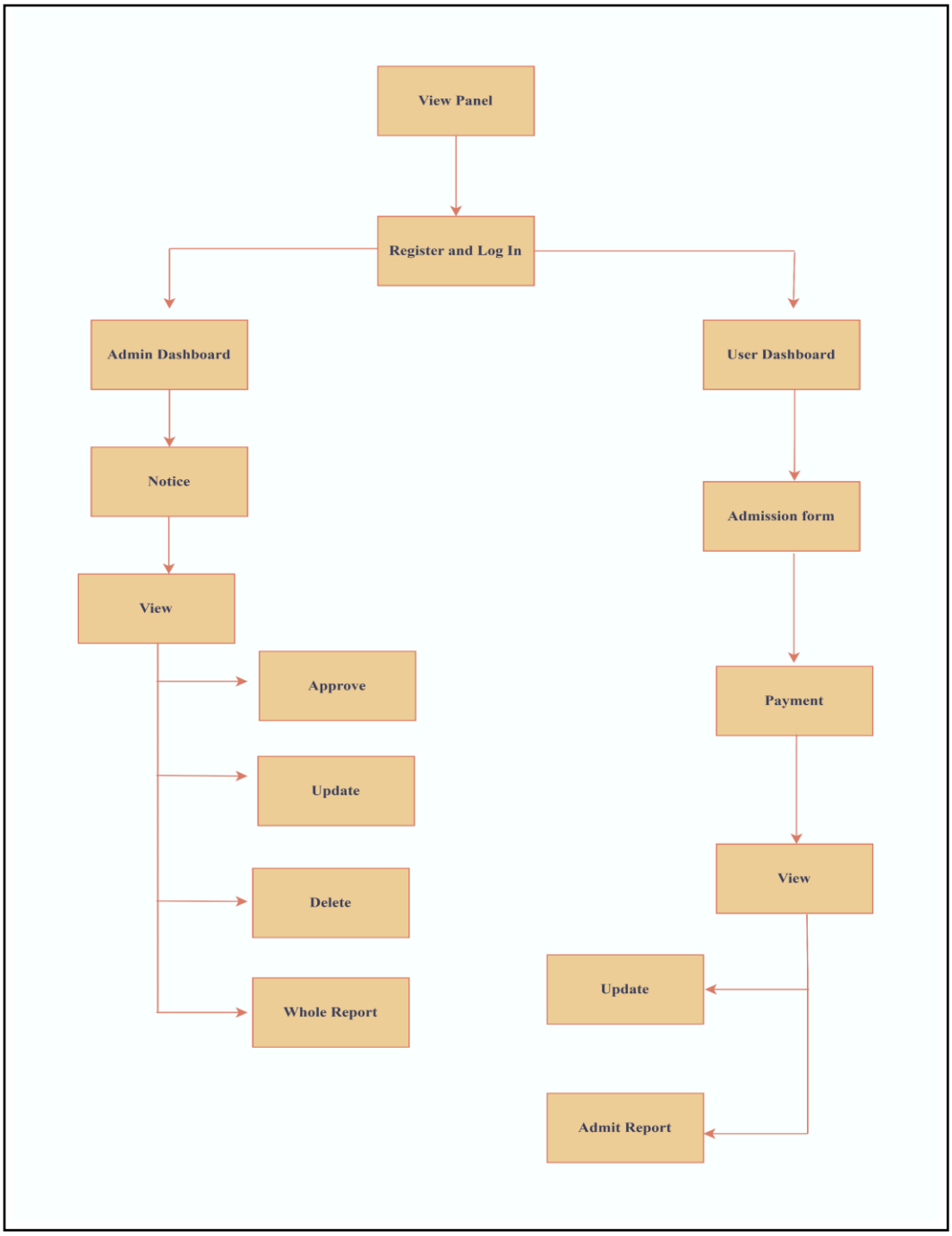


Figure 10: Interface Design of Online Student Admission System

3.2.4 System Flowchart for Admin

System Flowchart means the process of flowing of the information one after another. Given figure demonstrates the flowchart of Admin.

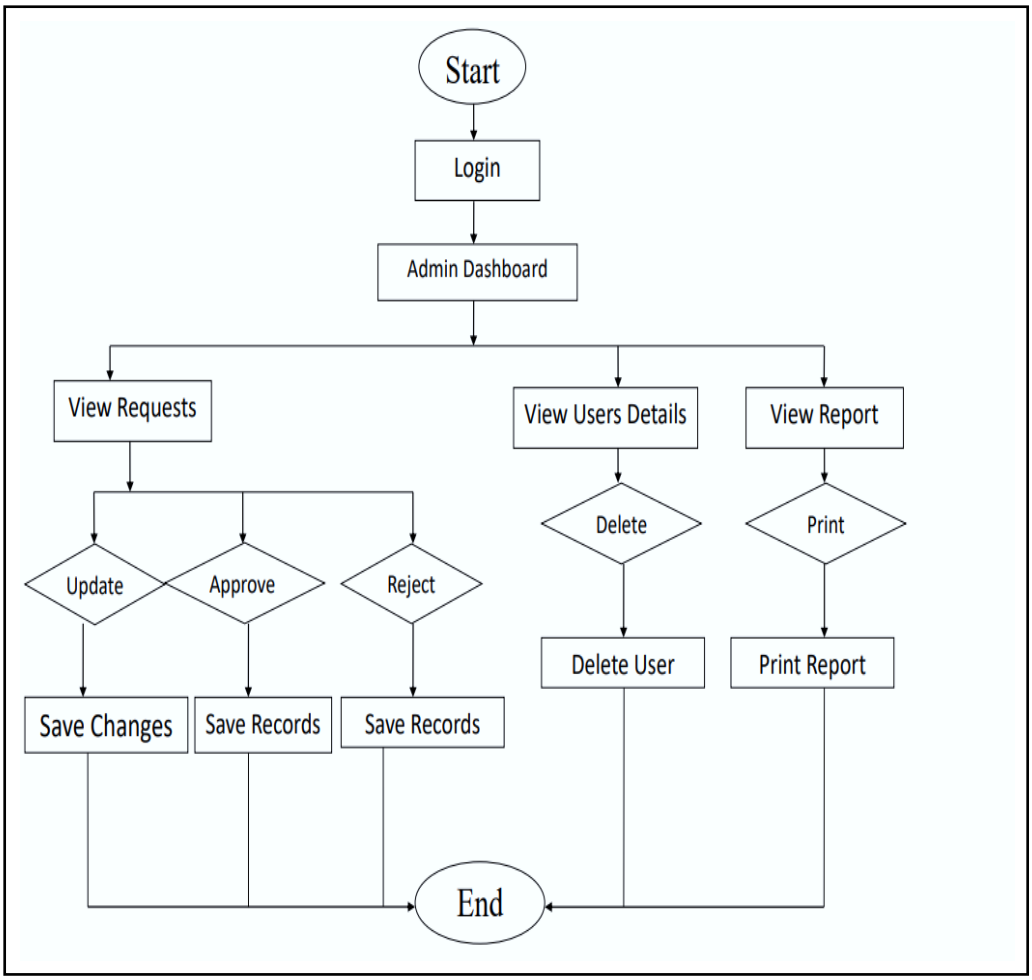


Figure 11: Admin System Flowchart of Admission System

The above given figure shows the flowchart of the student admission process managed by the Admin. This flowchart illustrates the Admin Dashboard Process for managing user requests, user details, and reports. The process begins with the admin logging into the system and accessing the dashboard. From there, the admin can manage various tasks, including viewing and processing user requests by updating, approving, or rejecting them, with each action leading to saving the respective records. Additionally, the admin can view user details and has the option to delete users from the system. The flowchart also includes a report management section, where the admin can view reports and print them as needed. Once all necessary tasks are completed, the process concludes, ensuring a structured and efficient workflow for administration.

3.2.5 System Flowchart for User

Given figure shows the flowing process of information of students or also called users. The process begins with a Start point, followed by the user registering and logging into the system. Once logged in, the user is directed to the Home Page, where they can access the Admission Form. After filling out the form, the user proceeds to the Payment step to complete the required transaction. Upon successful payment, the user submits the form, leading to the Save Records stage where the data is stored. Finally, the user can View Report to see the outcome or details of their submission, and the process concludes with an End point. Figure can be demonstrated below:

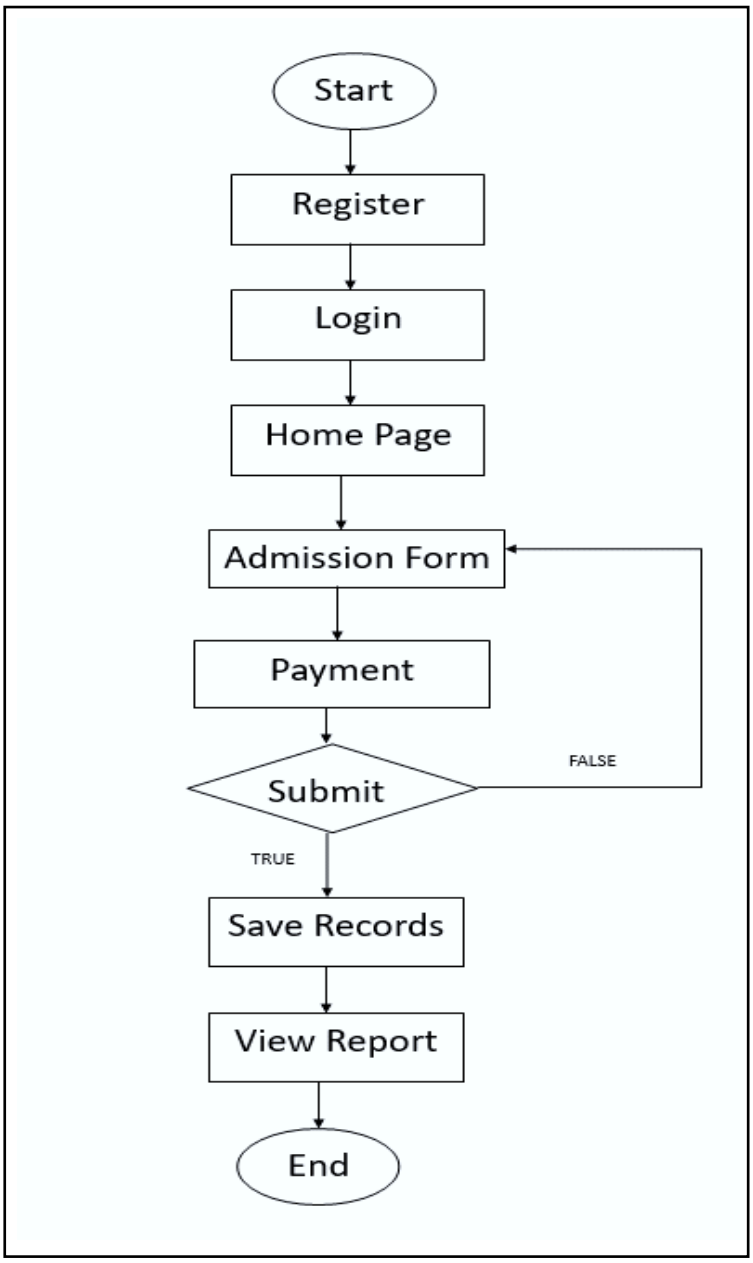


Figure 12: User System Flowchart of Online Student Admission System

Chapter 4: Implementation and Testing

4.1 Implementation

4.1.1 Tools Used

Following are the tools and framework used for the accomplishment of our project.

Programming Tools

A. Frontend Tools

HTML:
Hyper Text Markup Language structures the admission system, defining forms for registration, login and document uploads. It creates tables for displaying user data on dashboards and forms for updating or deleting records**,** enabling seamless management by users and admins. Additionally, HTML is used for linking pages, embedding multimedia content, and organizing input fields for better usability.

CSS:

Cascading Stylesheets ensure a visually appealing and responsive interface for the admission system. It customizes layouts, colors, fonts, button styles, and form designs**,** ensuring consistency across different devices. CSS also plays a key role in grid and flexbox layouts, animations, and hover effects, enhancing user experience and accessibility.

JS:

JavaScript adds interactivity to the admission system by implementing form validation, event handling, and dynamic content updates**.** It ensures that required fields are correctly filled before submission, preventing errors. JS supports dropdown selection for dependent fields such as faculty, course and level provides popup dialog boxes for user notifications, confirmations, and error messages, improving user engagement.

J-Query and J-Query UI:

JavaScript-Query and UI is used to simplify complex scripting and enable dynamic content updates in the admission system. It helps in fetching and displaying campus and course details without reloading the page. J-Query also enhances the user interface with smooth transitions, animations ensuring a seamless and interactive experience.

These technologies together create a robust, efficient, and user-friendly frontend for the admission system.

B. Backend Tools

PHP:

It is used for handling server-side logic. In the admission system, Hypertext Preprocessor is used to manage back-end operations, including inserting data from registration-form, updating and retrieving all details of user from the database for display on the front end. It also manages session handling to maintain and track user activity.

C. Database

MySQL:

MySQL is a database used for secure and efficient data storage. In the admission system, My Structured Query Language is used as the database to store and manage all details, which can be accessed and displayed through PHP. It supports data retrieval using queries to fetch specific user information when needed. It also ensures data consistency and integrity through constraints like primary keys, foreign keys, and indexing.

D. Documentation Tools

Microsoft Word:

Microsoft Word is used for writing and editing the documentation of the system, providing a platform for creating detailed guides, user manuals and system specifications for an online admission system.

Draw.io:

Draw.io is an online application and tool used for designing various elements of the admission system, such as database schemas, ER schemas, user interface layouts and system flow diagrams. It helps visualize and organize the structure and functionality of the system effectively.

VS code:

Visual Studio Code (VS Code) is used for programming and coding the system. It provides a powerful, flexible environment with support for multiple programming languages, debugging tools and extensions. For the development of an online admission system, VS Code helps streamline the coding process, enabling efficient implementation of features like user registration, application submission and data management.

4.1.2 Implementation details of Modules

Login:

a. Users enter their registered email and password.
b. The system verifies the credentials by matching them with the stored data in the MySQL database.
c. Upon successful verification, users are redirected to their respective dashboards (user/admin).

Registration:

a. New users fill out a registration form with personal details such as name, email, password and other relevant information.
b. Functions validate inputs, ensuring that the email is unique, passwords meet security standards, and other required fields are completed.
c. After validation, user details are saved in the MySQL database and a confirmation is sent.

Document Upload:

a. Users can upload documents (result certificates, photos) which are validated for format and size.
b. Uploaded documents are stored in respective directories and linked to user records in the database.

Admin Approval:

a. Admins review and approve or reject uploaded documents from a dashboard interface.
b. Functions manage document statuses (approved, pending and rejected) and show to the users immediately.

Data Display:

a. The system retrieves and displays user data, including document statuses, in both user and admin dashboards.
b. Functions ensure real-time updates and smooth navigation through the interface.

4.2 Testing

4.2.1 Test cases for unit testing

Unit testing focuses on testing individual modules or components of the admission system to ensure they function correctly. A test case includes a set of conditions or inputs used to verify that a specific module, such as login or registration performs as expected. The objective is to identify and fix issues at the smallest functional level, ensuring system stability and reliability.

Email and Password should be valid:

Table 2: Login Testing on Admission System

Test Case	**Scenario**	**Input**	**Expected Output**	**Actual Output**	**Remarks**
1	Register with filling without creating account. Account created but not match with login.	Email: user@gmail.com Password: user1@ **Creating Account:** Email: user@gmail.com password: user1@ **Login** Email: user@gmail.com password: user2@	Registration unsuccessful. Registration unsuccessful.	Account cannot be created from this email. Invalid email and password.	FAIL FAIL
2	Register with creating account.	**Creating Account:** Email: user@gmail.com password: user1@ **Login** Email: user@gmail.com password: user1@	Registration successful.	You are logged in successfully.	PASS

4.2.2 Test cases for system Testing

a) Password Testing:

Password Field accepts from 5 characters to 10 characters.

It must include at least one numeric value, one uppercase letter, one lowercase letter and one special character.

Table 3: Password Validation on Admission System

Test Scenario	Test Scenario description	Expected Outcomes
1	Enter less than 5 characters in the password field.	System should not accept.
2	Enter more than 10 characters in password field.	System should not accept.
3	Enter 5-10 characters in the password field with at least 1 uppercase and lowercase letter, 1 digit and one special characters.	System should accept.
4	Else	System should not accept.

b) Phone No Testing:

Phone number accepts only 10 digits number otherwise not accept.

Table 4: Phone Number Validation on Admission System

Test Scenario	Test Scenario description	Expected Outcomes
1	Enter less than 10 digits number in field.	System should not accept.
2	Enter more than 10 digits number in field.	System should not accept.
3	Enter the characters in field.	System should not accept.
4	Enter 10 digits number exactly.	System should accept.

c) Email Testing:

Email Pattern should be matched for acceptance.

Table 5: Email Validation on Admission System

Test Scenario	Test Scenario description	Expected Outcomes
1	Address without an @ and a dot	System should not accept.
2	Address with an @ but without a dot	System should not accept.
3	Address without an @ but with a dot	System should not accept.
4	Address with an @ and a dot	System should not accept.
5	Address with @ and dot	System should accept.

d) Testing in Enrollment and Update Form

Table 6: Enrollment Form and Update Form Validation

Test Scenario	Test Scenario description	Expected Outcomes
1	If user basic information like first name, last name, address, gender is null.	System should not accept.
2	If phone number should be less than and greater than 10.	System should not accept.
3	If date of birth is input which is lesser than 18 years.	System should not accept.
4	If campus, faculty, course, level is not selected.	System should not accept.
5	If user's guardian information like name, phone number and occupation is null (same criteria for phone number).	System should not accept.
6	In first time login and registration if user cannot submit their certificate, photo as well as their pass code of entrance.	System should not accept.
7	Otherwise if all of the above condition's condition could not match.	System should accept.

e) Payment Testing

Table 7: Payment Testing of User

Test Scenario	Test Scenario description	Expected Outcomes
1	If user fails to pay.	System should not accept and user cannot be registered.
2	If user success to pay.	System should accept, user registered successfully.

Chapter 5: Conclusion and Future Recommendations

5.1 Lesson Learnt/Outcome

Throughout the development of this project, we have gained significant improvements in our programming skills, time management, and understanding of system development processes. Initially, the project posed challenges due to its complexity and our inexperience with similar tasks. However, with dedication and effort, we successfully delivered a system that met all expectations. The experience highlighted the importance of effective time management, especially in ensuring the project was completed and documented within the given deadline. Moving forward, we aim to enhance the system by incorporating new features to improve its usability and efficiency, making it more adaptable to user needs.

5.2 Conclusion

The Online Student Admission System successfully meets its objectives by providing a web-based platform for easy course admission and reducing errors through digitization. The system streamlines the admission process, minimizes paperwork and enhances efficiency.

Findings indicate that while the system improves accessibility and record management, it lacks email and SMS notifications and operates with a single admin dashboard managing multiple records. These aspects can be improved in future iterations to enhance functionality.

5.3 Future Recommendations

The success of the admission system depends on how effectively it meets the needs of its users. Future developments will focus on enhancing the system based on user feedback and reviews. The database will be regularly updated and optimized to improve performance. Additionally, the user interface will be updated to reflect changing user needs and advancements in technology. Possible future enhancements include:

a. Automated Notifications
b. Advanced Reporting
c. Enhanced Security Features
d. Bug Fixes and Performance Improvements
e. Mobile Application Development.

References

[1] J. D. Smith, Digital Transformation in Educational Admissions, New York: Journal of Educational Technology, 2018.

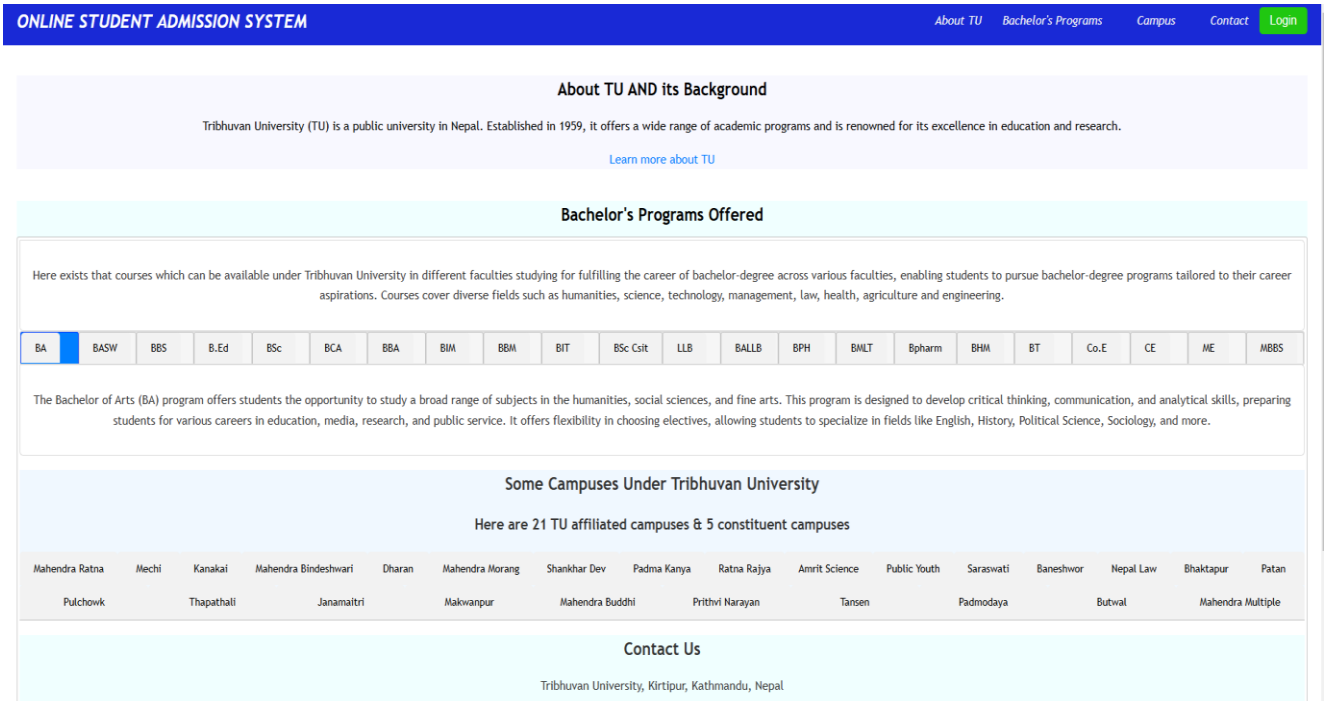
[2] K. Etal, Scalability and Efficiency in Cloud Based Admission System, Washington DC: International Journal of Cloud Computing, 2020.

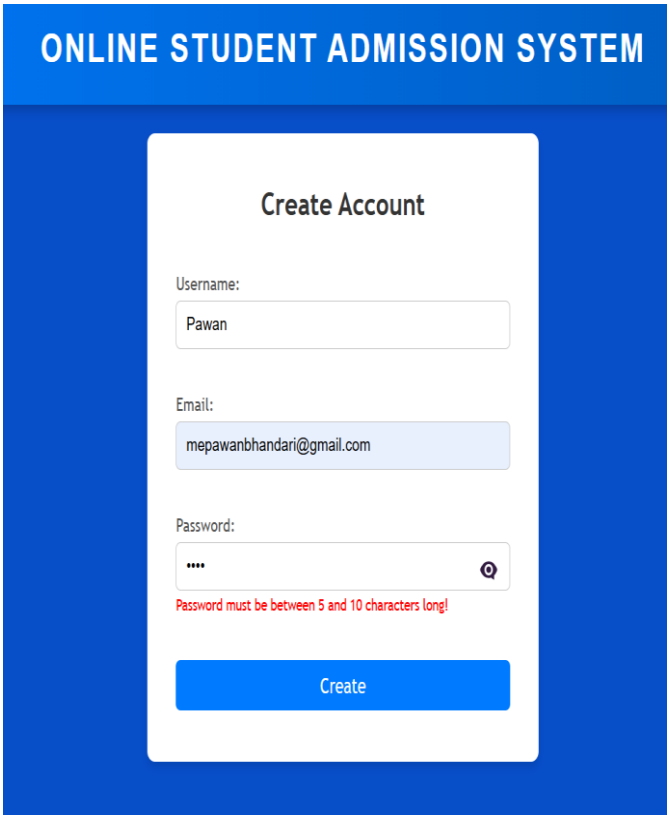
[3] C. Etal, Data Security in Online Admission Portals, Chicago: Journal of Cybersecurity in Education, 2019.

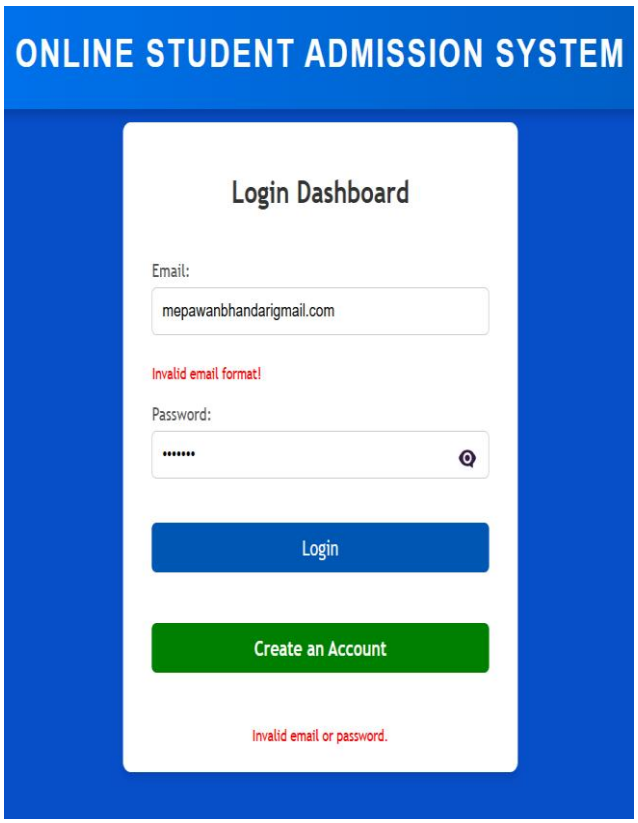
[4] R. a. Zee, AI Integration in Educational Systems, Chicago: Advances in Intelligent System, 2021.

Appendixes

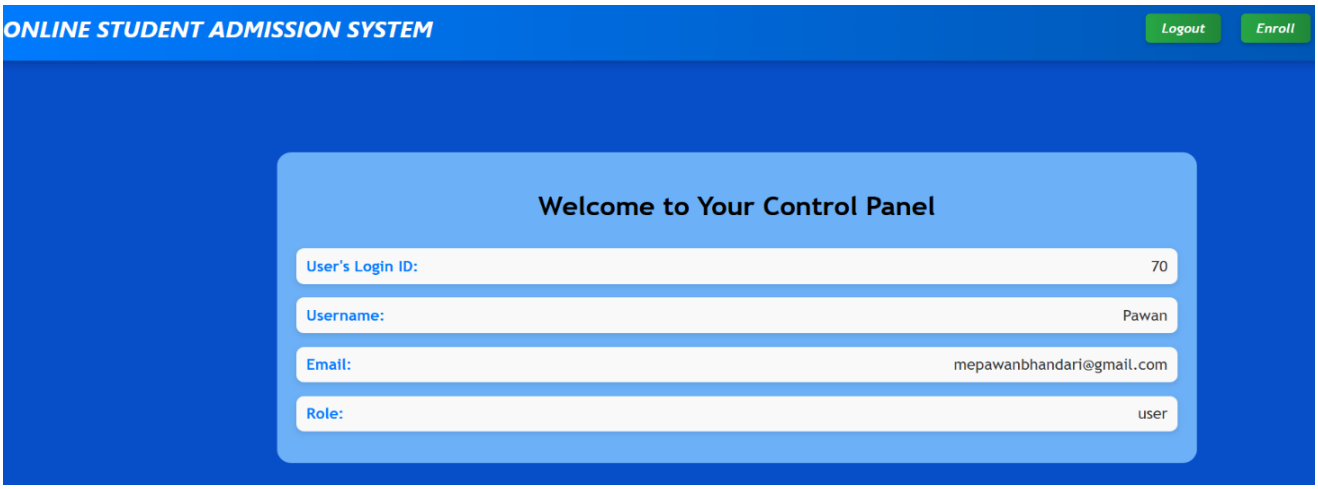
Screenshots of Home Page, Register Dashboard and Login Dashboard

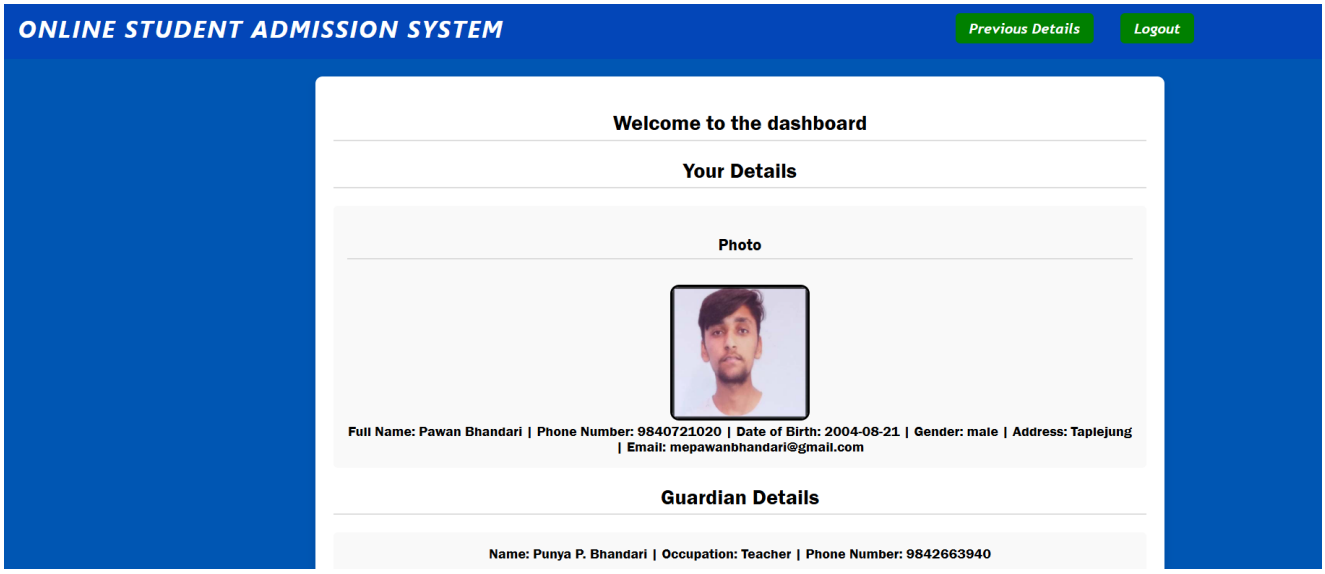


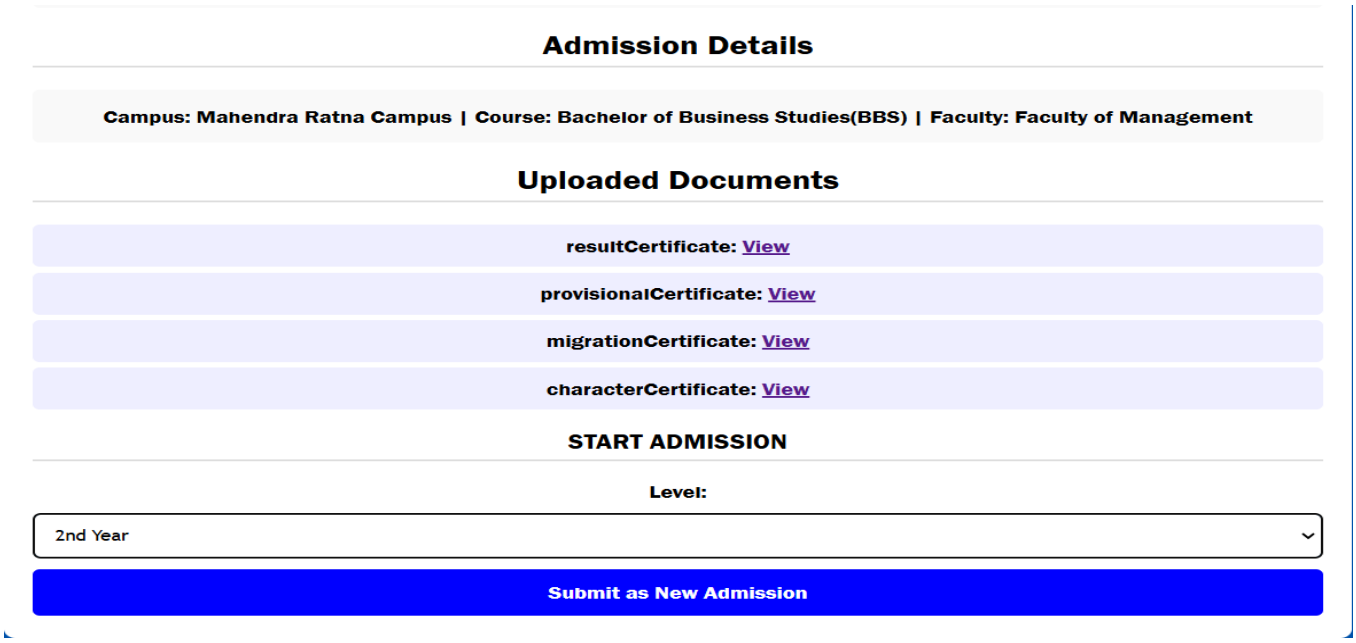




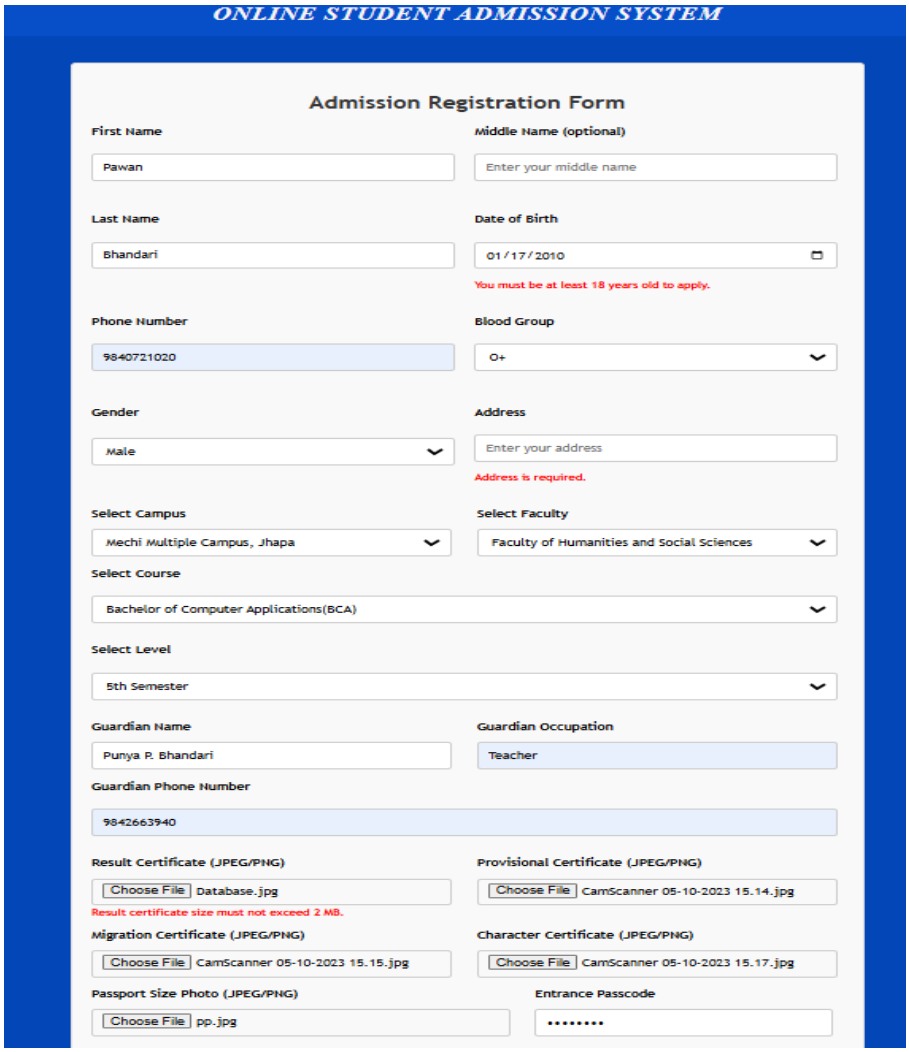
Screenshots of User First and Second View Control Panel

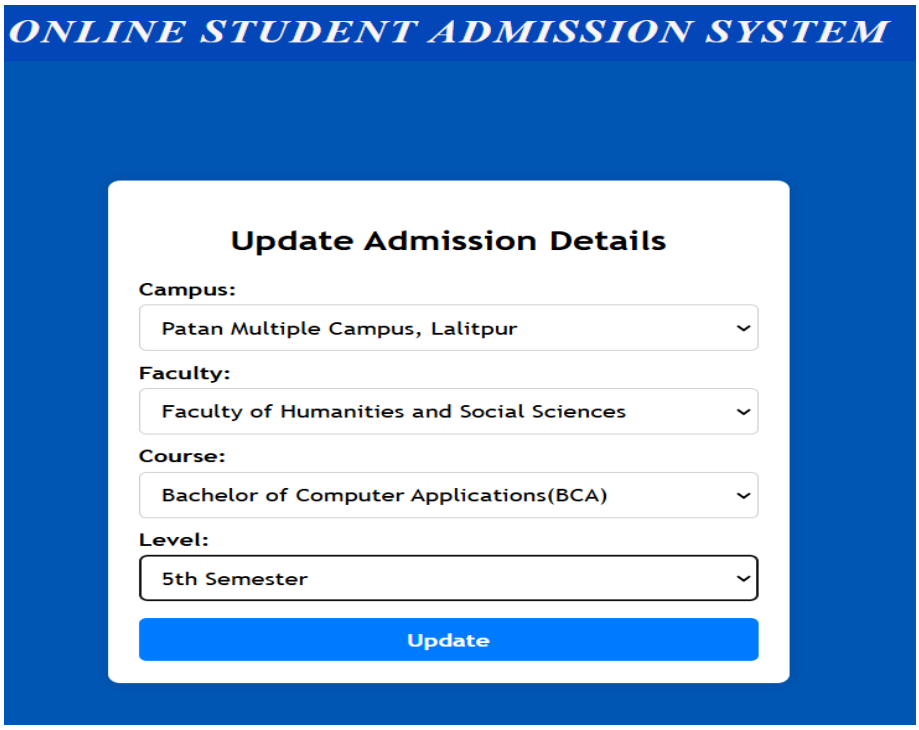




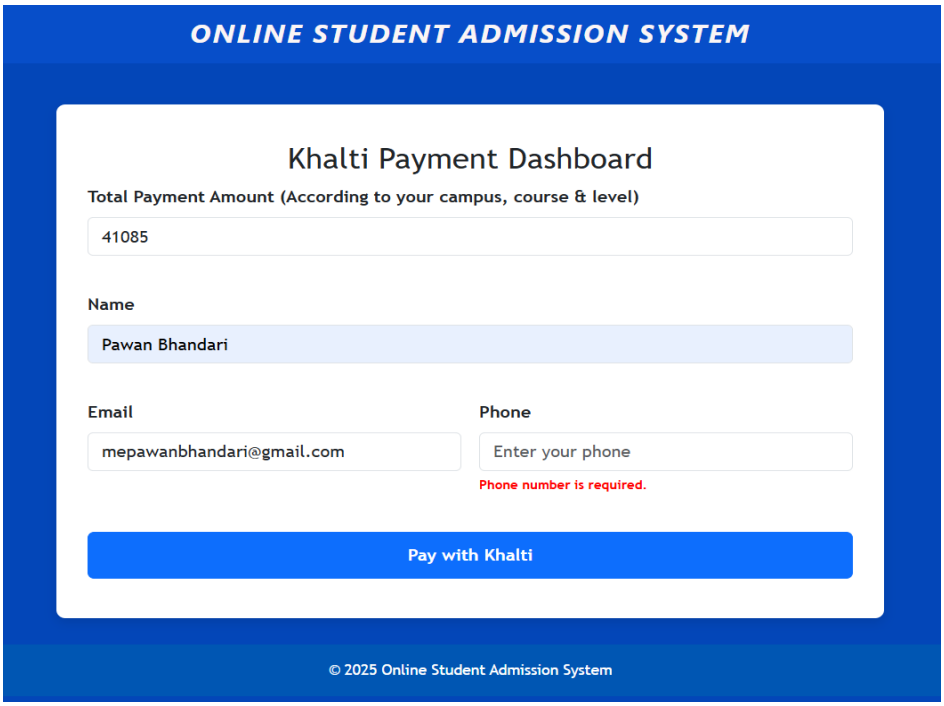


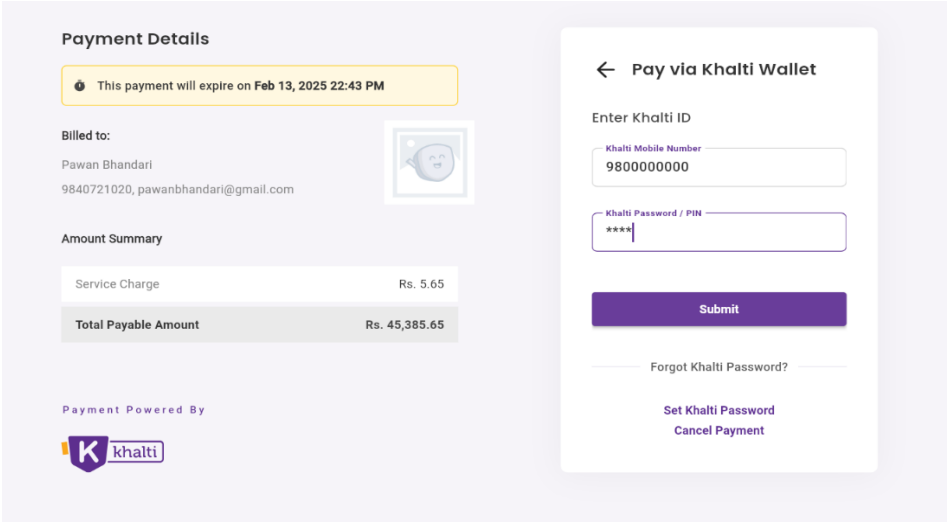
Screenshots of Enrollment and Update Form

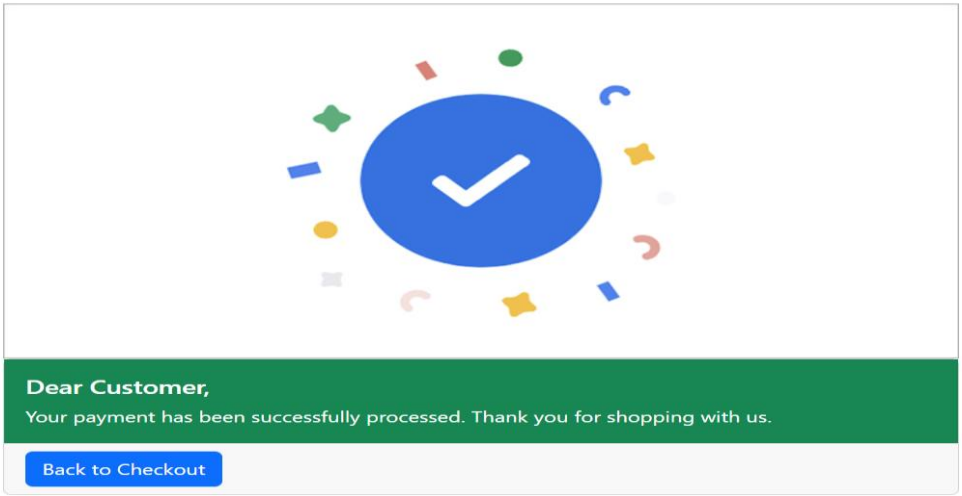




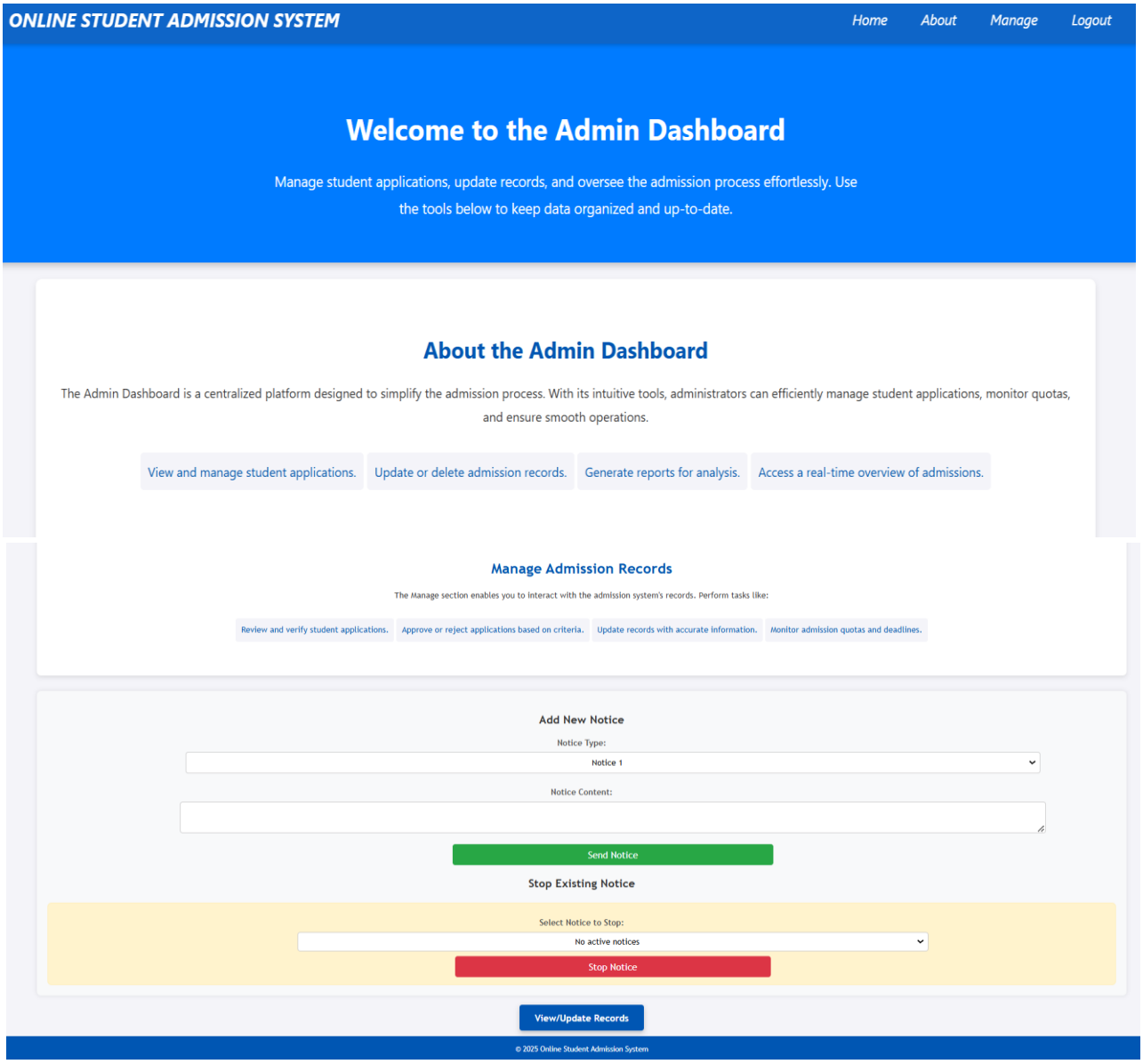
Screenshots of Payment Integration Using Khalti

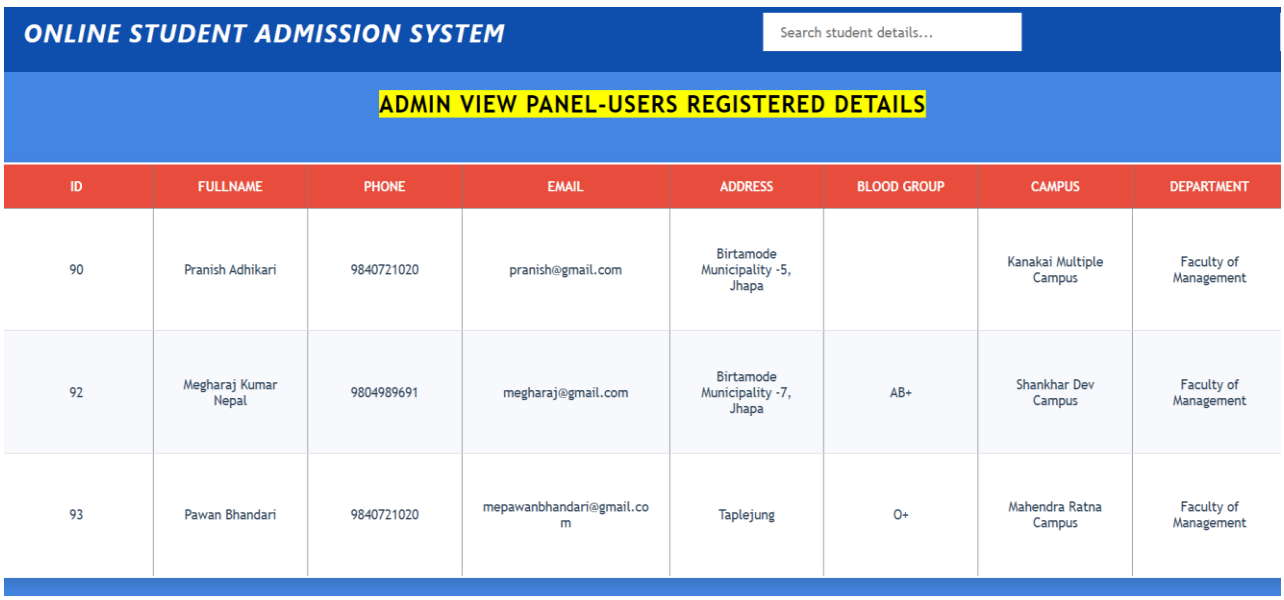






Screenshots of Admin Dashboard and View Panel





ID	FULLNAME	PHONE	EMAIL	ADDRESS	BLOOD GROUP	CAMPUS	DEPARTMENT
90	Pranish Adhikari	9840721020	pranish@gmail.com	Birtamode Municipality -5, Jhapa		Kanakai Multiple Campus	Faculty of Management
92	Megharaj Kumar Nepal	9804989691	megharaj@gmail.com	Birtamode Municipality -7, Jhapa	AB+	Shankhar Dev Campus	Faculty of Management
93	Pawan Bhandari	9840721020	mepawanbhandari@gmail.com	Taplejung	O+	Mahendra Ratna Campus	Faculty of Management

View Report | Delete Records | Logout

CERTIFICATE 1	CERTIFICATE 2	CERTIFICATE 3	CERTIFICATE 4	PHOTO	STATUS	AMOUNT PAID	OPERATIONS
ResultCertificate	ProvisionalCertificate	MigrationCertificate	CharacterCertificate		rejected	Rs. 5000.00	Approve Update Reject
ResultCertificate	ProvisionalCertificate	MigrationCertificate	CharacterCertificate		approved	Rs. 65430.00	Approve Update Reject
ResultCertificate	ProvisionalCertificate	MigrationCertificate	CharacterCertificate		pending	Rs. 41085.00	Approve Update Reject

← Back to Display

ONLINE STUDENT ADMISSION SYSTEM

ADMIN DASHBOARD FOR DELETION

USER ID	FIRST NAME	MIDDLE NAME	LAST NAME	PHONE NO	DATE OF BIRTH	GENDER	ADDRESS	EMAIL	ACTION
90	Pranish		Adhikari	9840721020	2004-01-04	male	Birtamode Municipality -5, Jhapa	pranish@gmail.com	Delete
92	Megharaj	Kumar	Nepal	9804989691	2001-05-16	male	Birtamode Municipality -7, Jhapa	megharaj@gmail.com	Delete
93	Pawan		Bhandari	9840721020	2004-08-21	male	Taplejung	mepawanbhandari@gmail.com	Delete

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Screenshots of User View Panel

ONLINE STUDENT ADMISSION SYSTEM

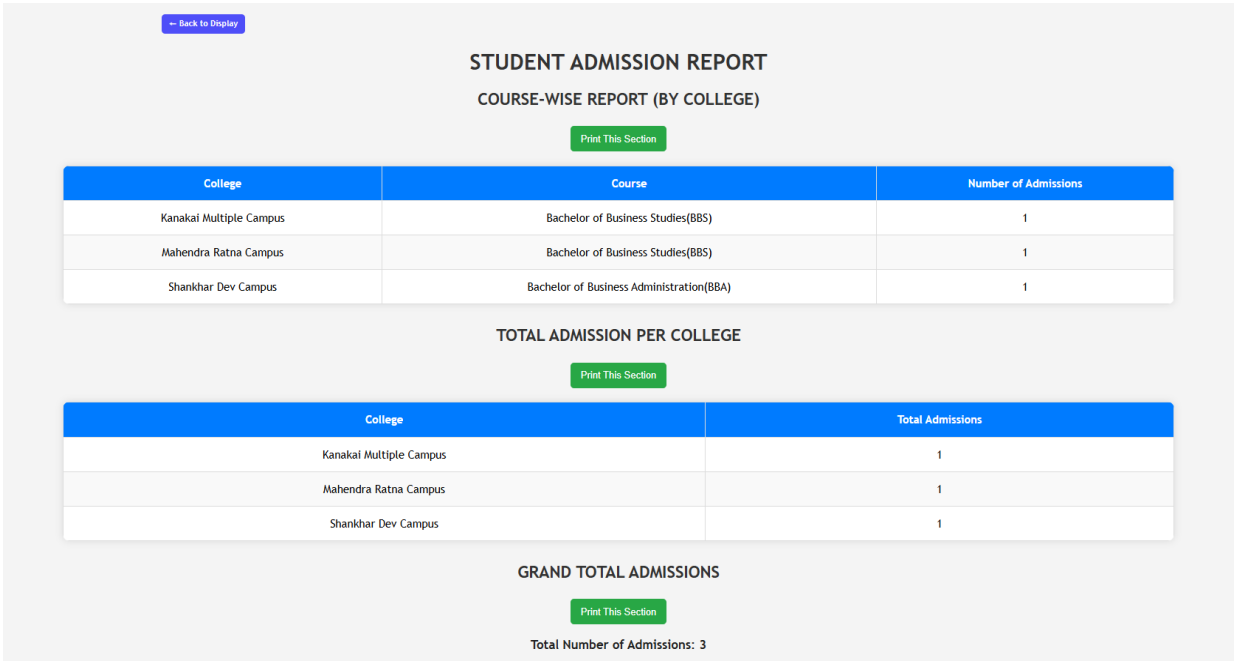
USER VIEW PANEL-Your Registered Details

USER ID	NAME	PHONE	EMAIL	ADDRESS	BLOOD GROUP	CAMPUS	DEPARTMENT
93	Pawan Bhandari	9840721020	mepawanbhandari@gmail.com	Taplejung	O+	Patan Multiple Campus	Faculty of Humanities and Social Sciences

Logout

CERTIFICATE 1	CERTIFICATE 2	CERTIFICATE 3	CERTIFICATE 4	PHOTO	STATUS	AMOUNT	UPDATE
ResultCertificate	ProvisionalCertificate	MigrationCertificate	CharacterCertificate		pending	45,380.00	Update View Report

Screenshots of Reports and their Printable Formats



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STUDENT ADMISSION REPORT

COURSE-WISE REPORT (BY COLLEGE)

Print This Section

College	Course	Number of Admissions
Kanakai Multiple Campus	Bachelor of Business Studies(BBS)	1
Mahendra Ratna Campus	Bachelor of Business Studies(BBS)	1
Shankhar Dev Campus	Bachelor of Business Administration(BBA)	1

TOTAL ADMISSION PER COLLEGE

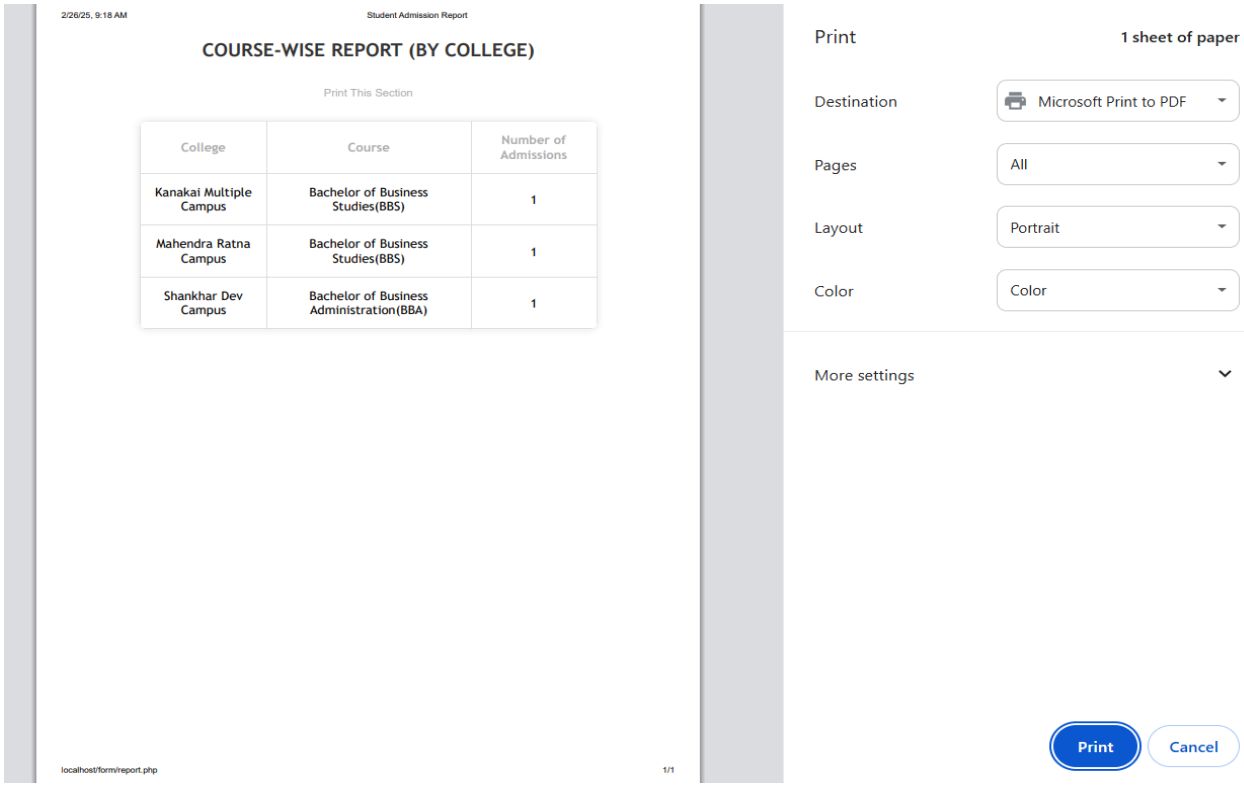
Print This Section

College	Total Admissions
Kanakai Multiple Campus	1
Mahendra Ratna Campus	1
Shankhar Dev Campus	1

GRAND TOTAL ADMISSIONS

Print This Section

Total Number of Admissions: 3



2/26/25, 9:18 AM Student Admission Report

COURSE-WISE REPORT (BY COLLEGE)

Print This Section

College	Course	Number of Admissions
Kanakai Multiple Campus	Bachelor of Business Studies(BBS)	1
Mahendra Ratna Campus	Bachelor of Business Studies(BBS)	1
Shankhar Dev Campus	Bachelor of Business Administration(BBA)	1

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Print 1 sheet of paper

Destination Microsoft Print to PDF

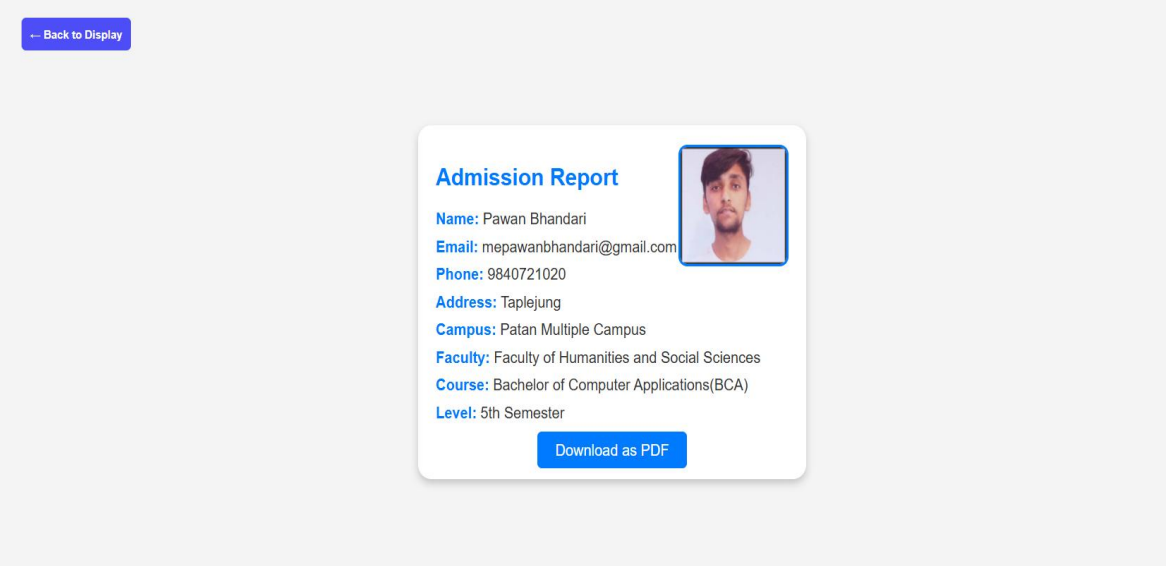
Pages All

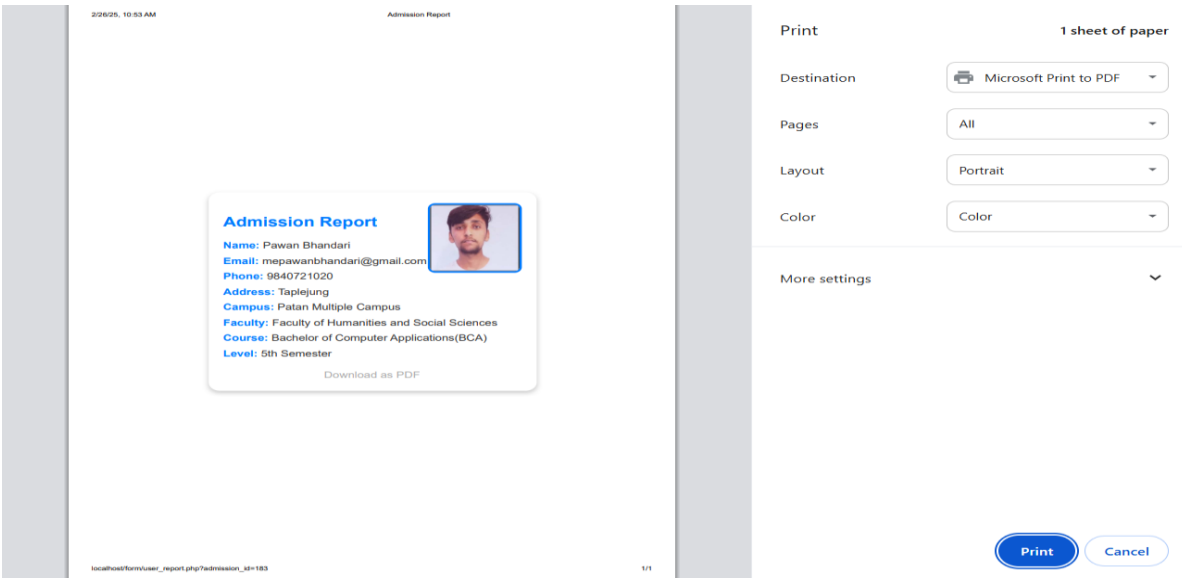
Layout Portrait

Color Color

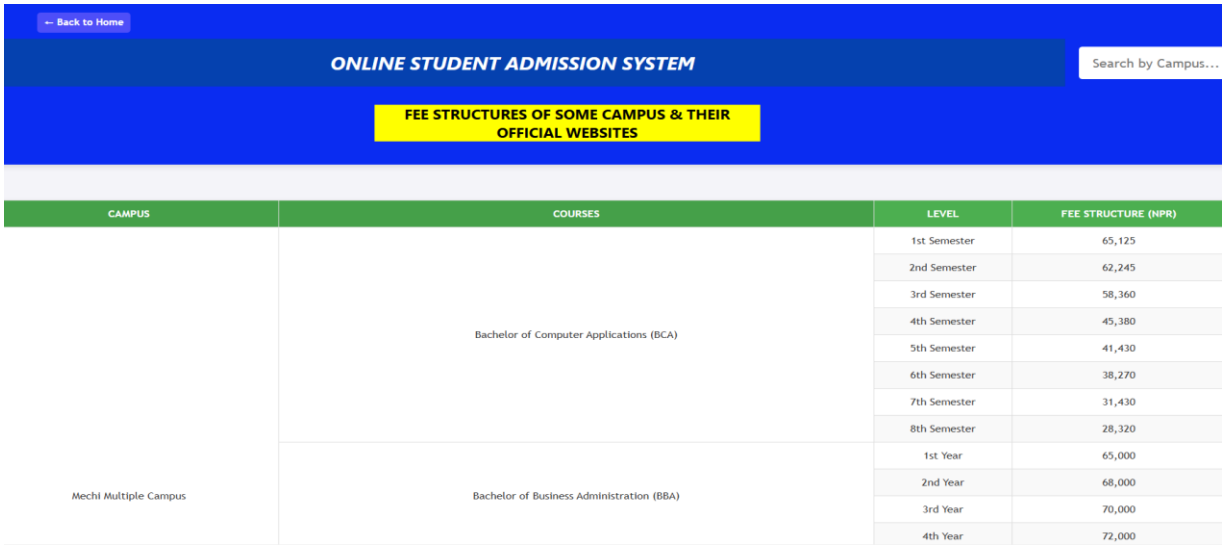
More settings

Print Cancel





Screenshot of Fee Structures of different Campus



CAMPUS	COURSES	LEVEL	FEE STRUCTURE (NPR)
Mechi Multiple Campus	Bachelor of Computer Applications (BCA)	1st Semester	65,125
		2nd Semester	62,245
		3rd Semester	58,360
		4th Semester	45,380
		5th Semester	41,430
		6th Semester	38,270
		7th Semester	31,430
		8th Semester	28,320
	Bachelor of Business Administration (BBA)	1st Year	65,000
		2nd Year	68,000
		3rd Year	70,000
		4th Year	72,000