SHIVAJI UNIVERSITY, KOLHAPUR

Dr. D. Y. Patil Pratishthan's College of Engineering
Salokhenagar, Kolhapur

2023-2024

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

A

PROJECT REPORT

ON

"Students Attendance System for DYP"

Submitted by:

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Under the Guidance of
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CERTIFICATE

Certified that the Project topic entitled **"Students Attendance System for DYP"** a bonafide work carried out by **Sanket, Aditya, Shruti, and Manthan** in partial fulfilment for the award of Degree of Bachelor of Engineering in 8th Semester of the **SHIVAJI UNIVERSITY, KOLHAPUR** during the year **2023-2024.** It is certified that all corrections/ suggestions indicated for Internal Assessment have been incorporated in the report deposited in the Department Library. The Project report has been approved as it satisfies the Academic requirement in respect of Project work prescribed for **BACHELOR OF ENGINEERING DEGREE**.

Dr. Shivani Kalle	**Dr. S. R. Arlimatti**	**Dr. S. D. Mane**
(**Guide**)	(**H.O.D**)	(**Principal**)

1.

DECLARATION

We, the undersigned, students of B.E. (Computer Science and Engineering) declare that the project work report entitled **"STUDENTS ATTENDANCE SYSTEM FOR DYP"** written and submitted under the guidance of **Dr. Shivani Kalle**. The empirical findings in this report are based on the data collected by us. The matter assimilated in this report is not reproduction from any readymade report.

Place: Salokhenagar, Kolhapur

Date:

Yours Sincerely,

Mr. Sanket Kamble.
Mr. Aditya Patil.
Mrs. Shruti Patil.
Mr. Manthan Jadhav.

ACKNOWLEDGEMENT

*The sense of contentment and relation that accompanies the successful completion of the project "**STUDENTS ATTENDANCE SYSTEM FOR DYP**" would be incomplete without mentioning the names of those people who helped us in accomplishing the project. Those people whose Constant guidance and encouragement resulted in its realization.*

*We take this opportunity to thank our Principal **Dr. S. D. Mane** for providing a healthy environment in the college that helped us in concentrating on the task.*

*We take this opportunity to thank our Vice Principal **Dr. S. D. Mane** for providing a constant support and resources that helped us in completing the task.*

*We express a deep sense of gratitude to our H.O.D **Dr. S. R. Arlimatti** for providing the inspiration required for taking the Project to its completion.*

*We convey our heart full thanks to our guide **Dr. Shivani Kalle** for the guidance and inspiration they had given during the course of completion of our project. We also thank all the staff member, teaching and non-teaching for helping us to accomplish this project.*

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ABSTRACT

The "Student Attendance System for DYP College" presents a comprehensive solution aimed at modernizing and revolutionizing the attendance management process within the educational institution. Recognizing the challenges of traditional manual attendance tracking, this system aims to streamline and enhance the accuracy, efficiency, and transparency of attendance monitoring. It introduces a user-friendly web-based interface for professors to mark attendance, reducing administrative burden and errors. Moreover, it implements an automatic SMS notification system to promptly inform parents about their child's attendance, fostering a stronger connection between the college and its students' families. This forward-looking approach aligns with DYP College's commitment to academic excellence by providing an innovative tool that not only empowers educators but also enriches the student experience while strengthening the partnership between the college and parents.

1.1 Introduction:

Education institutions like DYP College play a pivotal role in shaping the future of students by imparting knowledge and fostering their growth. One of the fundamental aspects of this educational journey is attendance management, which ensures that students attend their classes regularly and receive the full benefits of their academic pursuits. Recognizing the critical importance of this process, we introduce the "Student Attendance System for DYP College." DYP College, known for its commitment to academic excellence, continually strives to enhance the learning experience for its students.

However, the traditional methods of manual attendance tracking have posed challenges in terms of efficiency, accuracy, and timely communication. Faculty members diligently record attendance, but the process often consumes valuable instructional time and leaves room for human errors. Moreover, communicating attendance status to parents, who are key stakeholders in a student's education, has been a labor-intensive and time-consuming task, often resulting in delayed or incomplete information dissemination.

The "Student Attendance System for DYP College" is conceived as a solution to address these challenges comprehensively. It not only modernizes the attendance management process but also revolutionizes the way DYP College interacts with its students' parents. This system is designed with the primary aim of facilitating ease, accuracy, and transparency in tracking and communicating attendance data.

Through a user-friendly web-based interface, professors can efficiently mark daily attendance for their classes, minimizing administrative overhead and errors. Additionally, the system automatically generates and sends SMS notifications to parents, containing essential information, such as the student's name, roll number, attended lectures, and absent lectures. This real-time communication fosters a stronger connection between parents and the college, enabling them to stay informed about their child's academic progress. In this era of digital transformation, the "Student Attendance System for DYP College" represents a forward-looking approach to educational administration. It aligns with the college's commitment to excellence by providing an innovative tool that empowers educators, enriches the student experience, and strengthens the parent-college partnership.
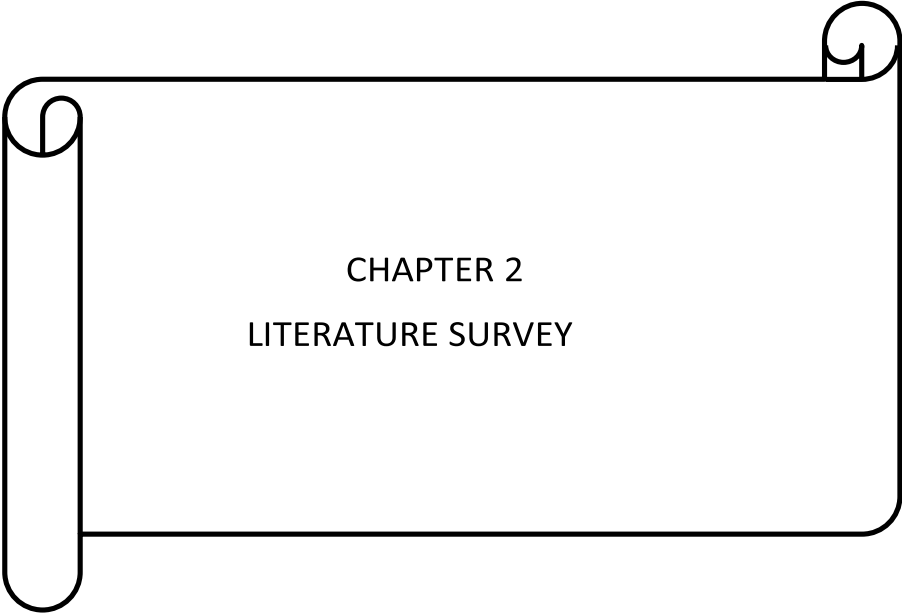
CHAPTER 2

LITERATURE SURVEY

2. Literature Survey:

In many institutions, particularly government organizations and educational institutions, attendance tracking has traditionally relied on paper-based methods. These methods involve calling out the names of individuals at the beginning of a session or class to record their attendance. However, this manual approach comes with several limitations and challenges, which have become more pronounced over time. Some of the key issues with the existing system include:

1. Time-Consuming.

2. Data Entry Errors.

3. False Sign-Ins.

4. Missing Names.

 5. Proxy Attendance.

6. Inefficiency.

Some other concepts like "Attendance Management System through Fingerprint" ISSN: (2321-9653) Biometric technologies, such as fingerprint verification, offer precise user identification by analysing unique physiological or behavioural traits are also being used for attendance monitoring. "Web-based laboratory attendance system by integrating RFIDARDUINO technology"(2018). It includes RFID (Radio-Frequency Identification) cards use radio waves for user identification and access control but also comes with some limitations:

1. Privacy Concerns.

2. Cost and Implementation.

3. Spoofing Vulnerability.

4. Scalability Challenges.

5. Regulatory Compliance.

6. Cost of Card Issuance.

7. Technical Failures.

8 .Limited User Authentication.

Another concept from "Efficient access control system based on aesthetic QR code": (February 2018). Which is being used widely is attendance monitoring and management using QR Code is introduced which is based on sensing with cloud based processing. This proposed technique solves the problem of deceptive attendance and the trouble of Faculties in uploading daily attendance on ERP. It can make the users' attendances more easily and effectively without any hassle. Even after all of these there are some flaws. 1. Lower Accuracy. 2. Dependency on Devices. 3. Vulnerability to Proxy Attendance. 4. Network Reliance.

5. Limited Authentication.

There is another paper proposed an idea of recording attendance using biometrics (fingerprint) for tracking attendance and Storing the data using LAN. This paper provides a brief description about the usage, accessibility, accuracy, affordability and acceptance of biometric (fingerprint verification) system. In this system the data is fetched from the individual in the Form of fingerprint and then it is verified with the data that was stored in prior and marks the attendance of an individual. Finally the database is also obtained. This method provides high accuracy results and consumes less time but it is not cost-effective.

But it has high implementation costs due to the need for biometric hardware and infrastructure may make it less affordable for some institutions or organizations. Hence our proposed system makes a way in here as it Automates attendance tracking, saving time for both professors and administrative staff, Real-time SMS notifications enhance parent engagement and student accountability, Web-based interface ensures accessibility and ease of use.

CHAPTER 3
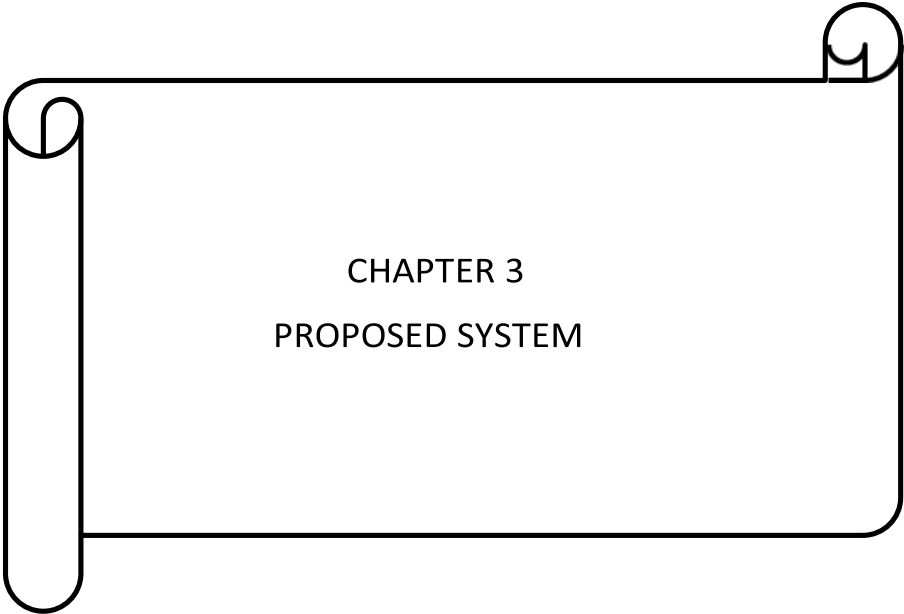
PROPOSED SYSTEM
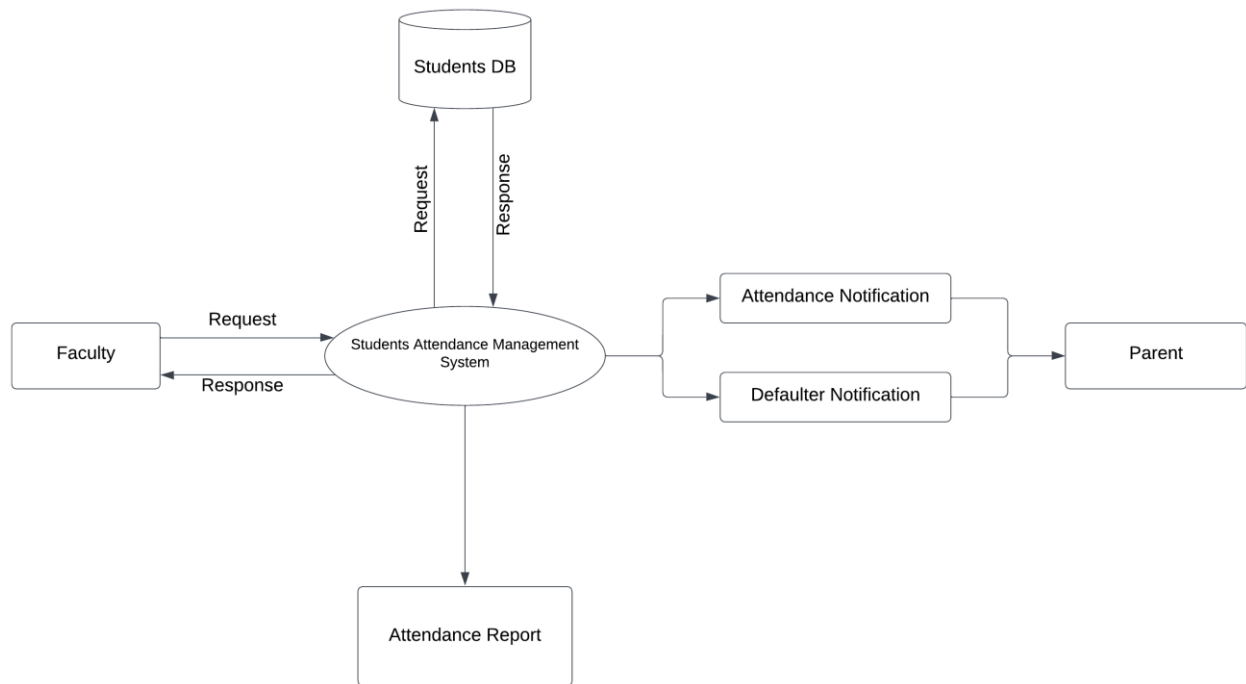
3. Proposed System:

3.1 Proposed Work:

Figure of Proposed System Architecture

- Proposed system:

    The proposed system for the "Student Attendance System for DYP College" project is designed to streamline and modernize attendance tracking processes within the college. It introduces automation to the traditionally manual task of attendance marking, enabling professors to mark attendance digitally through a user-friendly web application.

    One of the standout features of this system is its ability to send real-time SMS notifications to the parents of each student, providing them with essential information about their child's attendance. These notifications include details such as the student's name, roll number, attended lectures, and absent lectures. The system maintains a comprehensive database of student information, including names, roll numbers, subjects, and parents' contact numbers. It is developed as a web application using HTML and CSS for the front end and PHP for the backend, ensuring accessibility through web browsers.

    In simple words the proposed system facilitates the college staff to mark and manage students attendance in an easy way with the help of GUI, also allows to maintain students regularity of attending lectures to maintain and fulfil the discipline of academics. To elaborate more here are some modules that the project will include:

1. User Authentication for staff:

In this module authentication will be implemented through user id and password for the each staff so that each faculty can mark attendance only for their subject in an isolated approach. It will have an interactive UI with ID and password checking functionality in backend.

2. Faculty Dashboard:

This is the main interface between the user and the database, it will have a simpler but effective UI for ease of access. This module here is provided to access various information and functionalities like view students data, modify data, monitor attendance for their particular subject and send attendance via sms. All these operations will be performed through MYSQL database which is the next module.

3. MYSQL database: RDBMS is obviously the best choice for handling students relational data. So to make the querying and retrieval more easy and quick this project will have MYSQL as the backbone. It mainly will store name, roll no., parents contact no. and overall attendance percentage of all the students. This data will be accessed by the faculty to maintain attendance and send sms to the parents.

4. SMS gateway:

The last module is sms gateway which will be used for sending sms to the parents of each student. Both Twilio and Nexmo are cloud communication platforms that offer APIs for sending SMS messages programmatically. In the PHP backend code, we have to integrate the Twilio or Nexmo API to send SMS messages. For example, with Twilio, we can use their PHP library to send SMS. When a professor marks attendance or when certain conditions are met, trigger the PHP code to send SMS notifications. Compose the SMS content to include student information (name, roll number, attended lectures, absent lectures) and any other relevant details. Both Twilio and Nexmo offer extensive documentation and code examples in various programming languages, including PHP.
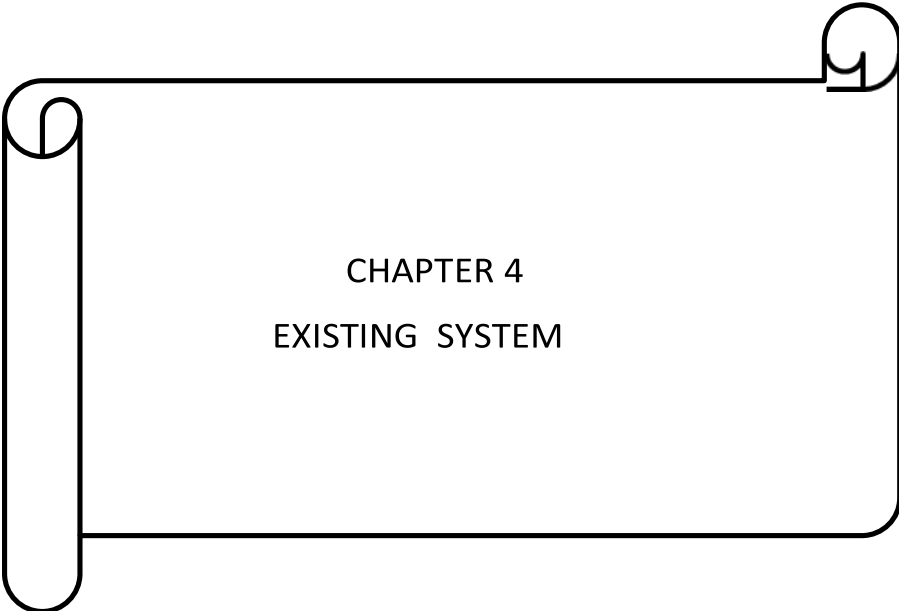
CHAPTER 4

EXISTING SYSTEM

3. Existing Systems:

1. Learning Management Systems (LMS):

LMS platforms like Moodle, Canvas, Blackboard, and Google Classroom often incorporate attendance tracking modules. These systems allow instructors to take attendance, record grades, and monitor student participation within the digital learning environment. They might offer integration with various attendance management tools or plugins.

2. Biometric Attendance Systems:

Some educational institutions employ biometric systems that use fingerprints, facial recognition, or other biometric data to track student attendance. These systems are often installed in classrooms or at entry points and offer a highly accurate way of recording attendance.

3. RFID-Based Attendance Systems:

Radio-Frequency Identification (RFID) systems use RFID cards or tags that students scan upon entry to the classroom or specific areas within the campus. The data is then automatically recorded in the system, providing a convenient and quick method of attendance tracking.

4. Mobile Applications and Software Solutions:

Various software applications and mobile-based attendance systems offer easy-to-use interfaces for both instructors and students. These apps often include features such as QR code scanning, GPS-based check-ins, and manual entry, providing flexibility and mobility for recording attendance.

5. Automated SMS/Email Notification Systems:

Some systems primarily focus on notifying parents or guardians about their child's attendance status. These systems are often integrated with existing attendance tracking methods and send automated messages to parents regarding their child's attendance, including any absences.

6. Manual Attendance Registers and Excel Sheets:

While not as advanced as automated systems, many institutions still use manual methods for attendance tracking. These can include physical attendance registers or Excel spreadsheets where instructors manually record student attendance.
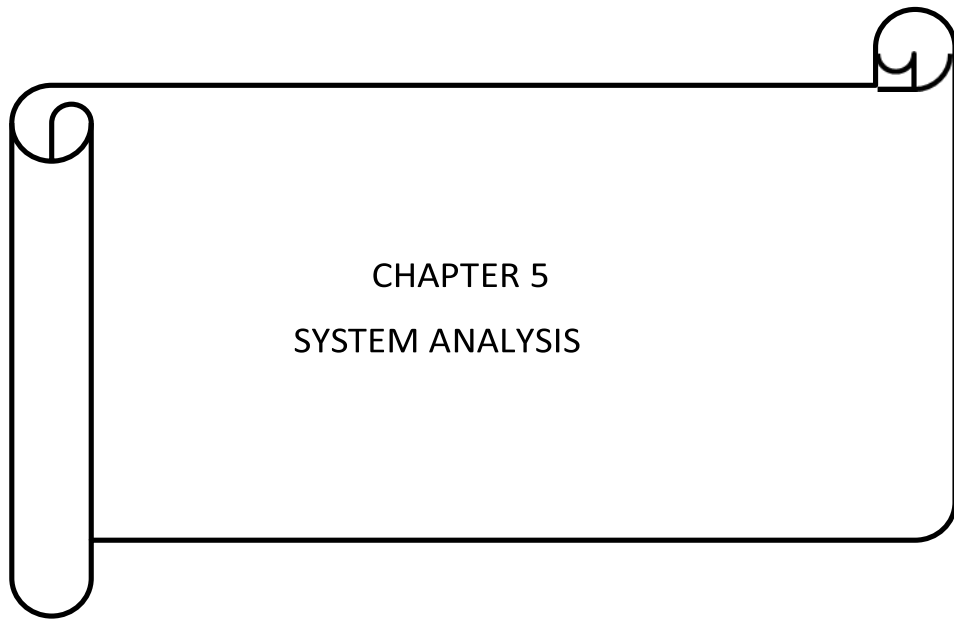
CHAPTER 5

SYSTEM ANALYSIS

5. System Analysis

5.1 Problem Statement

The "Student Attendance System for DYP College" aims to revolutionize the traditional manual attendance tracking processes prevalent within the institution. It introduces a cutting-edge automated system that empowers professors to digitally mark attendance using a user-friendly web-based application.

This system's hallmark feature is its instant SMS notifications, providing real-time updates to parents regarding their child's attendance. These notifications offer crucial details such as the student's name, roll number, attended classes, and any absences recorded. By maintaining a comprehensive database, the system securely stores essential student information, including names, roll numbers, subjects enrolled, and contact details of parents.

Developed as a web application, the system utilizes HTML and CSS for the front-end user interface, ensuring a visually appealing and intuitive experience. Meanwhile, PHP serves as the backend, driving the functionality of the system. This design choice guarantees accessibility via standard web browsers, enabling ease of use and access for all involved stakeholders.

5.2 System Requirements

5.2.1 Software Requirements:

Sr. No.	Name of Component	Specification
1.	Operating System	Windows 7 or above
2.	WEB server	Apache 2.4
3.	Database Server	MYSQL5.7 or above
4.	Server-side Scripting	PHP 7.2 or above
5.	Frontend Technologies	HTML5, CSS
6.	SMS Gateway Integration	Twilio or Nexmo

5.2.2 Hardware Requirements:

Sr. No.	Name of Component	Specification
1.	CPU	Core i3 2nd gen or above
2.	RAM	DDR3 4GB or above
3.	Storage	128GB minimum
4.	Network Connectivity	Ethernet or wifi
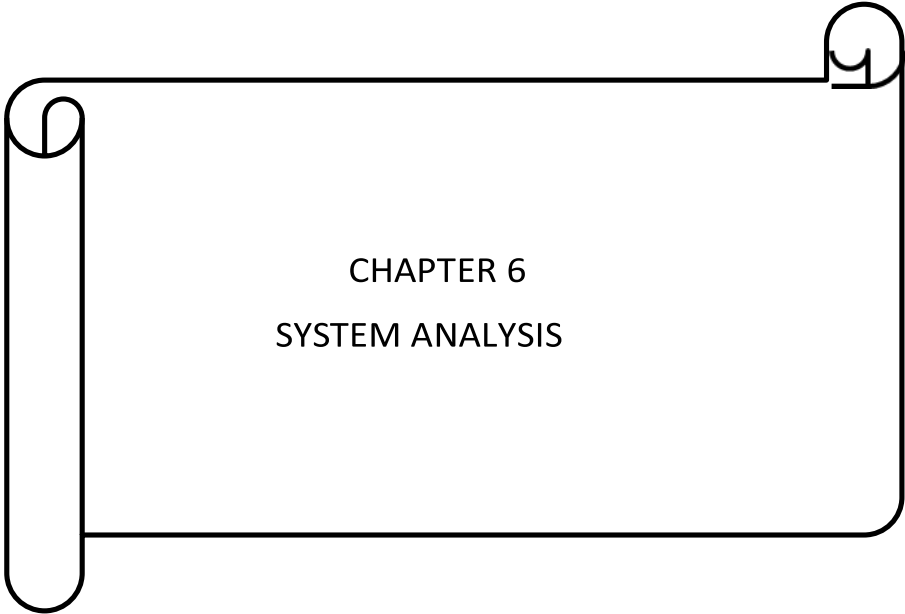
CHAPTER 6
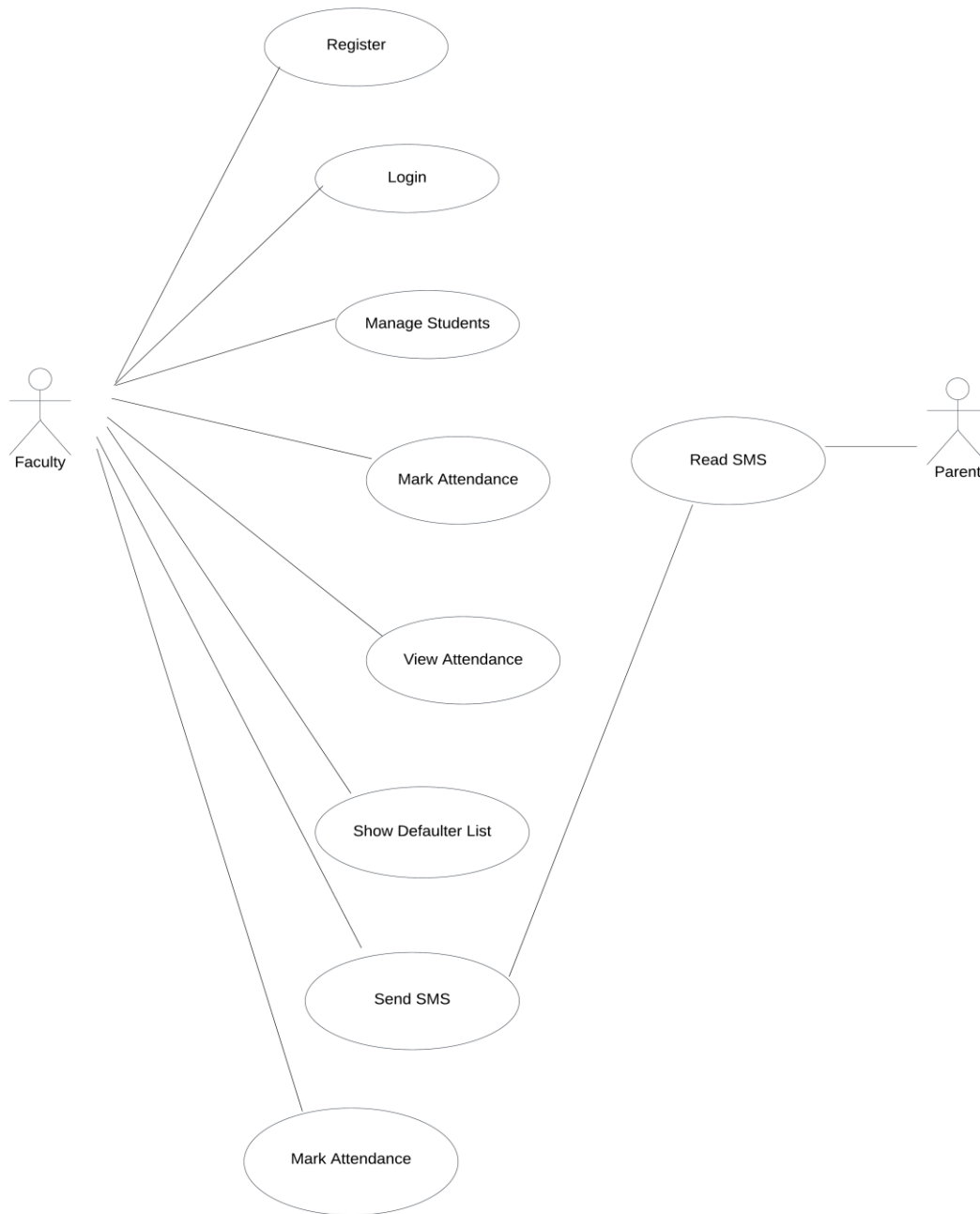
SYSTEM ANALYSIS

6. System Design:

6.1 Use Case Diagram:
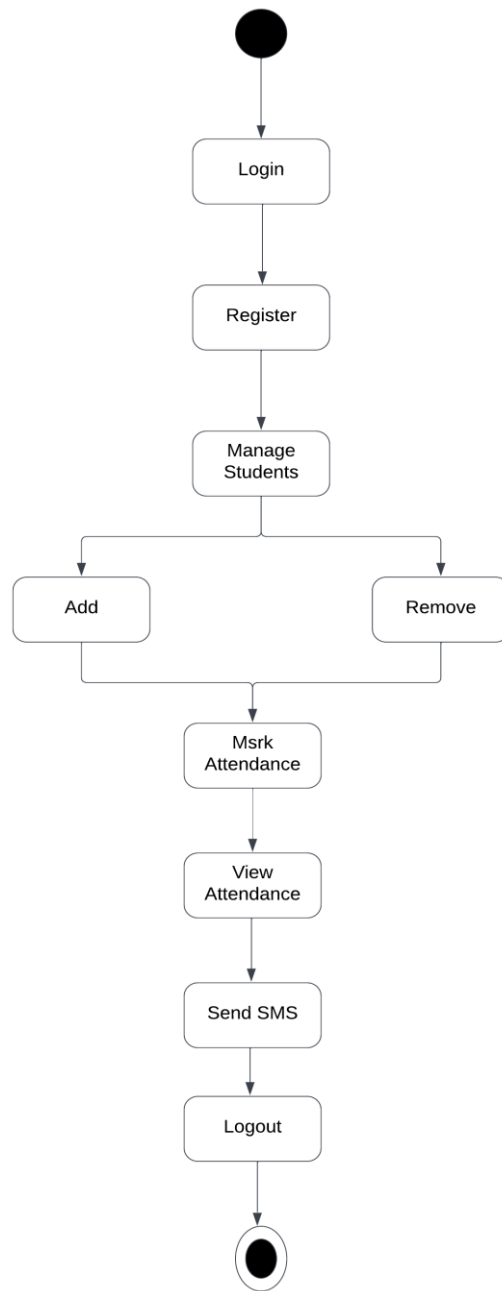

Fig. Use Case Diagram

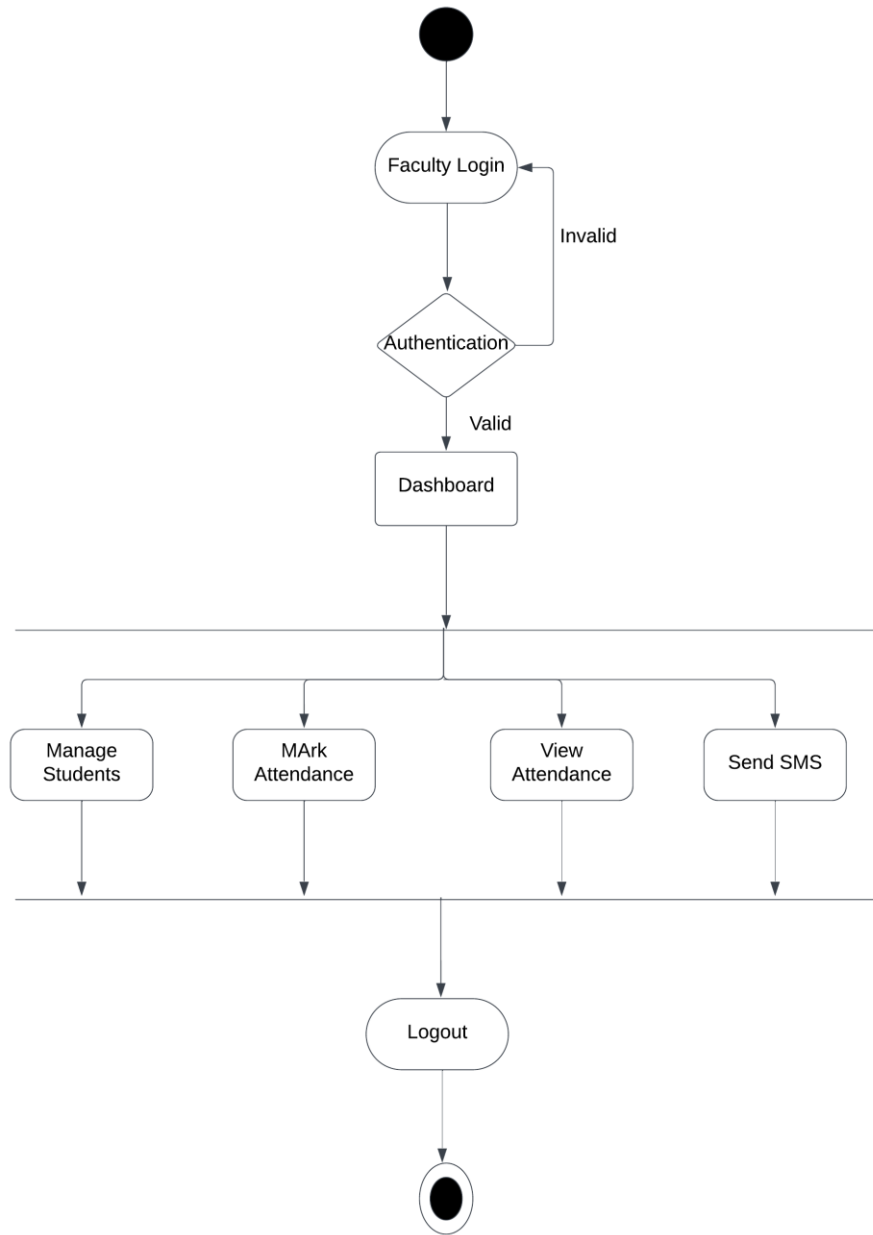6.2 State Diagram

Fig. State Diagram

6.3 Activity Diagram:

Fig. Activity Diagram

6.5 Sequence Diagram:
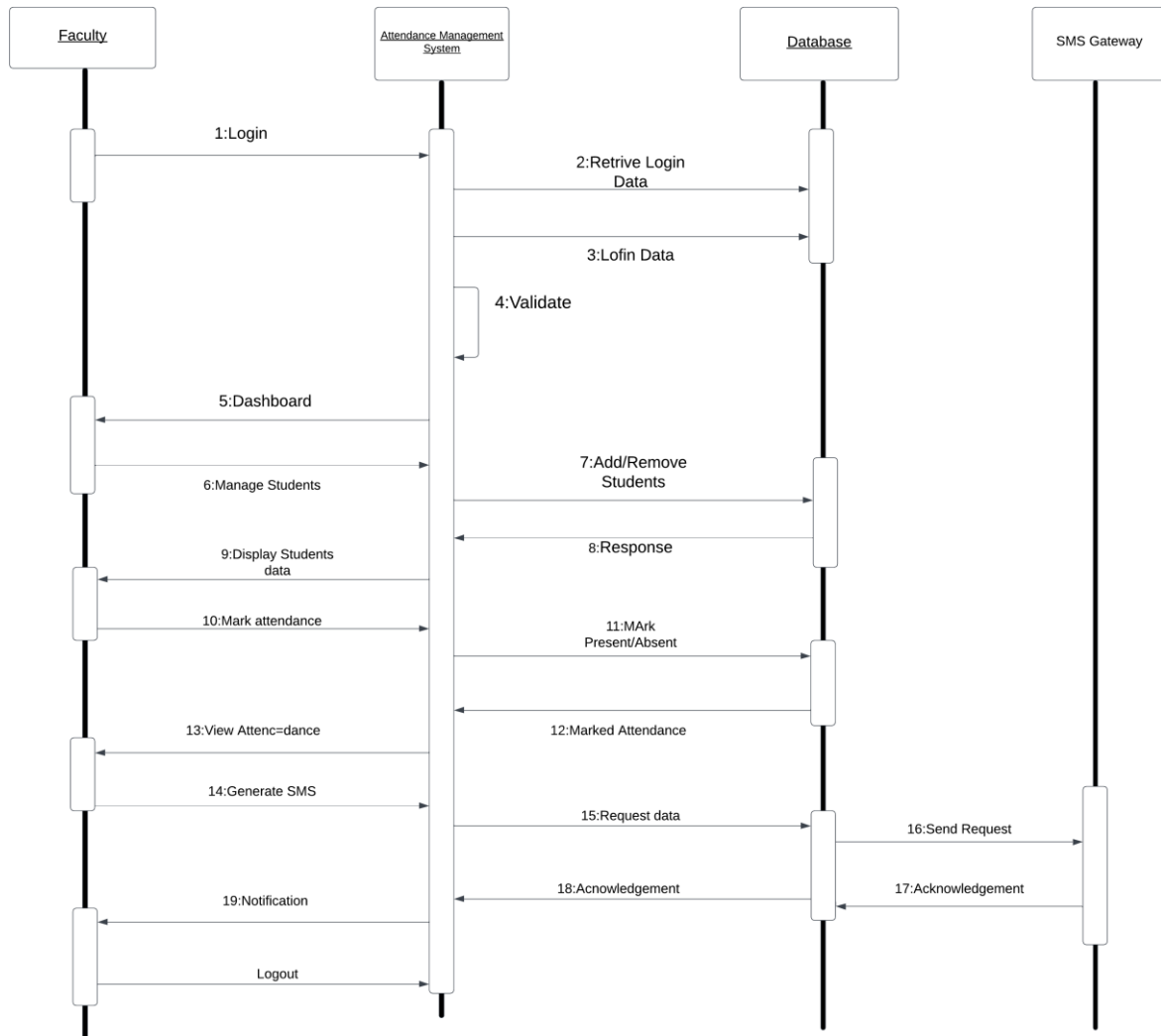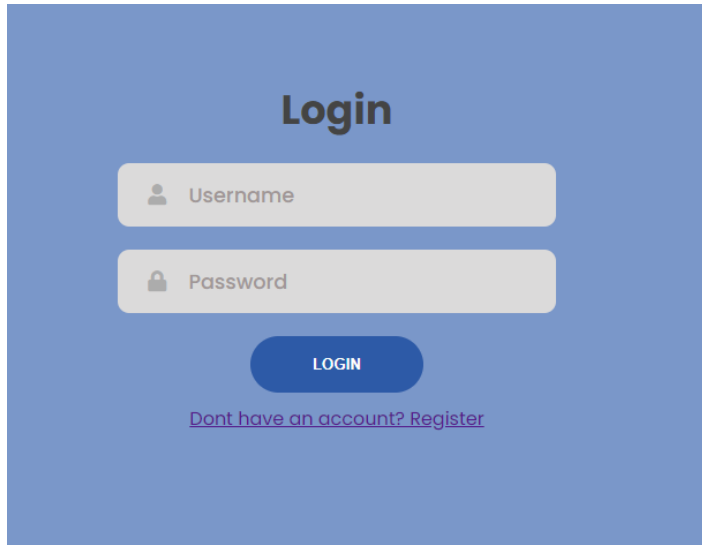
Fig. Sequence Diagram
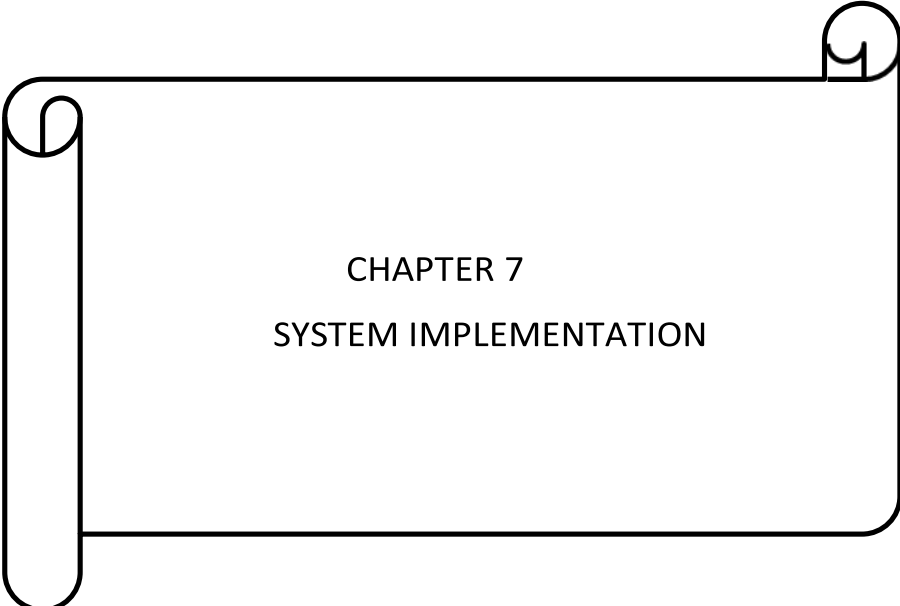
CHAPTER 7

SYSTEM IMPLEMENTATION

Snapshots:

Login:

Register:

Dashboard:

Students Attandance Management System

The "Student Attendance System for DYP College" is conceived as a solution to address these challenges comprehensively. It not only modernizes the attendance management process but also revolutionizes the way DYP College interacts with its students' parents. This system is designed with the primary aim of facilitating ease, accuracy, and transparency in tracking and communicating attendance data

Vision

To strive & become centre of excellence in Higher Education & be a preferred choice of Institution by the students.

Mission

M1 – To nurture a culture of excellence in teaching & learning with active involvement of stakeholders.

M2 – To provide quality technical education with focus on fundamentals and hence become a preferred educational institute in this region.

M3 – To encourage students participation in academics, co curricular and extracurricular activities for their overall personality development and they emerge as innovators, leaders and entrepreneurs.

M4 – To promote sustainable practices with ethical values

Add and Delete students:

Hello admin

Dashboard

Manage Students

Mark Attdendance

View Attdendance

Send SMS

STUDENTS DATA RECORDS

ID	NAME	EMAIL	ROLL NO.	CONTACT NO.	Operation
2	charlie	charlie56@gmail.com	5	6926526236	Delete
3	john	john47@gmail.com	23	5470347603	Delete
4	bob	bob27@gmail.com	34	6776565980	Delete
5	tom	tom231@gmail.com	45	4857067053	Delete
9	mark	mark@gmail.com	63	387402377	Delete
11	alice	alice@gmail.com	64	7266473872	Delete
14	paul	paul@gmail.com	54	7299473872	Delete
25	SANKET	redmisanket@gmail.com	25	9172354707	Delete
20	jack	jack@gmail.com	56	7296773272	Delete
12	mantha	manthan@gmail.com	76	7865345214	Delete

Add students

Choose file No file chosen   Import

Mark Attedance:

Hello admin

Dashboard

Manage Students

Mark Attdendance

View Attdendance

Send SMS

MARK ATTENDANCE

ID	NAME	ROLL NO.	Attendance
2	charlie	5	☐
3	john	23	☑
4	bob	34	☑
5	tom	45	☐
9	mark	63	☑
11	alice	64	☐
14	paul	54	☑
25	SANKET	25	☐
20	jack	56	☑
12	mantha	76	☐

Attendance Report:

Staff Table:

Student Table:

				id	stud_name	email_id	roll	phone
☐	🖊 Edit	Copy	⊝ Delete	1	max	max123@gmail.com	10	4873043745
☐	🖊 Edit	Copy	⊝ Delete	2	charlie	charlie56@gmail.com	23	5470347603
☐	🖊 Edit	Copy	⊝ Delete	3	john	john47@gmail.com	5	6926526236
☐	🖊 Edit	Copy	⊝ Delete	4	bob	bob27@gmail.com	34	6776565980
☐	🖊 Edit	Copy	⊝ Delete	5	tom	tom231@gmail.com	45	6796987642
☐	🖊 Edit	Copy	⊝ Delete	6	steve@gmail.com	50		6256945864
☐	🖊 Edit	Copy	⊝ Delete	7	steve	steve1@gmail.com	60	2342498745
☐	🖊 Edit	Copy	⊝ Delete	9	mark	mark@gmail.com	63	3467565087
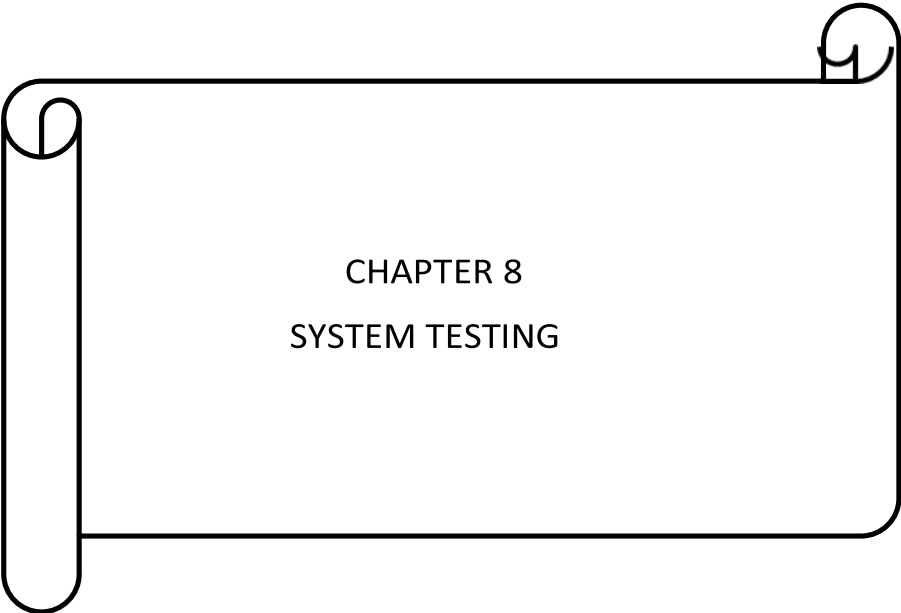
CHAPTER 8

SYSTEM TESTING

8.System Testing:

8.1 System Testing:

    System Testing is a level of software testing where complete and integrated software is tested. The purpose of this test is to evaluate the system's compliance with the specified requirements.The process of testing an integrated system to verify that it meets specified requirements.

    We used Black Box Testing to test our system.

    8.1. Test Results:

Black Box Testing, also known as Behavioral Testing, is a software testing method in which the internal structure/design/implementation of the item being tested is not known to the tester. These tests can be functional or non-functional, though usually functional.

Fig. 8.2.1 Black Box Testing
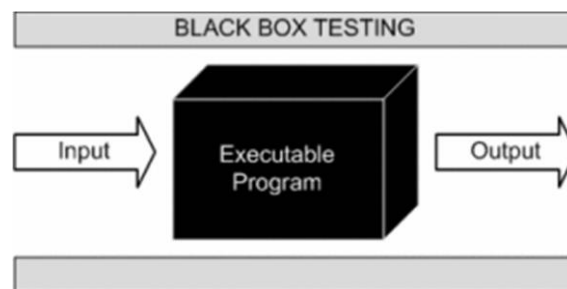
This method is named so because the software program, in the eyes of the tester, is like a black box; inside which one cannot see. This method attempts to find errors in the following categories:

- Incorrect or missing functions.
- Interface errors.
- Errors in data structures or external database access.
- Behavior or performance errors.
- Initialization and termination errors.

8.1.2 Test Results:

Test Case 1:

Input query: Click on Faculty registration form

Output: You will head to Personal information form of faculty registration form.

Successful/Unsuccessful: This query gives successful result.

Test Case 2:

Input query: Click on Login Faculty form

Output: You will head to login information form of faculty.

Successful/Unsuccessful: This query gives successful result.

Test Case 3:

Input query: Click on manage students option

Output: You will get to see students database and option to add students.

Successful/Unsuccessful: This query gives successful result.

Test Case 4:

Input query: Click on add students data

Output: http: You will be directed to your local storage to upload students data file.

Successful/Unsuccessful: This query gives successful result.

Test Case 5:

Input query: Click on import

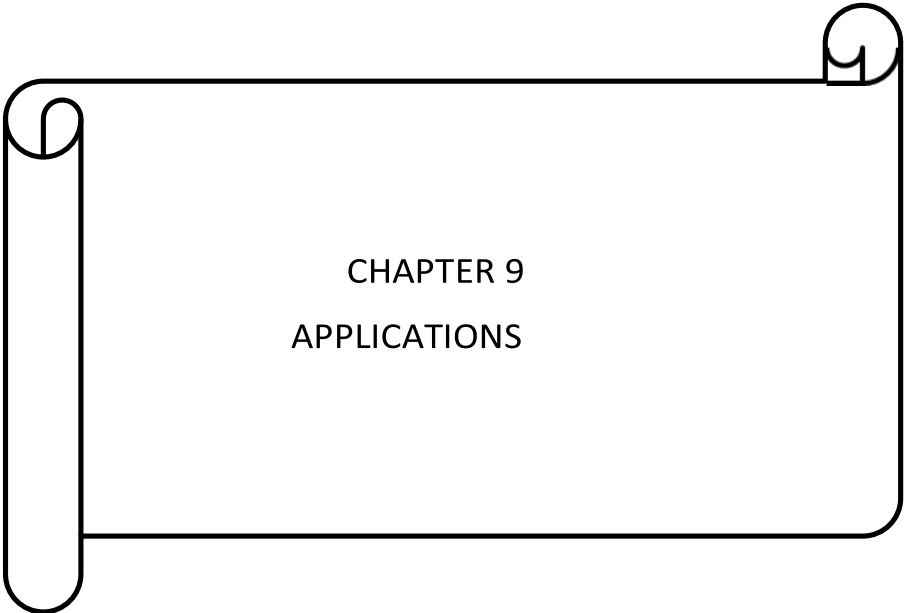Output: You will get to see students data successfully imported into database.

Successful/Unsuccessful: This query gives successful result.

Test Case 6:

Input query: Click on logout

Output: You will be logged out and session will be cleared.

Successful/Unsuccessful: This query gives successful result.

CHAPTER 9

APPLICATIONS

9. Applications:

1. Automated Attendance Management: The system streamlines the process of tracking and managing student attendance across all courses and classes offered by the college.

2. Real-time Parental Engagement: Parents receive immediate SMS notifications about their child's attendance, fostering increased involvement and awareness of their academic progress.

3. **Improved Student Accountability**: Students become more conscious of their attendance as the system provides regular updates and notifications, encouraging better attendance habits.

4. **Faculty Time Optimization**: Professors save time previously spent on manual attendance recording, allowing them to focus more on teaching and student engagement.

5. **Data-Driven Insights**: The system collects attendance data, enabling the generation of reports and insights that can identify patterns or trends in student attendance behavior.

6. **Enhanced Communication**: The system acts as a communication bridge between the college, faculty, and parents, ensuring timely and accurate updates about attendance.

7. **Attendance Compliance Monitoring**: It assists the administration in monitoring and ensuring compliance with attendance policies and requirements set by the institution.

8. **Mobile Accessibility**: The web-based system allows access from various devices, making it convenient for parents, students, and faculty to check attendance records from their smartphones or computers.

9. **Scalability and Future Developments**: The project serves as a foundation for potential future enhancements and integrations with additional features, such as analytics for predicting attendance patterns or integration with broader educational platforms.
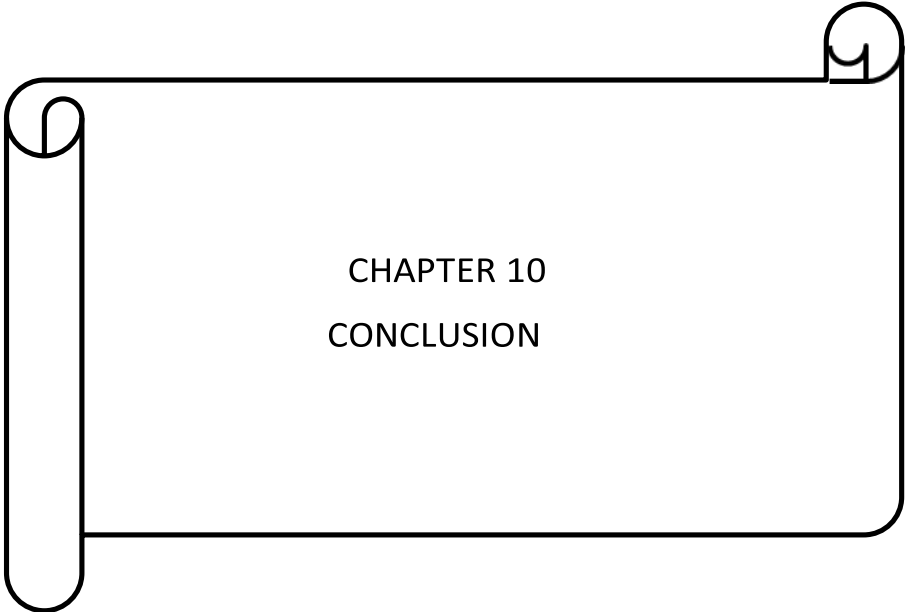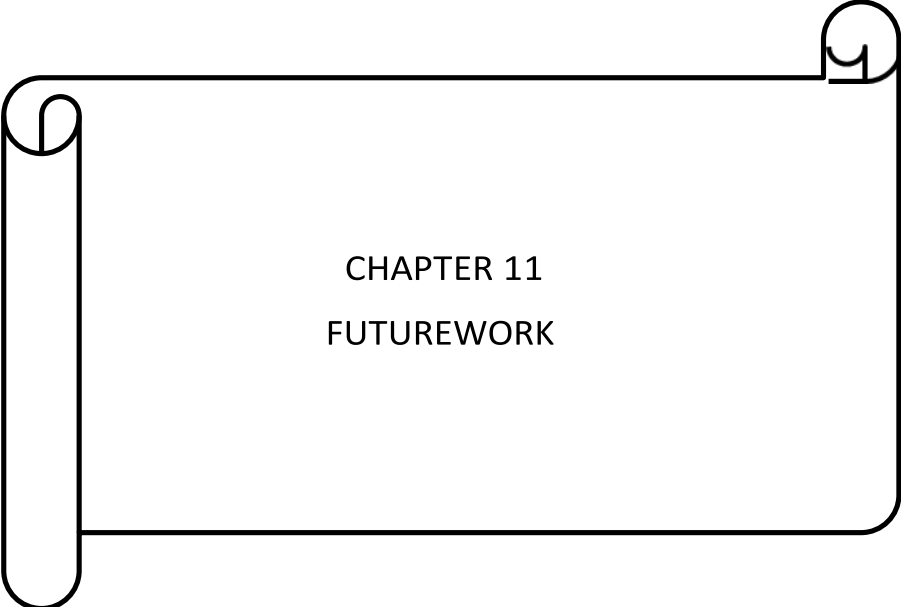
CHAPTER 10

CONCLUSION

10.1 Conclusion:

The "Student Attendance System for DYP College" represents a transformative solution in streamlining attendance management within the institution. By introducing automated tracking and real-time parent notifications, it addresses the inefficiencies of manual processes while enhancing parental involvement.

This project not only modernizes attendance tracking but also cultivates a stronger educational ecosystem through improved communication between the college, faculty, and parents. With a user-friendly web interface and robust database capabilities, the system is poised to significantly impact student accountability and faculty efficiency.

Its implementation promises to optimize administrative tasks, provide insightful data, and foster a more engaged educational community. In summary, this project marks a pivotal advancement for DYP College, aligning with its commitment to academic excellence through innovative technological solutions that benefit all stakeholders involved in the educational journey.

CHAPTER 11

FUTUREWORK

11.1 Future Work:

1. Enhanced Analytics and Predictive Insights: Implement advanced analytics to predict attendance trends and identify potential factors affecting student absenteeism.

2. Biometric Integration: Explore the integration of biometric authentication methods for attendance marking to further improve accuracy and efficiency.

3. **Machine Learning for Attendance Prediction**: Utilize machine learning algorithms to predict future attendance patterns based on historical data.

4. **Integration with Student Performance Data**: Connect attendance data with academic performance records to analyze correlations between attendance and student success.

5. Mobile Application Development: Create a dedicated mobile application for easier access and quick notifications for both parents and faculty.

6. **Automation of Attendance Reports**: Develop automated attendance reports for faculty and administration, reducing manual report generation tasks.

7. Parent-Teacher Communication Portal: Expand the system to facilitate direct communication between parents and teachers regarding attendance, academic progress, and general concerns.

8. **Feedback Mechanism and Continuous Improvement**: Incorporate a feedback mechanism for users (faculty, parents, and students) to gather insights and suggestions for continuous improvement and customization of the system.
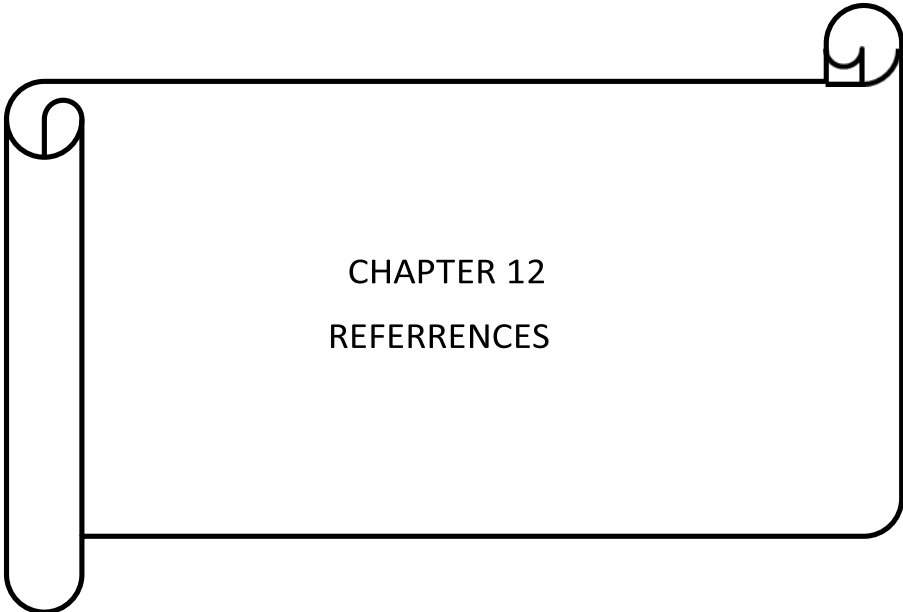
CHAPTER 12

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