Employee Management System

A PROJECT REPORT
for
Project (KCA451)
Session (2023-24)

Submitted by

Vivek Kumar Kushwaha
University Roll No 22002901400185

Submitted in partial fulfilment
of the Requirements for the
Degree of

MASTER OF COMPUTER APPLICATION

Under the Supervision of
Dr. Akash Rajak
Professor

Submitted to
DEPARTMENT OF COMPUTER APPLICATIONS
KIET Group of Institutions, Ghaziabad Uttar Pradesh-201206
(May 2024)

CERTIFICATE

Certified that **Vivek Kumar Kushwaha (2200290140185)** has carried out the project work having "**Employee Management System**" (**Project KCA353**) for **Master of Computer Application** from Dr. A.P.J. Abdul Kalam Technical University (AKTU**)** (formerly UPTU), Lucknow under my supervision. The project report embodies original work, and studies are carried out by the student himself and the contents of the project report do not form the basis for the award of any other degree to the candidate or to anybody else from this or any other University/Institution.

Date: **Vivek Kumar Kushwaha**
(2200290140185)

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

Date:

Dr. Akash Rajak
Professor
Department of Computer Applications
KIET Group of Institutions, Ghaziabad

Dr. Arun Kumar Tripathi
Professor & Head
Department of Computer Applications
KIET Group of Institutions, Ghaziabad

ABSTRACT

This development and implementation of an Employee Management System (EMS) utilizing PHP, HTML, and CSS technologies. The primary objective of the project was to create a comprehensive system to facilitate efficient management of employees within an organization. The system encompasses various modules including Employee Dashboard, Admin Dashboard, Login, Signup, and Leave Management.

The methodology employed for this project involved a structured approach, combining elements of Agile development to ensure flexibility and responsiveness to changing requirements, along with rigorous testing protocols to maintain system integrity. Throughout the development process, emphasis was placed on user experience, security, and scalability.

Key findings of the project include the successful implementation of core functionalities such as user authentication, employee data management, leave request handling, and administrative oversight. Challenges encountered during implementation were addressed through iterative refinement and collaboration between developers and stakeholders.

Overall, the EMS demonstrated significant improvements in employee management processes, streamlining administrative tasks, enhancing communication, and providing a user-friendly interface for both employees and administrators. Future enhancements may include integration with additional HR modules, performance tracking features, and optimization for mobile devices.

This report offers valuable insights into the design, implementation, and impact of an Employee Management System, serving as a resource for organizations seeking to enhance their HR processes through technological innovation.

ACKNOWLEDGEMENTS

Success in life is never attained single-handedly. My deepest gratitude goes to my project supervisor, **Dr Akash Rajak** for his guidance, help, and encouragement throughout my project work. Their enlightening ideas, comments, and suggestions.

Words are not enough to express my gratitude to **Dr. Arun Kumar Tripathi**, Professor and Head, Department of Computer Applications, for his insightful comments and administrative help on various occasions.

Fortunately, I have many understanding friends, who have helped me a lot on many critical conditions.

Finally, my sincere thanks go to my family members and all those who have directly and indirectly provided me with moral support and other kind of help. Without their support, completion of this work would not have been possible in time. They keep my life filled with enjoyment and happiness.

Vivek Kumar Kushwaha

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 Background

The rapid advancement of technology has revolutionized the way organizations operate, with digital solutions becoming integral to various aspects of business management. Traditional methods of employee management, characterized by manual record-keeping and cumbersome administrative tasks, are increasingly being replaced by automated systems to cope with the complexities of modern workplaces. Recognizing the need for an efficient and user-friendly solution, this project seeks to address the challenges faced by organizations in managing their human capital effectively.

1.2 Project Overview

The rapid advancement of technology has revolutionized the way organizations operate, with digital solutions becoming integral to various aspects of business management. Traditional methods of employee management, characterized by manual record-keeping and cumbersome administrative tasks, are increasingly being replaced by automated systems to cope with the complexities of modern workplaces. Recognizing the need for an efficient and user-friendly solution, this project seeks to address the challenges faced by organizations in managing their human capital effectively..

1.3 Objective

The primary objective pf a Music Player include:

- Designing and implementing an Employee Management System (EMS) with intuitive user interfaces and robust functionalities.
- Developing modules for Employee Dashboard, Admin Dashboard, Login, Signup, and Leave Management to cater to the diverse needs of users.

- **Key Features**

1. User Authentication:

i) Allow users to create login securely
ii) Implement password encryption

2. Role-Based Access Control:

i) Different levels of access and permissions based on user roles (e.g., admin, employee) to ensure that users can only access information and functionalities pertinent to their role.

3. Employee Dashboard:

i) Allows employees to view and update their personal information, contact details.

4. Responsive Design:

i) Ensure the application is visually appealing and functionally on various devices and screen sizes

5. Admin Dashboard:

i) Admins can add, edit, and remove employee records, as well as manage employee details including roles, departments, and contact information.

CHAPTER 2

PROBLEM IDENTIFICATION & FEASIBILITY STUDY

2.1 Problem Identification

Effective employee management is crucial for the success of any organization. Traditional methods of managing employee data, attendance, and leave requests are often cumbersome, error-prone, and time-consuming. The primary issues faced by organizations using manual or outdated systems include Manual entry and tracking of employee data, leave requests, and attendance records require significant time and effort from HR personnel.

2.2 Feasibility Study

To address these problems, the feasibility of developing an Employee Management System (EMS) using PHP, HTML, and CSS was evaluated. The feasibility study encompasses various aspects, including technical, economic, operational, and legal feasibility.Here's a breakdown of key components:

2.2.1 Technical Feasibility

- **Technology Stack**: The chosen technology stack (PHP, HTML, CSS) is well-suited for developing web-based applications. PHP is a robust server-side scripting language that integrates well with various databases. HTML and CSS are fundamental for creating user-friendly and responsive interfaces.

- **Existing Infrastructure:** Most organizations have the necessary infrastructure to support a web-based EMS, including internet connectivity and web browsers.

- **Scalability:** Evaluate the scalability of the chosen architecture to handle potential increases in user based content.

2.2.2 Operational Feasibility

- **Resource Availability:** The proposed EMS will have an intuitive interface, making it easy for employees and administrators to use without extensive training.

- **User Adoption:** The transition from manual processes to an automated system will likely be welcomed by HR staff and employees, improving operational efficiency.

- **Integration with Existing Systems:** The system can be integrated with existing HR and payroll systems to streamline data flow and reduce redundancy.

2.2.3 Economic Feasibility

- **Cost Estimation:** Estimate the costs associated with development, hosting.

- **Return on Investment:** The system is expected to yield significant ROI through increased productivity, reduced administrative overheads, and enhanced employee satisfaction.

CHAPTER 3

REQUIREMENT ANALYSIS

3.1 Functional Requirements

Login/Signup System:
- Users must be able to create an account and log in securely.
- Different levels of access should be granted based on user roles (employee, HR staff, manager).

Employee Dashboard:
- Employees can view and update their personal information.

Leave Management:
- Employees can apply for leave and track the status of their requests.

Admin Dashboard:
- Admins can add, edit, and remove employee records.

Leave Approval System:
- Admins can review, approve, or reject leave requests.

Reports and Analytics:
- Admins can generate various reports on employee performance, attendance, and leave.

Leave Management System:
- Employees can apply for different types of leave (sick leave, vacation, etc.).
- Leave requests are routed to the appropriate manager for approval.

Keyboard Controls:
- Support keyboard shortcuts for controlling playback (e.g., spacebar for play/pause, arrow keys for skipping tracks).

Communication Tools:
- Admins can send announcements to all employees or specific groups.

Messaging System::
- Internal messaging for communication between employees and admins

3.2 Non-Functional Requirements

Performance:
- Ensure fast loading times and smooth playback performance even with large playlists.
- Minimize latency in response to user interactions for a seamless experience.

Scalability:

- The system must handle an increasing number of users and data without performance degradation.
- Regular data backups and a robust recovery plan in case of system failure.

Reliability:

- The system should have high availability and minimal downtime.
- Implement error handling mechanisms to gracefully recover from failures.

Usability:

- Design an intuitive user interface with clear navigation and easy-to-understand controls.
- Prioritize user experience to make the player accessible and enjoyable for all users.

Security:

- Implement measures to protect user data and prevent unauthorized access to the player.
- Ensure secure communication channels for transferring songs and user interactions.

CHAPTER 4

PROJECT PLANNING AND SCHEDULING

4.1 Pert Chart:

A PERT chart is a project management tools used to schedule, organize, and coordinate tasks within a project. PERT stands for Program Evaluation Review Technique. A PERT chart presents a graphic illustration of a project as network diagram consisting of numbered nodes (either circles or rectangles) representing events, or milestones in the project linked by labelled vectors (directional lines) representing tasks in the project.

The direction of the arrows on the lines indicates the sequence of tasks.

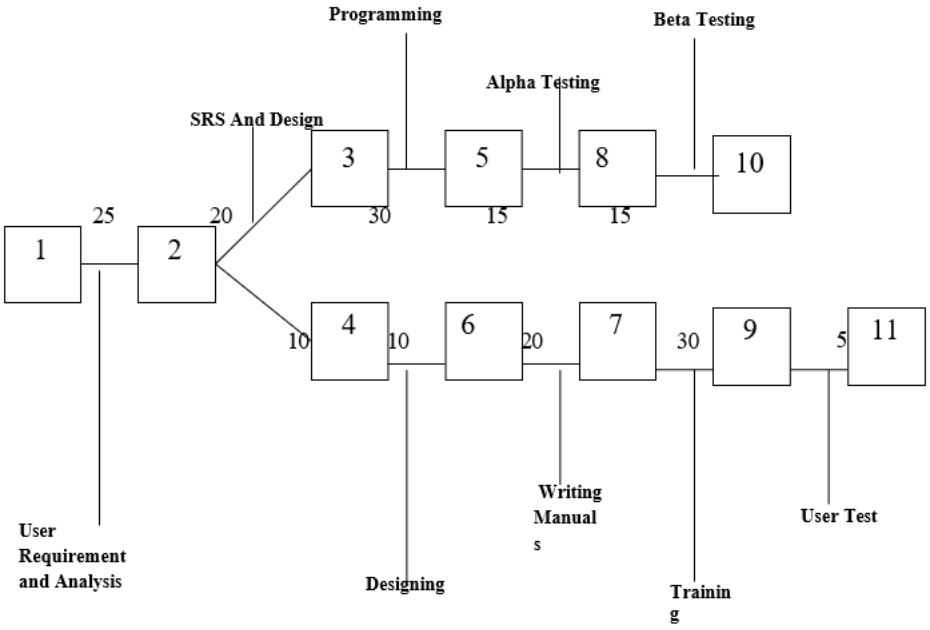


Figure 4.1 Pert Chart

CHAPTER 5

HARDWARE & SOFTWARE SPECIFICATION

5.1 Hardware Specification

Server:
Processor: Intel Core i5 or equivalent RAM: 8 GB or higher
Storage: 256 GB SSD or higher

Database Server:
Processor: Intel Core i5 or equivalent RAM: 8 GB or higher
Storage: 256 GB SSD or higher Network Interface: Gigabit Ethernet

Client Machines:
Processor: Intel Core i3 or equivalent
RAM: 4 GB or higher
Storage: 128 GB SSD or higher
Network Interface: 100 Mbps Ethernet or Wi-Fi

5.2 Software Specification

It is developed with the Help of HTML, CSS, JS

Server-Side Technologies:

Operating System: Windows Server 2016 or later

Client-Side Technologies:
Web Browser: Latest versions of Chrome, Firefox, Safari, or Edge Client-Side Scripting: JavaScript

Development Tool:
Integrated Development Environment (IDE): Visual Studio Code

Version Control:
Git: Version control for collaborative development

Security:
SSL/TLS: Ensure secure data transmission over the network Firewall: Implement firewall rules to restrict unauthorized access
Anti-malware Software: Regularly updated anti-malware software on server and client machines

CHAPTER 6

CHOICE OF TOOLS & TECHNOLOGY

HTML, CSS
HTML (Hypertext Markup Language) is a standard language used for creating web pages. It defines the structure of content using elements like headings, paragraphs, and links, formatted with tags.

CSS (Cascading Style Sheets) is a language used for styling web pages. It controls the presentation of HTML elements, defining attributes such as color, layout, and typography. CSS enhances the visual appearance and layout of websites.

JavaScript
JavaScript is a versatile programming language primarily used for web development. It enables interactive features, dynamic content updates, and behavior changes on web pages. JavaScript runs on the client side, executing scripts within a web browser to enhance user experience, validate forms, and interact with server-side data asynchronously.

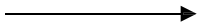
6.1 Data Flow Diagram

The data flow diagram shows the flow of data within any system. It is an important tool for designing phase of software engineering. Larry Constantine first developed it. It represents graphical view of flow of data. It's also known as BUBBLE CHART. The purpose of DFD is major transformation that will become in system design symbols used in DFD: -

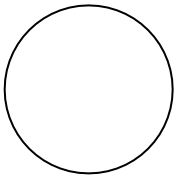
In the DFD, four symbols are used and they are as follows.

1. A square defines a source (originator) or destination of system data.

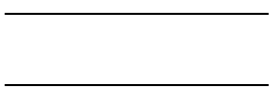
2. An arrow identifies data flow-data in motion. It is 2a pipeline through which information flows.



3. A circle or a "bubble "(Some people use an oval bubble) represents a process that transfers informing data flows into outgoing data flows.



4.An open rectangle is a data store-data at rest, or a temporary repository of data.



6.2 Context Level Diagram

This level shows the overall context of the system and its operating environment and shows the whole system as just one process. Travels and Tales is shown as one process in the context diagram; which is also known as zero level DFD, shown below. The context diagram plays important role in understanding the system and determining the boundaries. The main process can be broken into sub-processes and system can be studied with more detail; this is where 1st level DFD comes into play.

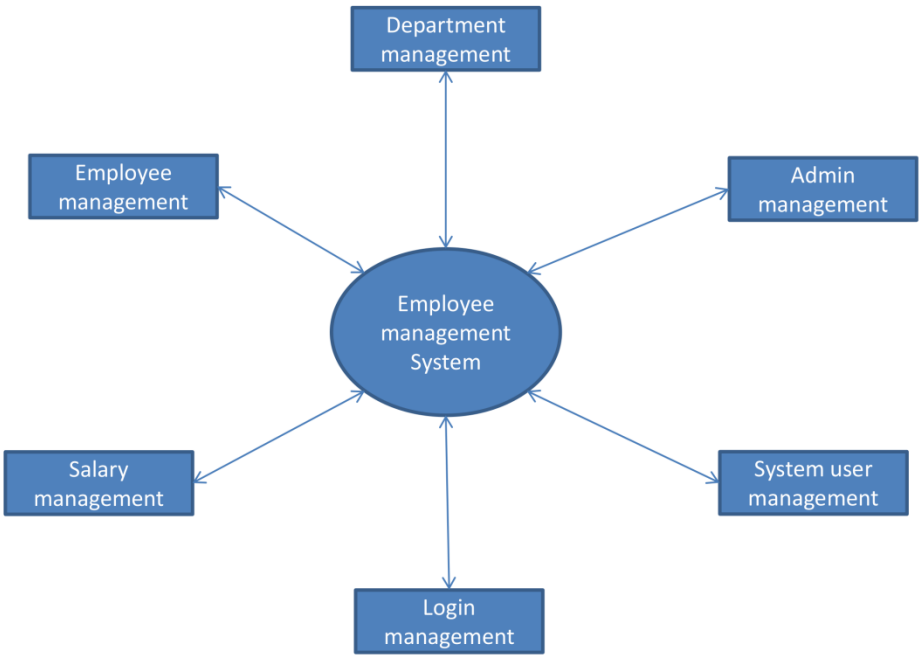


Fig 6.1 Data Flow Diagram

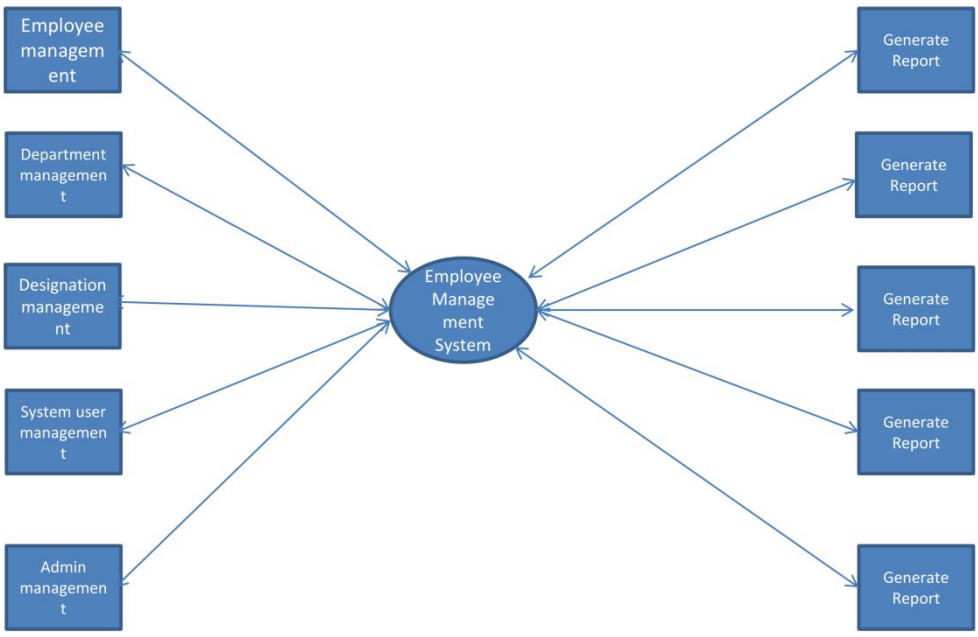


Fig 6.2 Level-1 DFD

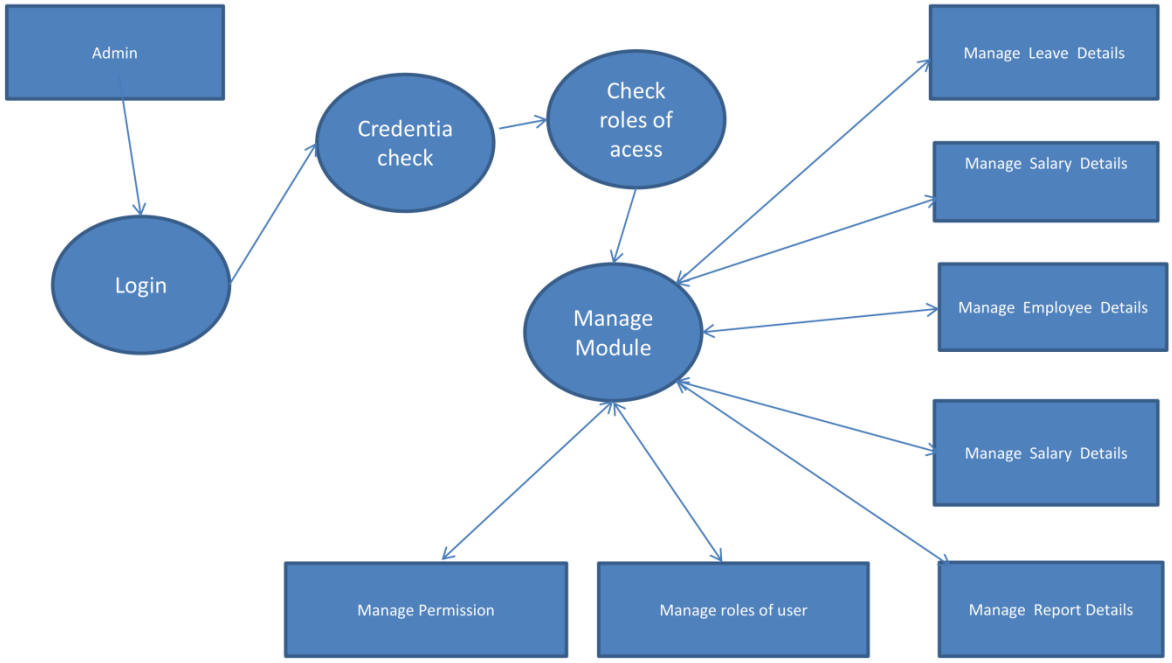


Fig 6.3 Level-2 DFD

CHAPTER 7

ER-DIAGRAM

7.1 Entity-relationship model

The entity-relationship model or entity-relationship diagram (ERD) is a data model or diagram for high-level descriptions of conceptual data model, and it provides a graphical notation for representing such data models in the form of entity-relationship diagrams.

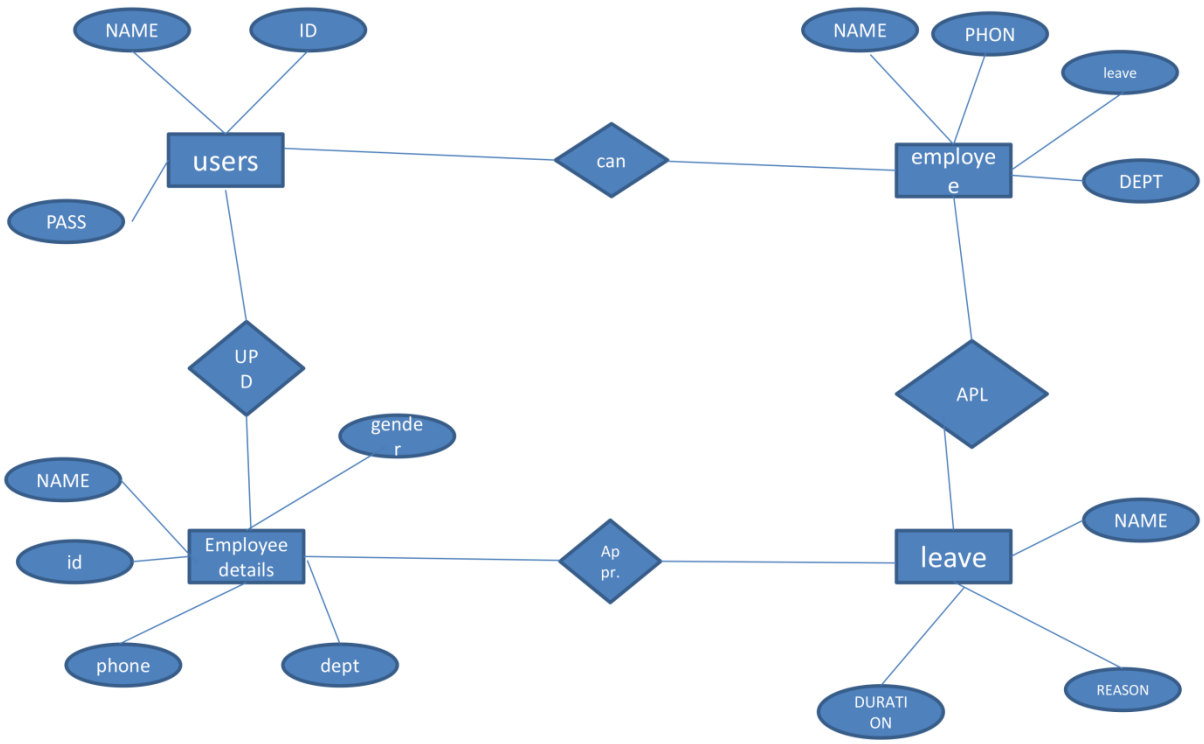


Fig 7.1 E-R Diagram

7.2 Class Diagram

Authentication:
Classification: Weak Client
Description: Represents users authentication details, including username and password. This class is responsible for users login functionality.

CHAPTER 8

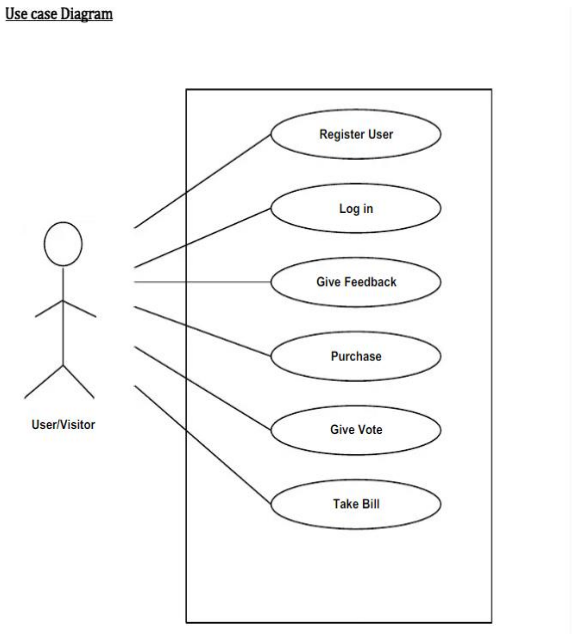
DATABASE

8.1 Use Case Diagram

A use case diagram is a type of diagram in the Unified Modelling Language (UML) that is used to visualize and describe the functional requirements of a system from an external user's perspective. It provides a high-level view of how users interact with a system and the various functionalities or use cases the system offers in response to those interactions.
Use case diagrams are particularly useful for:

- Communicating the system's functionality and behavior to stakeholders in a visual and understandable way.
- Capturing and documenting high-level user requirements.
- Identifying system boundaries and external interactions.
- Modeling how different use cases relate to each other.

They are a valuable tool in the early stages of software development for understanding and discussing the functional aspects of a system before diving into more detailed design and implementation phases.



CHAPTER 9

FORM DESIGN

S

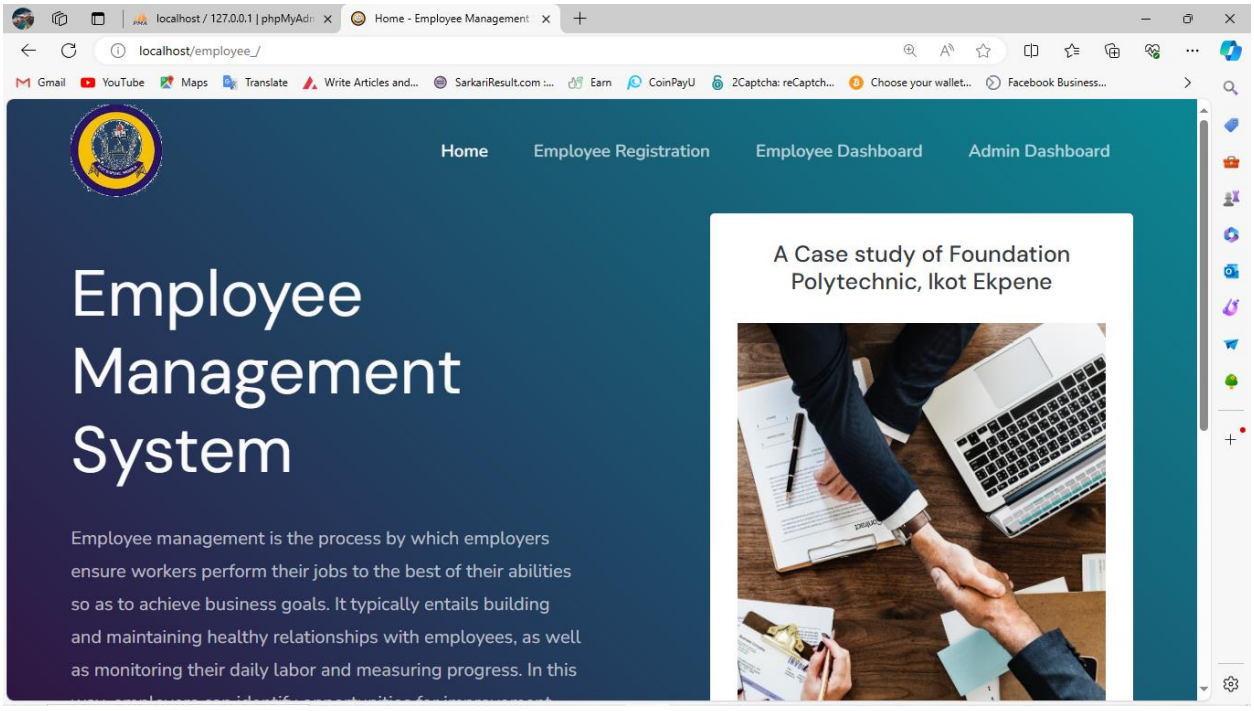


Fig 9.1 Main page

About:

It shows the main web home page for the above proposed system for managing the admin and employees with multiple modules like signup login for both of the roles that is the employee and the admin.

.

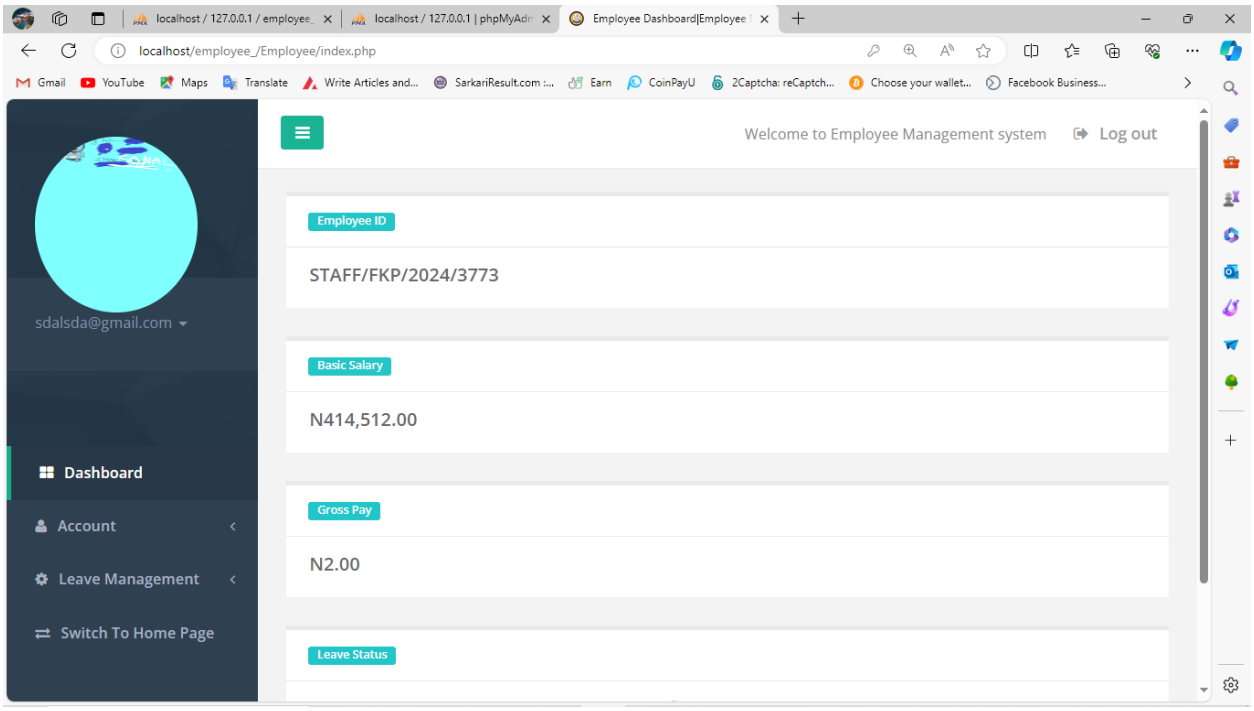


Fig 9.2 dashboard for user

About fig 9.2:

The Communication and Notifications dashboard involve the required id and process includes Viewing previous record for salary and other details to manage the, which broadcasts messages to all or specific groups of employees, enhancing internal communication.

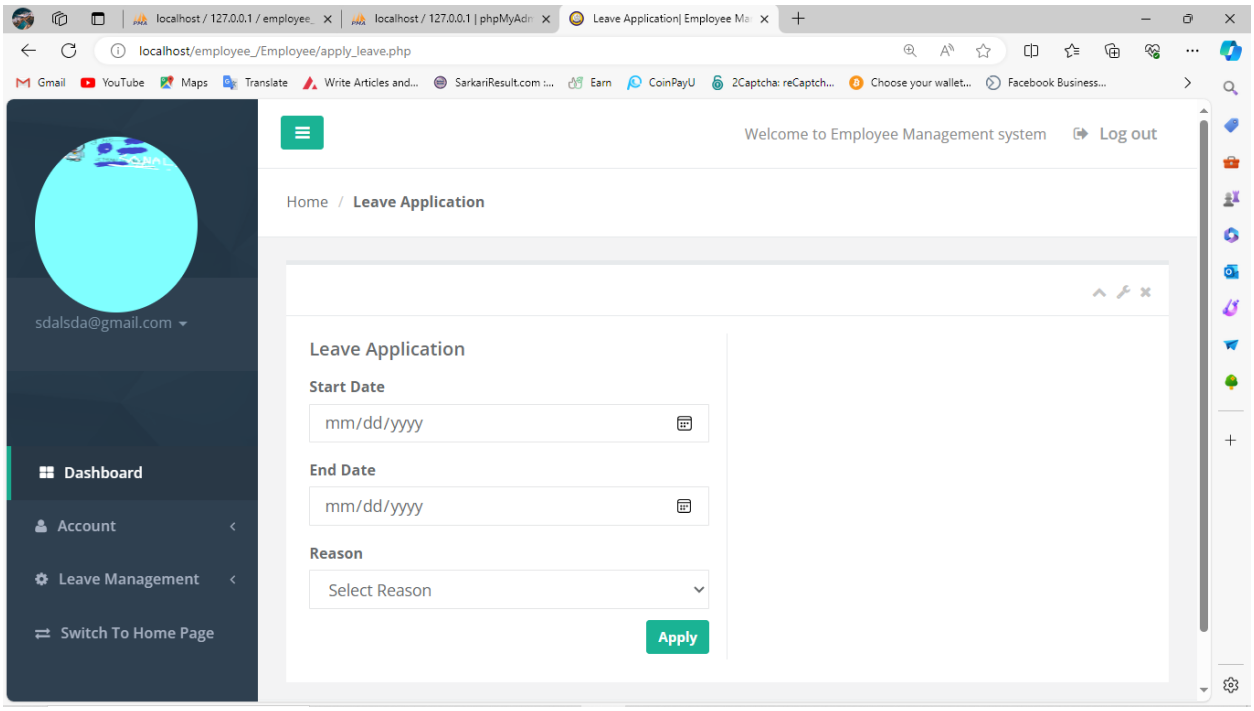


Fig 9.3 leaves management

About fig 9.3:

The leave management allows to apply for the leave by providing duration and reason for the leave and employee can also see the required leave history at any point of time.

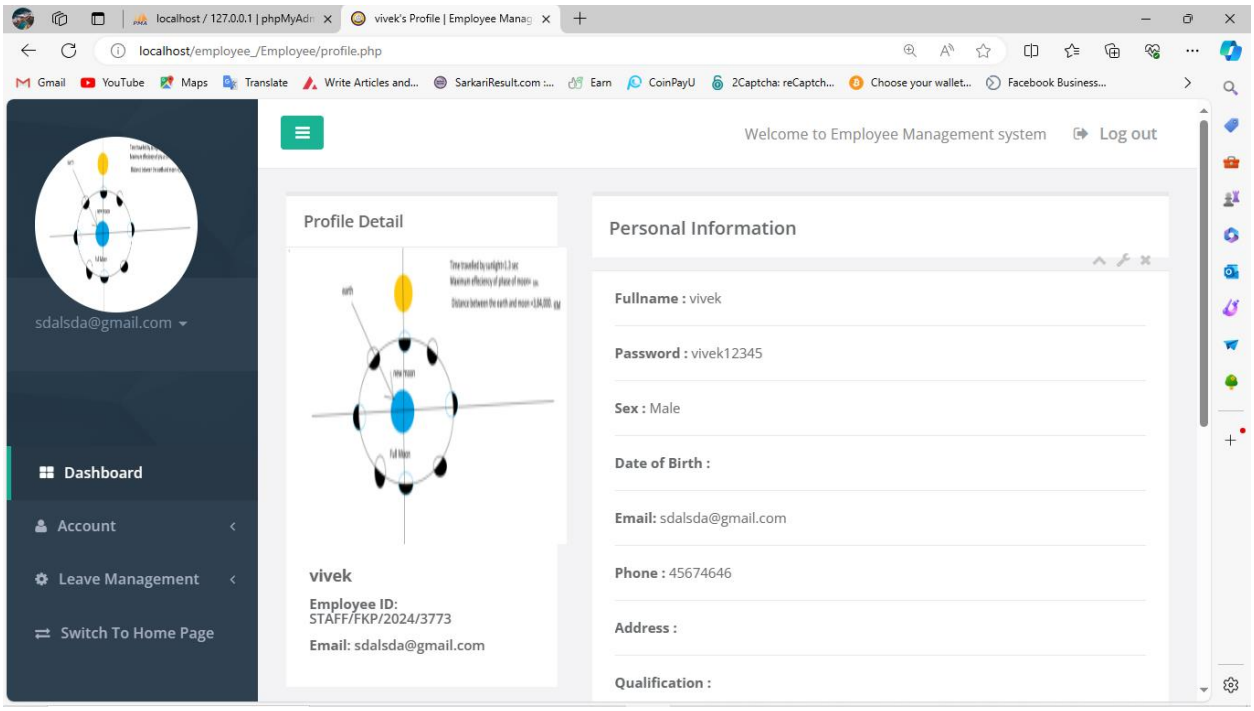


Fig 9.4 Profile details

About fig 9.4:

The profile section allows employs to see their details and if required they can edit their details.

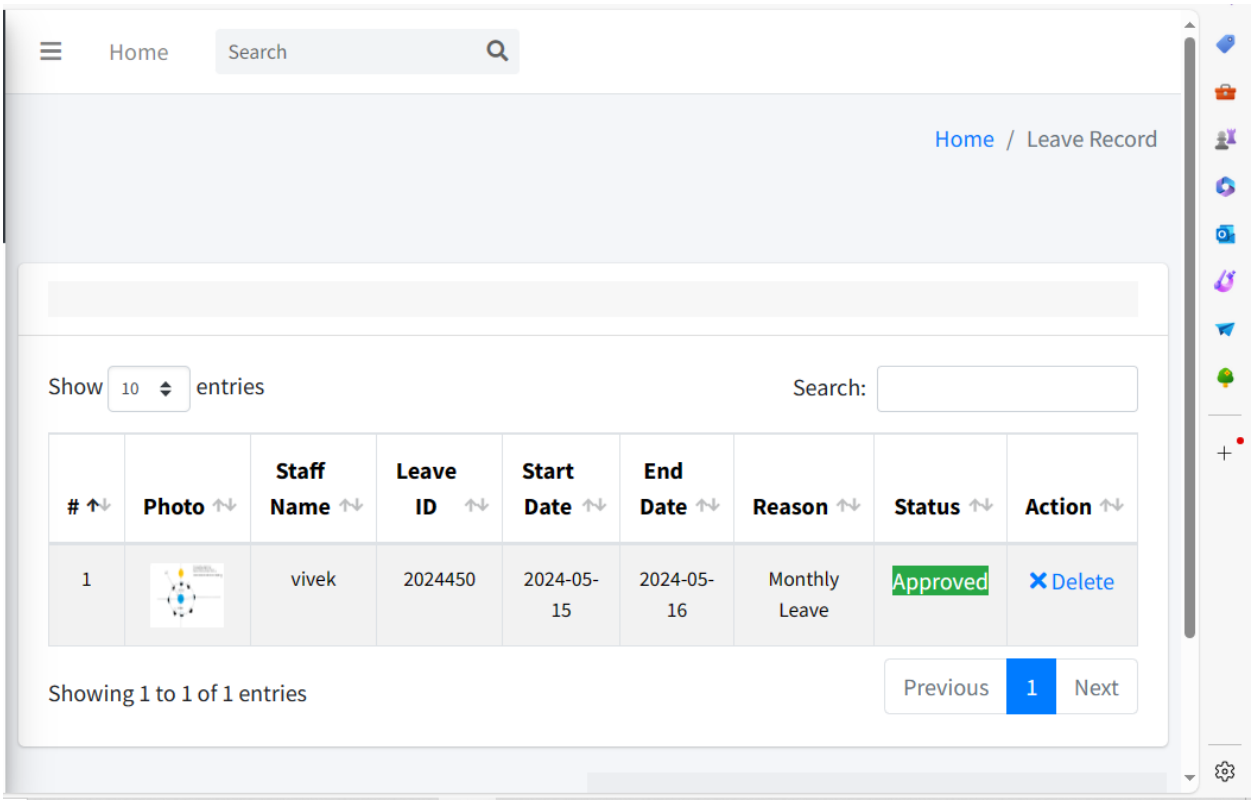


Fig 9.5 leaves status

About fig 9.5:

Leave status management allows employees to submit leave requests and receive notifications regarding the approval or rejection of their requests, while administrators can review, approve, or reject these requests to maintain accurate leave records and balances.

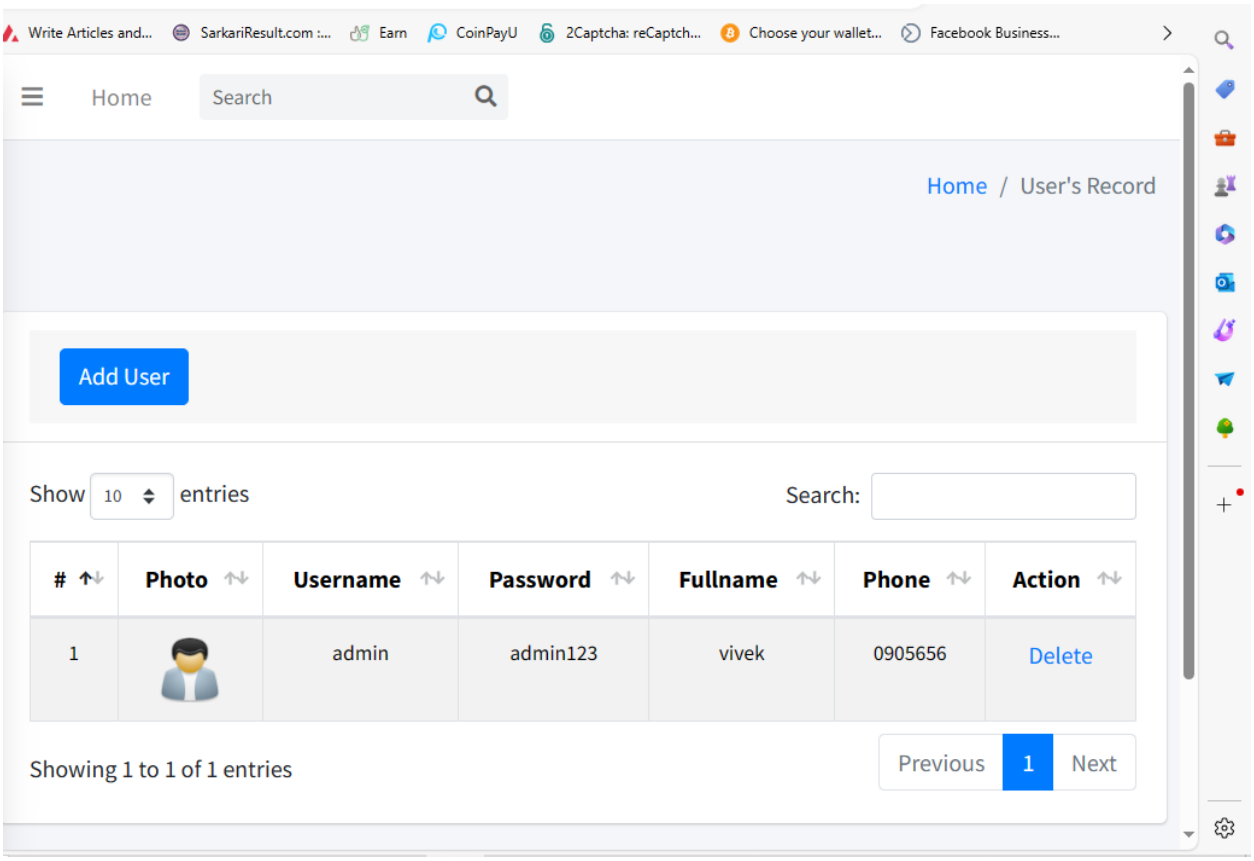


Fig 9.6 Admin details

About fig 9.6:

Profile and admin record management in the Employee Management System allows administrators to add, edit, and delete employee records, ensuring accurate and up-to-date employee data.

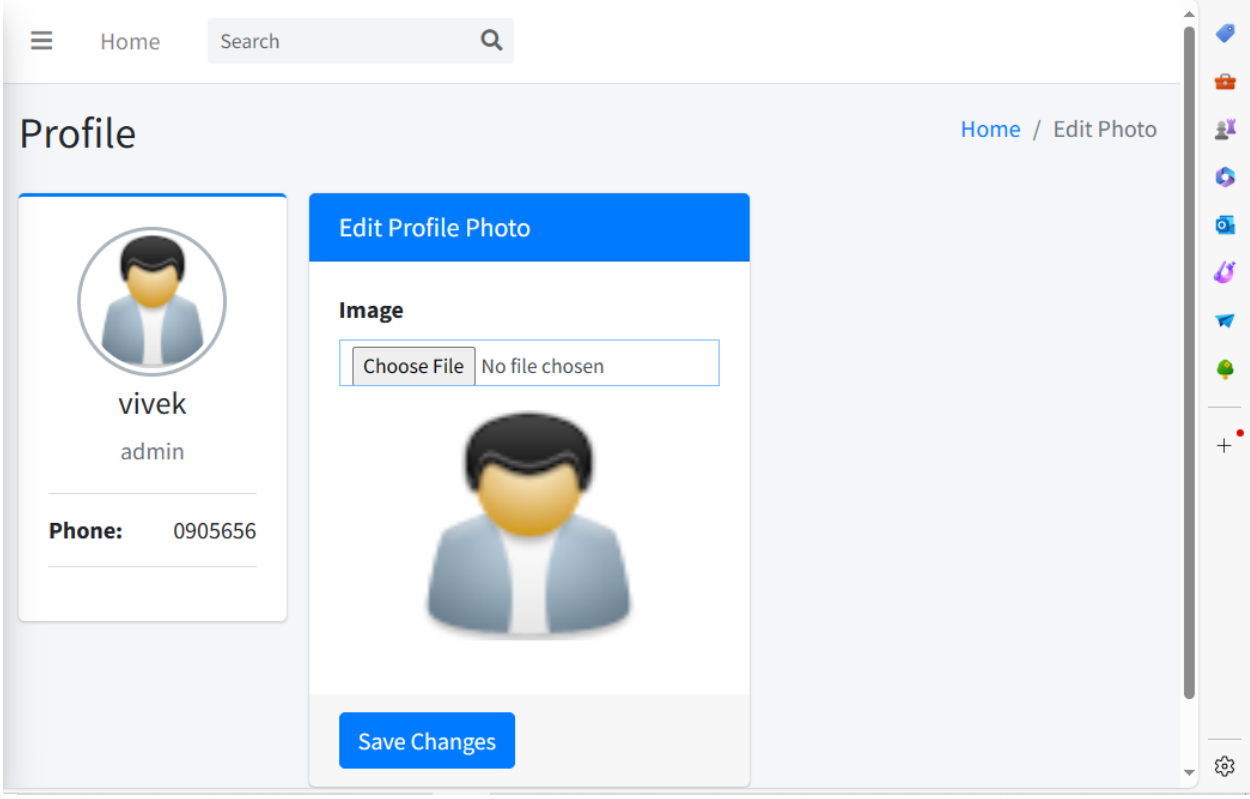


Fig 9.7 profile photo manage

About fig 9.7:

Profile photo management allows users to upload, update, and delete their profile pictures within the Employee Management System, enhancing personal identification and user interaction.

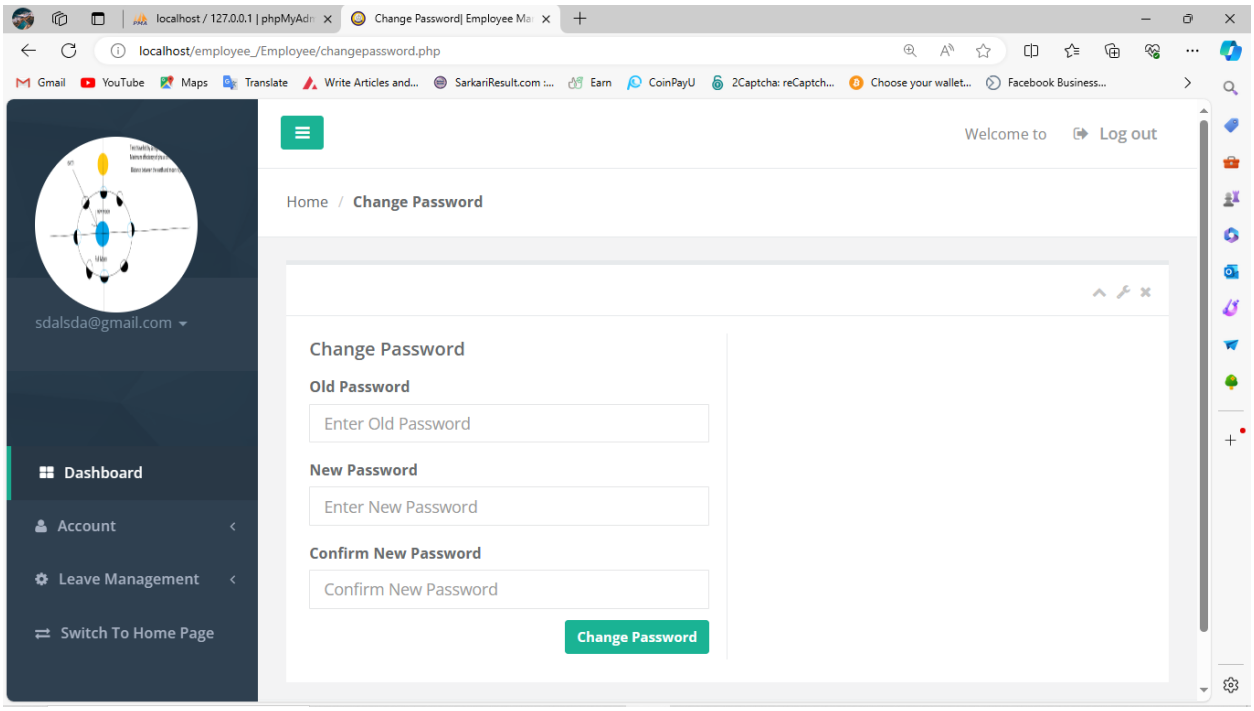


Fig 9.8 employee password change

About fig 9.8:

Employee password management allows users to upload, update, and delete their old password within the Employee Management System, by removing their old password and add new one.

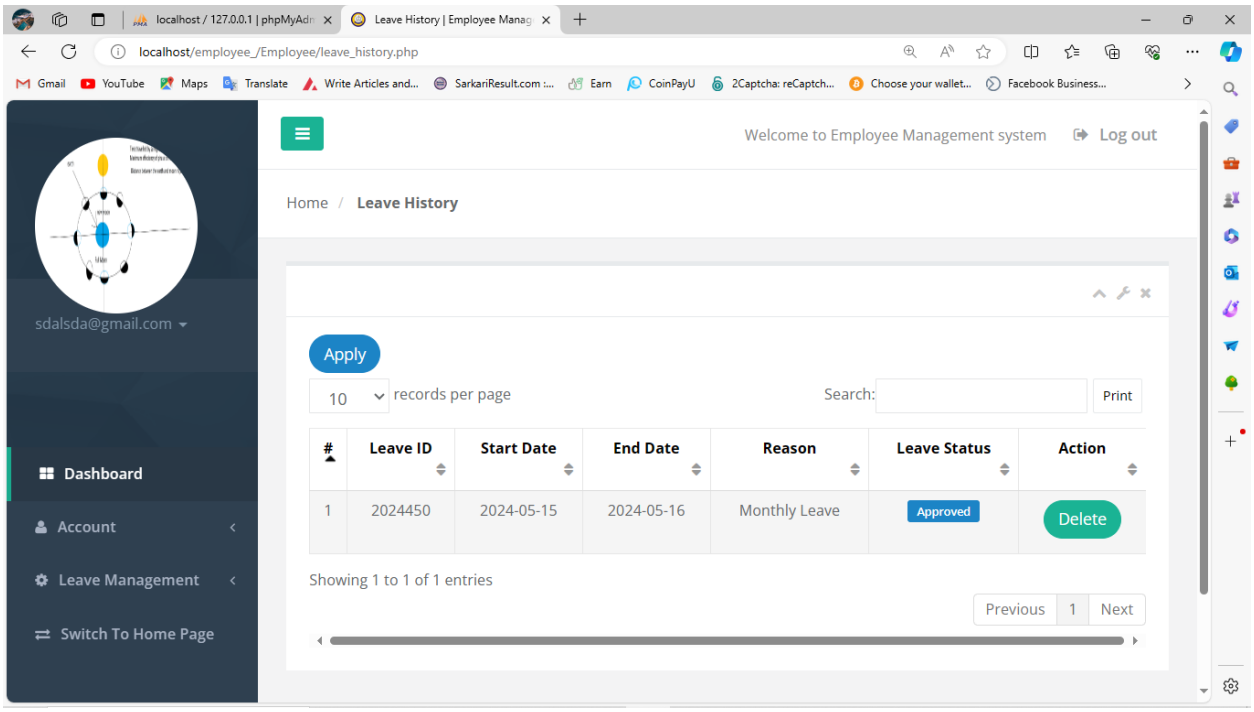


Fig 9.9 employee leave history

About fig 9.9:

Employee leave status history management allows users to see the status including the action performed by the admin whether the leave is approved and also the reason behind leave.

CHAPTER 10

TESTING

10.1 Introduction

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionalities of components, sub-assemblies, and/or a finished product it is the process of exercising software with the intent of ensuring that the software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of tests. Each test type addresses a specific testing requirement.

10.2 Types of Testing

Unit Testing
Unit testing focuses verification effort on the smallest unit of software design, the module. The unit testing, we have is white box oriented and some modules the steps are conducted in parallel.

Integration Testing
Testing is done for each module. After testing all the modules, the modules are integrated and testing of the final system is done with the test data, specially designed to show that the system will operate successfully in all its aspects conditions. Thus, the system testing is a confirmation that all is correct and an opportunity to show the user that the system works.

The purpose of integration testing is to verify functional, performance and reliability requirements placed on major design items. These "design items", i.e. assemblages (or groups of units), are exercised through their interfaces using black box testing, success and error cases being simulated via appropriate parameter and data inputs. Simulated usage of shared data areas and inter-process communication is tested and individual subsystems are exercised through their input interface.

System Testing
System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration-oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

CHAPTER 11

FUTURE SCOPE AND FURTHER ENHANCEMENT OF THE PROJECT

The Employee Management System (EMS) developed using PHP, HTML, and CSS provides a solid foundation for managing employee data, leave, and attendance efficiently. However, there is significant potential for future enhancements and expansions to ensure the system continues to meet the evolving needs of organizations and leverages technological advancements. This chapter discusses the future scope and further enhancements for the EMS, emphasizing its potential to integrate with other systems, provide advanced analytics, offer mobile accessibility, and improve security and usability.

Integration with Other Systems:
One of the key future enhancements involves integrating the EMS with other crucial systems within the organization. Integrating with payroll systems can automate salary calculations, tax deductions, and other financial processes based on employee attendance and leave data. Additionally, linking the EMS with comprehensive HR management systems can unify all HR functions, including recruitment, training, and performance evaluations, providing a seamless experience for HR staff and improving overall efficiency.

Advanced Analytics and Reporting:
The Employee Management System (EMS) developed using PHP, HTML, and CSS provides a solid foundation for managing employee data, leave, and attendance efficiently. However, there is significant potential for future enhancements and expansions to ensure the system continues to meet the evolving needs of organizations and leverages technological advancements. This chapter discusses the future scope and further enhancements for the EMS, emphasizing its potential to integrate with other systems, provide advanced analytics, offer mobile accessibility, and improve security and usability.

CHAPTER 12

CONCLUSION & REFERNCES

The Employee Management System (EMS) developed using PHP, HTML, and CSS represents a significant advancement in streamlining and automating HR processes within organizations. The system addresses critical challenges such as inefficiencies in administrative tasks, data inaccuracies, limited accessibility, and inadequate leave and attendance management. By providing a comprehensive solution for managing employee information, leave requests, attendance tracking, and internal communications, the EMS enhances overall operational efficiency and supports data-driven decision-making.

Throughout the project, we conducted a thorough requirement analysis, designed an intuitive and user-friendly interface, implemented robust functionality, and ensured data security and compliance with relevant regulations. The system's modular architecture allows for future enhancements and integrations, ensuring its adaptability to evolving organizational needs and technological advancements.

The future scope of the EMS includes integration with payroll and HR management systems, advanced analytics and reporting capabilities, mobile accessibility, enhanced leave management, performance management, and continuous improvements in security and usability. These enhancements will further optimize HR processes, improve employee engagement, and support the strategic goals of the organization.

In conclusion, the EMS provides a solid foundation for efficient employee management, contributing to a more productive and satisfied workforce. By leveraging the proposed future enhancements, organizations can ensure that their HR processes remain robust, scalable, and aligned with best practices.

References

- PHP Documentation: PHP: Hypertext Preprocessor. (n.d.). Retrieved from https://www.php.net/docs.php
- HTML5 Specification: W3C. (n.d.). HTML5: A vocabulary and associated APIs for HTML and XHTML. Retrieved from https://www.w3.org/TR/html5/
- Employee Management Best Practices: Society for Human Resource Management (SHRM). (2023). Best Practices in Employee Management. Retrieved from https://www.shrm.org/

Appendices A(User Manual)

A.1 Introduction:

This user manual provides detailed instructions on how to use the Employee Management System (EMS). It covers the functionalities available to both employees and administrators, guiding users through various processes such as logging in, managing personal information, applying for leave, and overseeing employee records.

Throughout the project, we conducted a thorough requirement analysis, designed an intuitive and user-friendly interface, implemented robust functionality, and ensured data security and compliance with relevant regulations. The system's modular architecture allows for future enhancements and integrations, ensuring its adaptability to evolving organizational needs and technological advancements.

A.2 User roles:

Employee: Can view and update personal information, apply for leave, and view attendance records

Administrator: Has full access to manage employee data, approve or reject leave requests, generate reports, and manage user roles and permissions.

A.3 Getting Started:

1. Open your web browser.
2. Enter the system URL provided by your organization.
3. Login using your username and password. If you do not have an account, click on "Signup" to create one.

A.4 Signing Up:

1. Click on the Signup link on the login page.
2. Fill in the required details.
3. Click on Submit. You will receive a confirmation once your account is created.

A.5 Employee Dashboard:

1. After logging in, navigate to the Dashboard.
2. Click on My Profile to view your personal details.
3. Review your information including name, email, phone number, address, and department.

A.6 Updating Personal Information:

1. In the My Profile section, click on the Edit button.
2. Update the necessary fields.
3. Click on Save to apply the changes.

A.7 Applying for leave:

1. Navigate to the leave management section
2. Click on Apply for Leave.
3. Fill the Leave request form with the details like start date , end date ,reason for leave.
4. Click the Submit button.

A.8 Admin Dashboard :

1. Login to the admin with your admin credentials.
2. Navigate to the admin dashboard.
3. Click on manage Employees to add, edit and remove the employee records.

A.9 Approve or rejecting leave:

1. Go to the Leave Management section in the Admin Dashboard.
2. Click on Leave Requests.
3. Review the pending leave requests.
4. Click on Approve or Reject for each request. Employees will be notified of your decision.

Troubleshooting and Support

Introduction:

1. Cannot log in: Ensure you are using the correct username and password. If you forgot your password, use the "Forgot Password" feature.
2. Unable to update profile: Ensure all required fields are filled out correctly.
3. Leave request not submitted: Double-check the dates and required information.

Conclusion:

This user manual provides a comprehensive guide to using the Employee Management System. By following the instructions outlined in this manual, employees and administrators can effectively navigate the system and perform their respective tasks