

Intelligent Web Based Employee Management System

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ABSTRACT

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The primary aim of the "Employee Management System" is to provide a scheduling system specifically tailored for a work center. Scheduling is a valuable tool that facilitates the efficient communication of activities and notifications within an organization, particularly when implemented in an online format. However, manually organizing various events, whether they are personal or official, can be time-consuming and may result in confusion if not organized properly. The Employee Management System is a distributed programme that has been built for the purpose of maintaining comprehensive records of employees who are employed inside an organization. The system retains the personal information of its employees. The software application is designed to store and manage the information of all employees within a database. The application has been designed using Java GUI technology, with the SQLite database being utilized. The dataset includes essential personnel details such as employee identification number, first name, last name, and age. The application is characterized by its ease of use and a user-friendly interface. The system is exclusively constructed with administrative privileges, hence granting only the administrator the authority to alter or amend any records. Therefore, this programme can be deemed safe and reliable for usage. The primary objective of building this application was to mitigate the occurrence of faults inherent in the manual system. The details can be conveniently accessed by using the employee identification number. In previous iterations of the system, the capability to perform such actions was not available. The entirety of the information is kept within a SQLite database. Updating personnel details is a straightforward task. The integration of employment records facilitates a user-friendly and easily navigable application.

Keywords: Employee Management System, Payroll, Employees, Staff, Human Resources, Web Based System.

I. INTRODUCTION

The workforce constitutes a fundamental component of any corporation, and the effective management of employee performance significantly influences the overall achievement of the organization. The Employee Management system is a software application that facilitates the creation and storage of employee records [1]. The primary aim of the "Employee Management System" is to provide a scheduling system for a specific work center. Scheduling is a valuable tool that facilitates the efficient coordination and communication of activities and alerts within an organization, particularly when implemented in an online format. This programme provides assistance to the department within an organization that is responsible for managing and maintaining personnel data. This programme is characterized by its simplicity and comprehensibility, as it provides detailed information regarding each individual process. The language is platform independent. The programmed it has developed can be utilized on both individual machines and across a distributed network [3]. Furthermore, applications that are designed using the Java programming language have the capability to be expanded and adapted for use in Internet-based applications. The concept is easily comprehensible and accessible to anyone lacking familiarity with basic personnel systems. The interface is designed to be easily navigable and prompts the user to proceed through sequential actions by presenting a limited number of choices. The system exhibits a high level of efficiency and is capable of executing numerous functions within the context of a company or organization [4]. The software project has been constructed utilizing the robust coding tools of HTML, CSS, and PHP for the front-end, and Microsoft SQL Server for the back-end. The software has a high degree of user-friendliness. The project has many modules, including those pertaining to employee and administrative functionalities. The current iteration

of the programme has a multi-user method. The consideration of user input will be taken into account for the subsequent enhancement or development of the product.

II. RELATED WORK

The notion of EMS is highly valuable and significant, warranting its implementation across all organisations [5]. In the foreseeable future, when individuals will have limited availability, this approach will prove highly advantageous in effectively overseeing personnel. The system has the potential to be expanded to encompass a range of additional functions, including the evaluation of individual employee performance [4], determination of appropriate compensation levels for employees, and the calculation of staffing needs or surpluses. Nevertheless, further investigation and a greater amount of time are necessary for the exploration of these subjects. The implementation of performance tracking systems not only offers advantages to organisations, but also facilitates employees in monitoring and enhancing their individual performance [6]. The staff Management System built for Keymans Malaysia Sdn Bhd [7] is a web-based application that encompasses several aspects of staff management, including attendance tracking, leave management, and salary administration. The development process involved the utilisation of PHP, Xampp, and MySQL. The prototyping model has been employed as the chosen methodology due to the frequent misinterpretation of several elements. The Web Based Employee Management System, as presented by BUET [8], encompasses various functionalities like leave management and task notification. The proposed tools for development include PHP, MySQL, and HTML. Various types of report generating have also been taken into account for this system. A proposal has been put out for the implementation of a modular design. Human resources play a crucial role in the functioning and

overall performance of an organisation. They have the responsibility for ensuring the success and effectiveness of the organisation. Organisations allocate significant resources towards the effective management of their workforce. The HRIS, or human resource information system, is a software tool utilised for the management of inventory control and accounting processes [9]. The EMS, or Emergency Management System, is an informatics system [10] that offers considerable benefits in terms of time, energy, and cost savings for owners, HR personnel, and managers. Employee management systems are essential for both private and public companies [11]. Over the years, there has been a prevalent reliance on traditional pen and paper methods for record-keeping. However, in recent times, there has been a significant surge in the adoption of automated systems [12] for managing pay calculations. The implementation of these systems poses challenges in numerous places due to their high costs and the need for diligent maintenance. A different Employee Management System was suggested [13], which utilises HTML, CSS, and PHP as its underlying technologies. The proposal aims to implement many functionalities, including employee profiles, as well as leave and task management. Gloria, Padua B. [14] has presented a system that encompasses several aspects, including the retrieval of a comprehensive list of personnel, their assigned duties, and corresponding working schedules. Additionally, it suggests that the system should possess convenient accessibility to relevant personnel information, including employee identification, name, and residential address.

III. OBJECTIVES

In previous iterations, information storage was primarily reliant on manual methods, lacking a systematic approach. The manual storage of employee records resulted in the occurrence of errors. The organization lacked an effective system for monitoring and managing employee records. The

application process was arduous and entailed a substantial amount of documentation, rendering it time-consuming and lacking in security measures. The absence of an administrator capable of managing the documents has been noted [15]. There arose a necessity to devise a system capable of effectively managing these tasks and minimizing the reliance on physical documentation. In order to transition from a paper-based system to a digital one, it is imperative to eliminate the accumulation of physical files, which not only poses challenges in terms of accessing records in the future, but also places a burden on individuals involved in managing and organizing these files. The implementation of a completely automated system has the potential to significantly reduce the amount of human labor required [16]. In the present system, the management of human resources necessitates the diligent maintenance and documentation of comprehensive employee records within an organization, in order to effectively monitor and oversee the workforce.

IV. EXISTING SYSTEM

The issue statement for the system design entails the need to effectively manage employee data, provide efficient staff supervision, allocate job responsibilities, and enforce access control measures. Additionally, the system should leverage technology to ensure precise and prompt data processing while maintaining utmost privacy and granting comprehensive authorization privileges. The aim of this project is to provide an employee information system that encompasses employee status, attendance, monthly salary processing, and delivery. In order to mitigate or minimize the challenges inherent in the current system and prevent inaccuracies during data entry. In the current approach to employee management, employee records are maintained in a record-keeping system. The process is performed manually. The process of searching for employee compensation information might be challenging.

V. EMPLOYEES MANAGEMENT

The Employees Management system refers to the management system implemented by a corporation or any other organization. Organizations have the ability to maintain comprehensive personnel records, encompassing pertinent personal information and dates of employment initiation. Moreover, they may establish efficient and convenient channels of contact between employers and employees. The management of employees encompasses various aspects such as the implementation of a record system, tracking the date of joining, facilitating communication, providing concessions, and utilizing a diverse set of reports that aid in the effective administration of an organization. The Employees Management system is comprehensive, since it maintains records of all new employees, regardless of whether they are interns, seasoned professionals, or individuals participating in an internship programme. This system effectively consolidates and stores data pertaining to each employee within a centralized database. The Employees Management system offers a range of services that allow users to access data through an interface, providing a comprehensive picture of information. Additionally, the system enables managers to generate lists and facilitates the direct addition of employees through web-based technology. The suggested system encompasses the comprehensive storage of mechanical information and coach data [17]. The system also manages the services offered by Company. The system structure has been rendered more comprehensible due to the inclusion of the Data Flow Diagram given by our team. The case study includes a context level diagram and other charts. We offer a demonstration of using software applications, including the employees' detail form and the software's database.

5.1 Employee Service

It is imperative for the website to have a consistent and uniform visual appearance throughout all of its

pages, ensuring a comparative aesthetic experience for users. It is recommended that each page should possess consistent elements such as a header/logo, heading style, fonts, navigation, and other related components. Efficient and easily maintainable This statement implies the importance of separating content from format, allowing for easy modification of page design without having to edit each individual page on the website. The task at hand involves the conceptualization and creation of a design. According to the literature [18], it is recommended that each page should exhibit a noticeable difference between the text and background area. This really aids in enhancing visibility, as reading the text becomes difficult when it is nearly the same colour as the background. The consideration of screen size should also be taken into account. Easy to investigate and employ Users should not encounter difficulties when attempting to navigate the website. It is imperative that route connections have a consistent and easily discernible signage system. All links should also be functioning correctly and should direct to the intended page or website. The programme demonstrates feasibility. When formulating the site plan, it is imperative to take into account a wide range of programmatic requirements and situations. Comprehensive testing should be conducted on each webpage across all major platforms, and the design should be appropriately adjusted to accommodate all users. Externally captivating the deliberate consideration and application of shading, text, fonts, and graphics are crucial in order to ensure that the website is visually appealing to its visitors.

VI. PROPOSED WORK

This section provides more elaboration on the research conducted in the Analysis section and offers a comprehensive overview of the design aspects pertaining to the Representative Management System. The EMS is presented through the utilization of articles and classes, highlighting their

interrelationships and collaborative efforts. The proposed framework has been clarified, and the design of the Entity Relationship Diagram (ERD) has been completed. The User Interface design plan is also discussed in reference [19]. The suggested framework aims to eliminate the drawbacks associated with the existing representative administration software. The framework will be responsible for maintaining data pertaining to employees, including their individual profiles. The Employee Information System is a user-friendly tool designed for the purpose of effectively managing employee data [20]. The purpose of its creation is to document the specific information pertaining to the employees. The implementation of this solution decreases reliance on the manual system, hence mitigating the potential for errors. This system has the capability to effectively facilitate the monitoring and management of employee records. The system includes a search functionality that facilitates the retrieval of records pertaining to a particular employee. An administrator possesses the capability to do various operations such as adding, editing, deleting, and saving records within a database [21]. This application offers two distinct perspectives: the administrator's view and the employee's view. The employee perspective allows individuals employed inside an organization to access and review their personal information.

5.1 Html/Html5

HTML, short for Hypertext Markup Language, is a widely accepted markup language utilized for the purpose of constructing and organizing web pages. This particular programming language is commonly employed in the process of creating and enhancing web sites. Furthermore, this programming language not only enables the development of interactive and adaptable websites but also offers compatibility with several other programming languages including CSS, PHP, JavaScript, and several others. The HTML5, seen in figure 1, can be considered as an updated

version of the HTML standard [22]. The platform offers assistance for innovative functionality, supplementary attributes, recently introduced HTML components, extensive compatibility with CSS3, video and audio capabilities, and 2D/3D graphics. These capabilities facilitate the smooth development and incorporation of innovative elements into websites, benefiting both users and web developers.

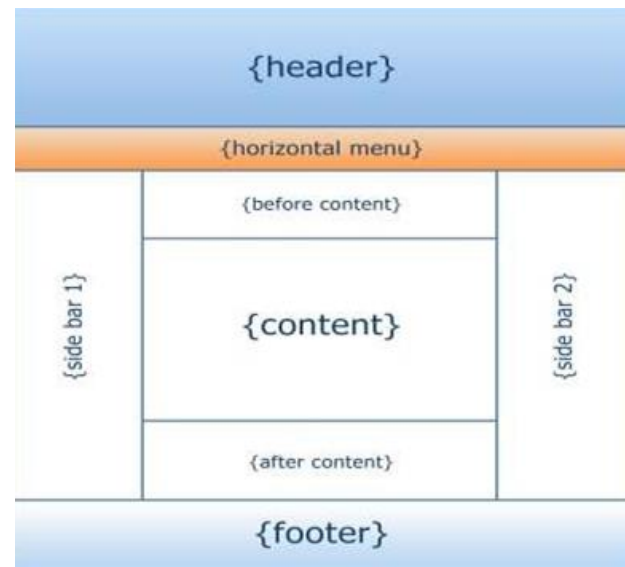


Figure 1: The structure of the Html/Html5

5.2 PHP

PHP is a widely utilized server-side programming language commonly employed in the creation of dynamic websites. The resource is easily accessible in multiple versions without any charge. This software application possesses the capacity to function on multiple operating systems, such as macOS, Windows, and UNIX, as well as various platforms. The execution of programme code occurs subsequent to the execution of the programme due to the scripting language's inherent characteristics. PHP can also be utilized in the creation of desktop applications. One of the justifications for choosing PHP as the programming language for our project is from its compatibility with MySQL, which has been identified as the ideal database management system for our project. The PHP programming language

enables the smooth integration of images and PDF files into HTML websites. Figure 2 depicts the operational procedures of the web server.

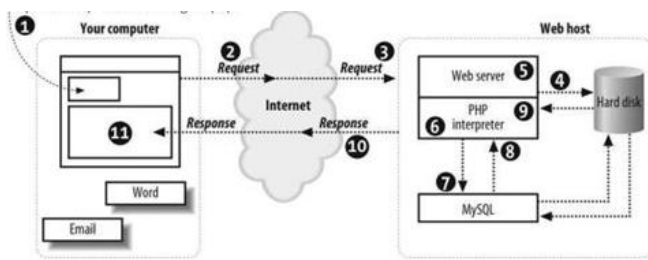


Figure 2 : Demonstrating how the Web Server Operates using PHP

5.3 MySql

MySQL is a database system that is open-source in nature. It enables the deployment of web-based and embedded database applications in a cost-effective manner, while ensuring reliability, high performance, and scalability. The aforementioned system can be categorized as a relational database management system (RDBMS). The programme demonstrates outstanding performance and possesses the capacity to efficiently expand in order to meet the needs of users and data [23]. MySQL is developed through the utilization of the programming languages C and C++, hence guaranteeing compatibility with a diverse array of operating systems that are widely widespread on a global scale. In order to proficiently manage this type of data, it is vital to utilize a database management system, such as MySQL, which streamlines the retrieval of data and permits a range of activities including data addition, deletion, and change. MySQL is categorized as a relational database management system (RDBMS) and, as such, follows the principle of organizing data into distinct tables rather than consolidating it within a single repository. The act of saving and organizing data into tables serves to optimize the efficiency of data access, retrieval, and manipulation, hence enhancing the speed and adaptability of data management.

5.4 Web Server

The principal purpose of a web server is to facilitate the exchange of information between the client-side and server-side elements of a web application. The aforementioned objective is accomplished by the use of mechanisms for storing, manipulating, and transmitting web pages to the end-user's device. The customary procedure for facilitating communication between a web browser and a server commences with the web browser initiating an HTTP request for a specific resource. Following this, the server proceeds to fulfil the user's request by delivering the content of the requested resource. The Apache HTTP server was chosen as the hosting platform for this project, and it is now being hosted on the WAMP service. The Apache HTTP server is extensively utilized as web server software in various project endeavors.

VII. OUTCOME

The concept of input design serves as the crucial connection between an information system and its users. The process of input design includes the identification and selection of appropriate inputs, the verification and validation of the input data, the implementation of strategies to reduce the amount of data entering required, and the provision of a multi-user capability. The most prevalent source of errors in data processing is inaccurate inputs. The control of errors made by data entry operators can be achieved by the use of effective input design [24]. The inputs provided by the user are transformed into a computerized representation during the input design phase. The process involves the collection and categorization of input data into clusters based on their similarities. After identification, the suitable input media are chosen for the purpose of processing. The entered data undergoes validation, and in the event that any data fails to meet the specified conditions, the user is alerted through a message. Once the data fulfils all the specified criteria, it is

subsequently moved to the relevant tables inside the database. During the registration process for this project, it is required to input the student's personal information. A webpage has been specifically created with the intention of being user-friendly and easily navigable. The design has been implemented in a manner that ensures users receive suitable messages in the event of exceptions. The computer output serves as a primary and crucial source of information for the user. The phase of output design holds significant importance as it is crucial for the output to be presented in an efficient manner. The enhancement of output design, characterized by efficiency and intelligibility, serves to strengthen the system's interaction with the user and facilitates effective decision-making processes.

In the proposed system, there's a user management function. The administrator possesses the ability to add users, modify user information, alter user roles, and delete users. In order to change user profiles, administrators have the capability to do a search using the usernames of the respective individuals [25]. Subsequently, the user has the capability to modify user particulars, as illustrated in Figure 3. The registration management function is of utmost importance in the proposed system, as depicted in figure 4.

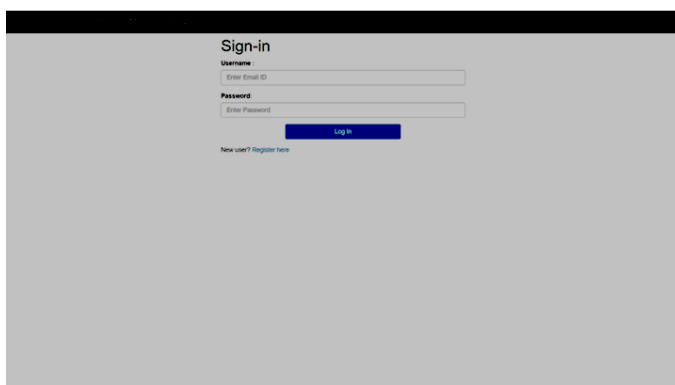


Figure 3: Home' Page of Proposed System

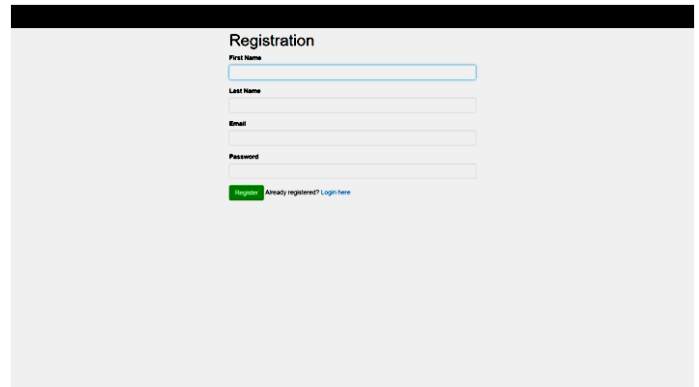


Figure 4 : Registration of Proposed System

The proposed system will incorporate a work management system that encompasses several aspects pertaining to task management for both employees and managers. The aforementioned features enable the administrator to add figures 5 and 6, modify, and delete tasks inside the system. This facilitates the consolidation of all duties in a centralized location, allowing for efficient management of employees with a singular action.

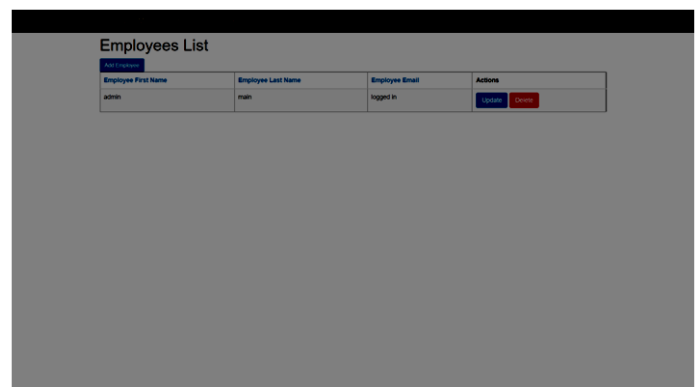


Figure 5 : Employees List Module of Proposed System

The employee will possess the capability to access the assigned assignment and thereafter submit their progress by utilizing the progress submission mechanism. Moreover, the employee has the ability to submit their completed delivery to the administrator, and employees can enhance their skills by utilizing the rating system.

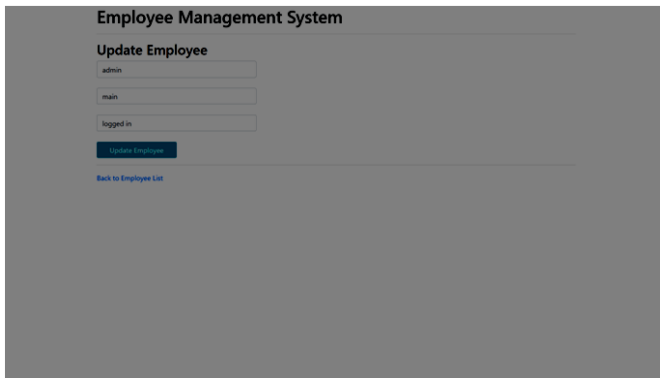


Figure 6 : View the Employees Update lists of Proposed System

It is anticipated that the system will effectively address a majority of the challenges associated with staff management within the workplace. The system is designed to offer efficient solutions for addressing the challenges encountered in the workplace, with the aim of reducing the amount of manual labor required for employee data management. Additionally, the system would offer features to effectively disseminate information to the staff. The system will serve as a middleman to facilitate communication and interaction among employees [26], managers, and administrators. The implementation of this approach will result in a reduction of manual labor and enhance the efficiency of the process. The initial step in the development process involves the creation of a prototype for the system, which allows for the incorporation of user input. The prototypes and wireframes may be presented to actual system users in order to observe their interactions and identify areas for improvement.

VIII. CONCLUSION

This study aims to offer a computer-based system for the management of employee data in the workplace, as the current manual methods are antiquated and result in a significant volume of paperwork. This study proposes the development of a web-based Employee Management System utilizing techniques from distributed systems. The organization in

question is engaged in the administration of employees and has a system for effectively overseeing and coordinating their activities. One has the ability to maintain comprehensive documentation pertaining to the individuals comprising their membership, including details on their memberships, while also facilitating efficient and seamless communication channels between oneself and said members. The management of employees encompasses the implementation of many systems, such as those related to employee feedback, banking, accounting, and concessions. Additionally, it involves the use of a diverse set of reports that aid in the effective administration of one's organization. The Employee Management system is a comprehensive programme designed to oversee all aspects of employee data and activities within a corporation, including recreational facilities. The system is specifically created for the purpose of facilitating the addition of company HR data. Despite the system being offered with a commendable set of features, there is room for further enhancement through the development of additional features to augment its functions. Additional functionalities, such as the inclusion of email notifications, have the potential to be incorporated. Additional study could be undertaken to enhance the system by identifying various types of employee data that necessitate efficient management inside the workplace and subsequently expanding the system's functionalities to successfully handle them. The subject area necessitates additional investigation, and the technology necessitates further refinement to effectively handle any existing limitations.

IX. Acknowledgement

We are students pursuing a Bachelor of Technology degree in Computer Science. We would like to extend our gratitude to our project supervisor for granting us the opportunity to undertake the project on Employee Management System. The completion of this project has proven to be the most stimulating

aspect of our educational journey, offering valuable skills and knowledge that will undoubtedly enhance our future professional endeavors. No system is developed solely by one individual. The effective arrangement of ideas and the thorough examination of the system. We would like to express our gratitude to our guide and mentor, Shipra Singh Maam, for her continuous guidance in our development and her encouragement to seek further answers to the countless questions she posed. The simulation prompted us to engage in critical thinking and continuously refine and restructure the report. We express our gratitude to numerous classmates who have made valuable contributions by providing their suggestions. Our immediate and regular coworkers exert the most significant impact on us and are deserving of our utmost gratitude. The diligent efforts and exemplary actions of others serve as catalysts for pushing us to the boundaries of our potential and providing us with daily motivation.

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