

Employee & Payroll Management System

National Institute of Technology , Raipur

BY

Akash deep(Update_11)

1911104

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1 About Database Management

A database management system (or DBMS) is essentially nothing more than a computerized data-keeping system. Users of the system are given facilities to perform several kinds of operations on such a system for either manipulation of the data in the database or the management of the database structure itself. Database Management Systems (DBMSs) are categorized according to their data structures or types. Database management system is a software which is used to manage the database. For example: MySQL, Oracle, etc are a very popular commercial database which is used in different applications. DBMS provides an interface to perform various operations like database creation, storing data in it, updating data, creating a table in the database and a lot more. It provides protection and security to the database. In the case of multiple users, it also maintains data consistency. Data is managed in various method like Json, tree, and array, etc.

1.1 Allows users the following tasks:

Data Definition: It is used for creation, modification, and removal of definition that defines the organization of data in the database.

Data Update: It is used for the insertion, modification, and deletion of the actual data in the database.

Data Retrieval: It is used to retrieve the data from the database which can be used by applications for various purposes.

User Administration: It is used for registering and monitoring users, maintain data integrity, enforcing data security, dealing with concurrency control, monitoring performance and recovering information corrupted by unexpected failure.

1.2 Characteristics of DBMS

- It uses a digital repository established on a server to store and manage the information.
- It can provide a clear and logical view of the process that manipulates data.
- DBMS contains automatic backup and recovery procedures.
- It contains ACID properties which maintain data in a healthy state in case of failure.
- It can reduce the complex relationship between data.
- It is used to support manipulation and processing of data.
- It is used to provide security of data.
- It can view the database from different viewpoints according to the requirements of the user.

2 Abstract:

“Employee Database And Payroll Management System” is designed to make the existing manual system automatic with the help of computerised equipment and full-edged computer software, fulfilling their requirements, so that their valuable data and information can be stored for a longer period with easy access and manipulation of the same. The required software is easily available and easy to work with. This web application can maintain and view computerised records without getting redundant entries. The project describes how to manage user data for good performance and provide better services for the client.

The payroll management system is a web-based program that can be used by any firm to manage the records of its employees. The Payroll Application was created with the goal of keeping track of numerous employees, their allowances, and deductions that must be given to the company’s employees. There will be an entry (a unique ID) for every employee of any company. The number of days will be submitted based on the date of joining and the date on which the salary is produced. Basic compensation will be determined by the employee’s position and department.

3 Introduction

The proposed project “Employee Database and Payroll Management System” has been developed to overcome the problems faced in the practicing of manual system. This software is built to eliminate and in some cases reduce the hardships faced by the existing system. Moreover this system is designed for particular need of the company to carry out its operations in a smooth and effective manner.

This web application is reduced as much as possible to avoid errors while entering data. It also provides error message while entering invalid data. It is user-friendly as no formal knowledge is required to use the system.

Human resource challenges are faced by every organization which has to be overcome by the organization. Every organization has different employee and payroll management needs. Therefore I have design exclusive Employee and payroll Management System that are adapted to the organization’s Managerial Requirements.

4 Purpose

The purpose of this document is to describe the functionality and specifications of the design of a web application for Managing Employees and their payroll. The expected audiences of this document are the developers and the admin of the web application. Now with the help of this system the admin has the information on his finger tips and can easily prepare a good record based on their requirements.

Finally, we can say that this system will not only automate the process but save the valuable time of the manager or the admin, which can be well utilized buy his institute. This will be an additional advantage and management of power based on their free time from his normal duty.

5 Payroll Management System Project Proposal

The Payroll Management System Project Proposal has the complete description of the project to be proposed. This contains the problem statement which discusses the difficulties that the payroll management faced and it is considered as the reason why the project is proposed. This proposal also includes the project scope that explains the boundaries and possible features of the project.

5.1 PROBLEM STATEMENT:

Payroll is usually the most expensive part of a business. Employee attendance systems that use paper sheets are inefficient and make it very easy for employees to cheat the system by entering incorrect data on the sheet. To avoid the aforementioned issues, an automatic and flexible system should be implemented, of which the suggested system is one.

5.2 SCOPE:

This project's scope comprises solutions for handling employee personal data, leave management, personnel actions, calculating payroll, accurately registering employee attendance using a Biometric Fingerprint Attendance Device, and system authentication and authorisation for software users. Furthermore, the program will generate various reports for the bureau's senior management in order to aid them in their decision-making process. Specific users with distinct role kinds, such as manager, administrator, human resource people, and finance, will be able to change the system database based on their assigned access capabilities. This software will provide a system for authentication and authorization. Every user with a specified role type can log in with their username and password and gain access to the system to which they have been granted access.

6 Payroll Management System Project Modules:

The payroll system modules manage an employee's financial records, such as salary, bonuses, deductions, benefits, and costs, among other things. Payroll administration is one of the most important tasks that any organization undertakes, but it is also one of the most complicated and time-consuming.

- **Employee Information Management:** This module provides a consolidated database for application tracking, employee demographics, compensation and benefit options, time tracking, and more. It's also the central location for all of your personnel data, including the most up-to-date statistics on your organization's hiring and retention patterns.
- **Report Monitoring:** Its role is to accurately calculate compensation including overtime. Withholding the appropriate amount of payroll taxes from each applicable payroll tax's wages.
- **Generate Performance Reports:** It's useful for keeping track and securing the leave information of the employees. This can also assist in problem solving and avoid conflicts. Generating these reports will assist the admin in updating details regarding important payroll information.

- **Salary Monitoring:** This module will help the admin to oversee the creation and distribution of paychecks or electronic bank transfers. It will also resolve the payroll inconsistencies to bring the payroll accounts into balance.
- **Deduction Management:** The deduction management will help the admin in managing all the deductions from the salary of their Employees. These deduction were done payment for the employees' benefits and taxes.
- **Generates Payroll Reports:** This module will automatically secure the system's payroll transactions for monitoring all of their activities.

Similarly in department we have the details of the departments like department name, department number, location and the project it is associated to Next comes the salary module in this we can view the salary issued to the employee. And can issue them to the employee we want to and can fix it to them.

Lastly we have the Leaves module which contains the leave details of the employee and is also linked with salary, as more earned leaves can cause deductions .

This is the basic overview of the whole project

A. Theoretical Background HTML, CSS, JavaScript, PHP, MySQL, Wamp server, PHP my Admin has been used. HTML, CSS, JavaScript has been used for front end development since many years. Php has been the popular language for connecting the frontend with the back-end. MySQL database is one of the most common database software used. Wamp server is used to locally host the web-application in the machine for testing purposes.

B. Problem Definition To prevent data redundancy and misuse of data, we have created an application where employees can login and check their AIM OF THE PROPOSED WORK This aim of the proposed system is to contribute to the goal of achieving a database management system that manages to keep records of employees in the respective departments, thereby aligning with the motivation of the project.

The stated project is targeted at the delivery of a cost effective, compact and portable system that makes it the best choice of product for the end users. The ease of installation of this system aims to make it a suitable choice for easy insertion and management of records in any domain. The work aims to not only provide a high quality user experience, but also provide better features than the prevalent systems, while keeping in mind that these features are provided not at the compromise or loss of any other features that the existing systems provide.

personal details, leaves taken, salary deducted and all the functionalities mentioned above.

7 LITERATURE SURVEY

Employee this is the employee's information in the company. It consists of the employee identification number, employee name, designation, project name, date of joining, experience, phone number, sex, and date of birth. These details are given by the new user through webpage.

- Salary

It consists of attributes such as Basic Pay, DA, HRA, Welfare Fund, Security, Charges Hostel and bus, Medical Allowance of an employee specified by Employee_ID. Here Basic Pay depends on a person's designation and experience. Existing users can see their Basic Pay, DA, HRA and net pay by specifying his Employee Id, earned leaves, Miscellaneous charges like hostel, bus, medical allowance.

- Department

This table gives the details of the various departments of the company. Its attributes are Department name, department number (which is the primary key), department location. These information are preexisting in the database. The database administrator manages it not the users.

- Leaves

It contains the leave details of the employees. A user need not have to give the details. The manager of the employee feeds these details to the database and a user can see his leave details like his available medical leave, casual leave, earned leaves, total available leaves and no. of leaves taken from the application. Project: It contains the different projects information like project name, project id (primary key) and location.

8 PROPOSED SYSTEM MODEL

The aim of our project is

- To ease and automate the process of employee payment process in any institution.
- To increase the security and safety of data as every manager has its own login area.
- To get validated data through constraints implemented on Oracle tables.
- To maintain different accounts of manager.
- To maintain different items data like New civil and construction projects, voter ID generation, agricultural details, etc.
- To search a specific item.
- To generate necessary reports like Bill Details, income details, tax payment details, etc.

9 Mongodb And MySQL Project On Payroll Management System

The project Payroll Management System has been developed on Mongodb and MySQL. Our website contains Mongodb online projects including fully working with source code and database. Payroll Management System is an important activity in any organization.

The main objective of this project Payroll Management System Project in MongoDB is to managing employee's information of organization or for a small group. It has to store all the records of every employee within the organization to assign work to person and right salary and perks to their eligible employees. It can also manage employee information efficiently, define the emoluments, deductions, leave, tax etc, generate pay-slip, generate and manage the payroll processes according to the salary structure assigned to the employee, etc. It keeps a track of the employees attendance and on that basis it generate the monthly salary. We are also providing paid academic simple MongoDB mysql project and students can choose the list of paid projects and they can easily buy MongoDB online projects. This system saves time and efforts.

10 Modules and Description of Payroll Management System employee department:

10.1 Employee Module :

The main objective of this module is provide all the functionality related to employee. It tracks all the information of the employee. We have developed all type of CRUD (Create, Read, Update and Delete) operations of the employee. This is a role based module where admin can perform each and every operations on data but the employee will be able to view only his/her data, so access level restrictions has also been implemented on the project. Here students can get mongodb projects with database free download.

10.2 Features of Employee Module:

- Admin can add new employee records
- Admin can see the list of employee details
- Only admin can edit and update the record of the employee
- Admin will be able to delete the records of the employee
- All employee forms are validated on client side using JavaScript

The main aim for developing this module is to manage the salary. This Salary module is the main module in this project Payroll Management System which has been developed on MongoDB and MySQL. Student get easily project in MongoDB free download. So all salary will be managed by admin.

10.3 Salary Module :

Features of Salary Module:

- Admin can manage the salary
- Admin can edit/delete the salary
- Admin can see the list of all salary
- Employee can see his salary

10.4 Employee Designation Module :

The main objective for developing this module is to manage the employee designation. So all employee designation will be managed by admin.

Features of Employee Designation Module:

- Admin can manage the employee designation
- Admin can edit/delete the employee designation
- Admin can see the list of all employee designation
- Employee can see his employee designation

10.5 Employee Department Module :

The main aim of this module is provide all the functionality related to employee department. It tracks all the information and details of the employee department.

Features of Employee Department Module:

- Admin can add new employee department
- Admin can see the list of employee department details
- Only admin can edit and update the record of the employee department
- Admin will be able to delete the records of the employee department
- All employee department forms are validated on client side using JavaScript

A. Functionalities:

- A login portal will be available for the existing employees.
- A portal for new employee where they will be entering their details.
- Facility to apply leaves for employees and to see the number of paid leaves remaining.
- Facility for employee to write grievances to their manager. 5. Facility for employee to change their employee's location, department, project.
- The salary of employees and various allowance will be entered by the manager.
- The final salary of employee shall be computed taking into account the basic pay, various allowances, leaves and takes.
- A feedback Form manages to give feedback to their employee.

B. Software Design Specification Diagrams

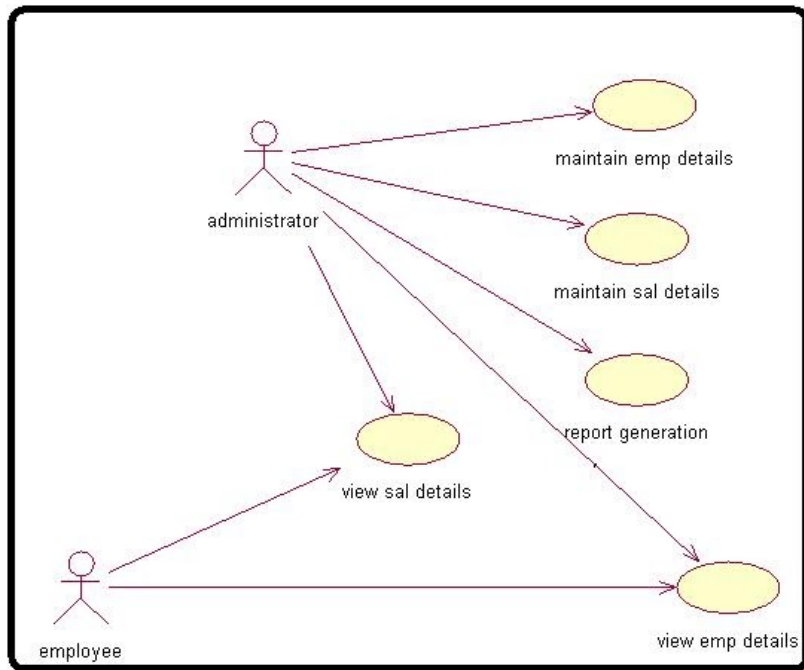


Figure 1: Use Case Diagram

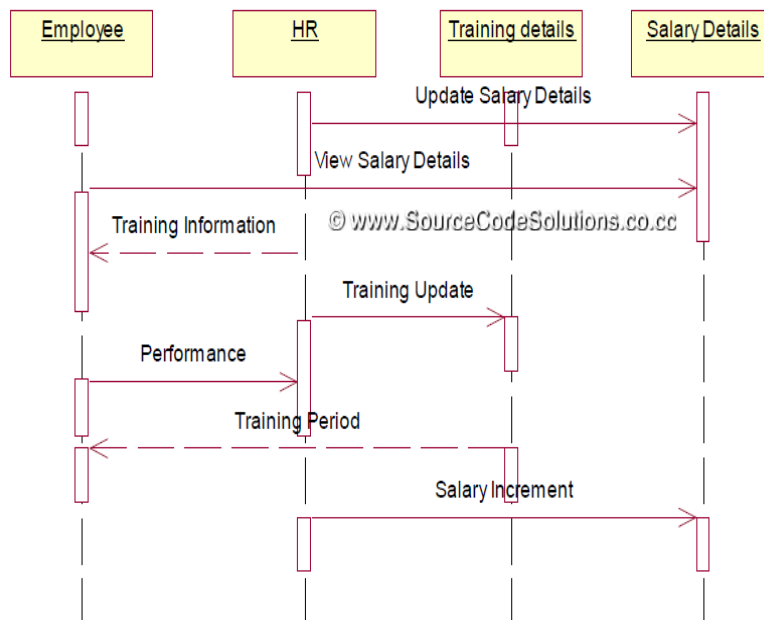


Figure 2: Sequence diagram

C. System Requirements

- Hardware Requirements
- Processor: I5 or more
- MONITOR: 15.6" color screen
- HARD DISK: 40 GB
- SYSTEM TYPE: 64 bit Operating System, x64 based processor

D. Software Requirements

- Windows 10
- My sql / MongoDB
- node.js Admin
- Vs code scratch
- server
- web browser like chrome, firefox , etc

11 Implementation:

11.1 A. Front-End

For front end we have used HTML, CSS, JavaScript and Node.js. And we use javascript library like express, body-parser, ejs and useful library. We have used server for hosting the application.

12 Features

Login Page: The page where the admin users will log in their system credentials to access the system.

Home Page: The page where the admin will be redirected by default after logging into the payroll management system.

Department List Page: The page where the admin can admin/staff will manage the list of their company departments.

Position List Page: The page where the admin/staff will manage the list of their company positions per department.

Employee List Page: The page where the total employee list is shown with their personal details.

Payroll List Page: This also the page where can admin calculate the payroll of employees.

13 mySql Code for management

13.1 Create Table Section

```
CREATE TABLE Employee(  
Employee_Id int(6), First_Name VARCHAR2(25), Last_Name VARCHAR2(25), Hire_Date  
DATE, City VARCHAR2(25), State VARCHAR2(25), CONSTRAINT EMPLOYEE_PK  
PRIMARY KEY (Employee_Id));
```

```
CREATE TABLE Department(  
Department_Id int, Department_Name VARCHAR2(30), CONSTRAINT DEPARTMENT_PK  
PRIMARY KEY (Department_Id) );
```

```
CREATE TABLE Salary(  
Salary_Id int, Gross_Salary int, Hourly_Pay int, State_Tax int, Federal_Tax int, Ac-  
count_Id int, CONSTRAINT SALARY_PK PRIMARY KEY (Salary_Id), FOREIGN  
KEY (Account_Id) REFERENCES AccountDetails(Account_Id) );
```

```
CREATE TABLE DepartmentProject(  
Department_Id int, Project_Id int, CONSTRAINT DEPTPROJECT_PK PRIMARY KEY  
(Department_Id,Project_Id), FOREIGN KEY (Department_Id) REFERENCES Depart-  
ment(Department_Id), FOREIGN KEY (Project_Id) REFERENCES Project(Project_Id)  
);
```

```
CREATE TABLE Project(  
Project_Id int, Project_Name VARCHAR2(50), Project_Description VARCHAR2(50),  
CONSTRAINT Project_PK PRIMARY KEY (Project_Id) );
```

```
CREATE TABLE AccountDetails(  
Account_Id int, Bank_Name VARCHAR2(50), Account_Number VARCHAR2(50), Em-  
ployee_Id int, CONSTRAINT Account_PK PRIMARY KEY (Account_Id), FOREIGN  
KEY (Employee_Id) REFERENCES Employee(Employee_Id) );
```

```
CREATE TABLE Education(  
Education_Id int, Employee_Id int, Degree VARCHAR(30), Graduation_Year int(4), CON-  
STRAINT Location_PK PRIMARY KEY (Education_Id), FOREIGN KEY (Employee_Id)  
REFERENCES Employee(Employee_Id) );
```

```
CREATE TABLE Leave(  
Leave_Id int, Employee_Id int, Leave_date DATE, CONSTRAINT Leave_PK PRIMARY  
KEY (Leave_Id), FOREIGN KEY (Employee_Id) REFERENCES Employee(Employee_Id)  
);
```

```
CREATE TABLE Employee_Attendance(  
Employee_Id int, Attendance_Id int, CONSTRAINT DEPARTMENTPROJECT_PK PRI-  
MARY KEY (Employee_Id,Attendance_Id), FOREIGN KEY (Employee_Id) REFER-  
ENCES Employee(Employee_Id), FOREIGN KEY (Attendance_Id) REFERENCES At-  
tendance(Attendance_Id) );
```

```
CREATE TABLE Attendance(  
Attendance_Id int, Hours_Worked int, CONSTRAINT Attendance_PK PRIMARY KEY  
(Attendance_Id) );
```

```
CREATE TABLE Work_Location(  
Location_Id int, Location VARCHAR2(25), Number_Of_Employees int, City VARCHAR2(25),  
State VARCHAR2(25), CONSTRAINT Loc_PK PRIMARY KEY (Location_Id) );
```