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EMPLOYEE INFORMATION AND PAYROLL SYSTEM USING PYTHON, DJANGO & MACHINE LEARNING

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Abstract - Now a days, more companies are establishing their network in growing countries they required more man power. Manual method to maintain their employee record is difficult, so to solve above problem web based solution will be provided by different researchers but still they faced problems with existing system such as system works for small organizations/small number of computer, some system works with desktop system only, etc. To solve above stated problems 'Employee Information and Payroll System' is developed in web-based application, which can be used by any organization to manage their data of the employees working in that company. This system is drafted to make the manual system automated with the help of computerized tools fulfilling their requirements, so that their important data is stored for a longer period. It can be easily access and can be rearranged as per organization demands. Payroll systems are designed for maintaining all records of different employees and their payments, deductions that to be given to the employees of the organization. Employees have been provided a unique ID by the organization. Depending on the date of joining and date when salary is created. A pay structure of a company will defined according to the company's paying capacity, post of employee, department of employee etc.

Key Words: Employee Information, Payroll Management, Web-based Application, Salary, Allowances, Deduction

1. INTRODUCTION

From the last few decades, employer/people want to keep their employee record, they will keep the record manually as the employee increase it become difficult to maintain their record and easily access them. Payroll management is a process that refers to managing of an employee's financial data which involves the salary, wages, rewards, deductions, etc. That record should be maintained if required later. This software is developed to eliminate and in some cases reduce the hardships faced by the existing system.

A payroll system is process of remuneration given to the employees by an organization. It includes basic salary and other facilities that an employee receives from an organization. By using payroll system salary calculations, expenses, holiday-leaves pay, generate accurate payslip is easily worked out.

The proposed system has been developed to overcome the problems faced in the practicing of manual system such as, administrative overwhelm, managing overtime, misclassified employees, ineffective time records, tracking employee absence, untimely payroll processing. This web application is used to avoid errors while entering data as much as possible.

2. LITERATURE REVIEW

Web based payroll system implemented by Marcus Atish D Rozario (2018) [1] developed using PHP, HTML, JavaScript and database is designed by PHP MyAdmin and Windows 10 as operating system. This web application can maintain and view computerized records without getting redundant entries. This system is used by only admin and It is used for small scale industries were they have limited employees.

The payroll system implemented by Arjun V. Singh et al (2016) [2] is a desktop based system, which is developed in VB.net as frontend and Microsoft Access 2007 SQL server 2008 as backend. It is designed for college management system were only admin can operate system.

The payroll system implemented by Kritika Mahajan et al (2015)[3] is a desktop based system, which is developed in HTML, CSS and JQuery as frontend, C#, ASP.net is used for backend and for data parsing, JSON and Ajax is used.

Computer based payroll system implemented by Poonamdeep Kaur et al (2012) [4] has developed using PHP, HTML, CSS, JavaScript and database has been designed using MySQL. Ed. Administrator controls login and logout accessibility and head or HR controls other employee's data.

3. PROPOSED SYSTEM MODEL

This system is developed in two modules– Admin/Company and Employee.

1] Admin/Company Module:-

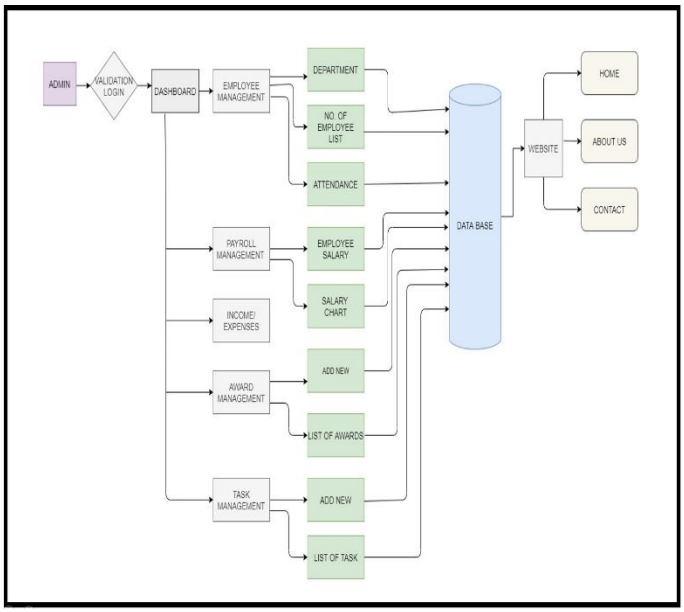

Fig.1:- Admin/Company Module

Above Fig.1 shows the admin module in that admin get login in by its email id as username and password. User should be able to recover password with forget password. The Admin can add new employee, new department, admin can view all the past record. Company or HR can handle employee working, salary, attendance and other functions of employee.

Dashboard: - All the activities which are to be executed will be displayed on dashboard. It gives a brief information of employee's and their activities. It displays company details like ongoing projects, completed projects, tasks assigned, etc.

Employee Management: -The admin person of the company handles employee records. It manages different departments of that company. They will hold all the details of the employees and their attendance, overtime, leaves, etc.

Payroll Management: - Handle all the employees financial records are salaries, bonuses, deductions, net pay. The respective person of the company can manage salary related details of the employee, monthly salary or year salary, DA, TDS, PF, etc.

Income/Expenses: - The Company handles total income through different projects and calculates total revenue. It also handles total expenses required by that company.

Award Management: - The admin person of the company can manage awards given to the employees and also can add new awards.

Tasks Management: - The admin person of the company can manage all projects with their respective tasks given to the employees and their progress. It can also add new tasks.

2] Employee Module:-

Following Fig.2 shows the employee module in that employee gets login by a valid username and password provided from the company. Employee holds all its record through this application.

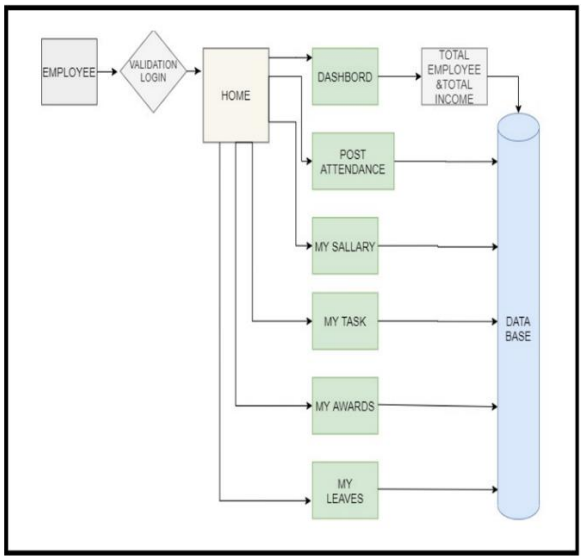

Fig.2:- Employee Module

Dashboard: - Dashboard shows a brief information of all tasks, employees completed and pending, upcoming projects. It will also display all activities performed in the company.

Attendance: - The employees working hours, late arrivals, over/extra time working and etc.

Payroll Module:-Employee can view their salary chart, payslip and other salary related documents.

Employee also can manage other details like leave application, task allotted time allotted, work details, overtime, etc.

4. SOFTWARE REQUIREMENTS:

In this project HTML, CSS, and JavaScript are used as front end programming languages, PYTHON with DJANGO framework as back end programming language and PostgreSQL as database management tool.

HTML: It is a coding language which creates and organize web content so it can be displayed by different browsers.

CSS: It accompanies HTML and defines different styles of a website content, such as colors, fonts, layout, spacing, etc.

JAVASCRIPT: This programming language is use to make interactive elements like modal windows, drop down menus, forms, etc.

PYTHON: It is an open source and most popular language with easy syntax. It works quickly and also provide integrate system more efficiently. In this Django framework is used.

5. IMPLEMENTATION:

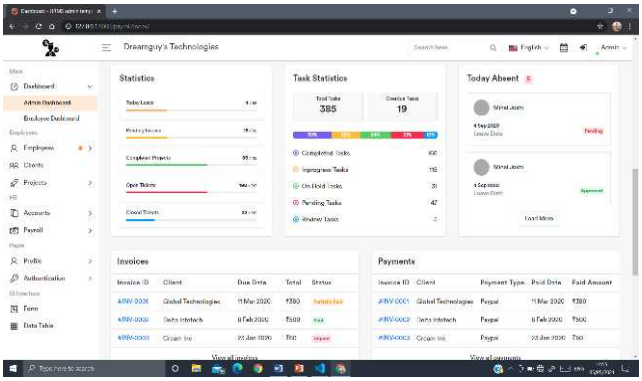

Fig.3- Login Page

Above Fig.3 shows the login page where it accepts username and password of that user. If in case user forgot the password there is another option that is forgot password where it can change or create new password. If the user is not registered it can access register page directly.

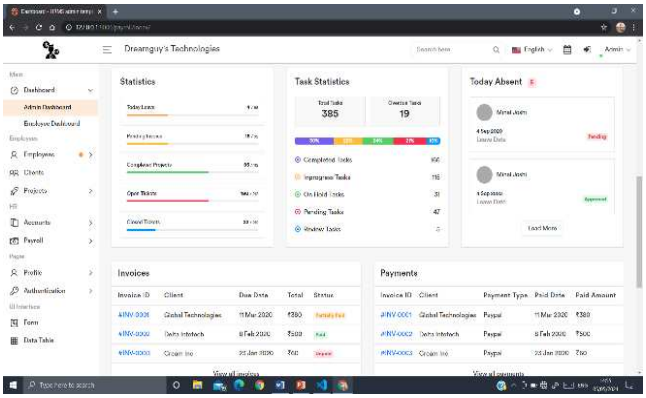

Fig. 4- Admin Dashboard

Above Fig. 4 shows admin dashboard where it shows different statistics of projects, tasks, all clients, progressing works, upcoming projects, etc.

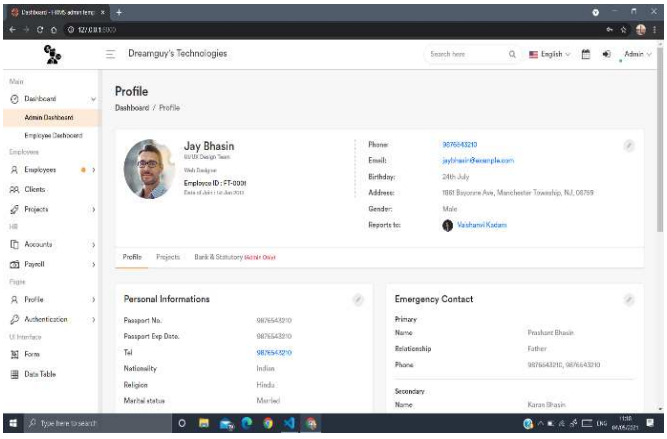

Fig. 5- Employee Dashboard

Fig. 5 shows employee dashboard where it shows a brief of employees present day work, different tasks and their status, etc.

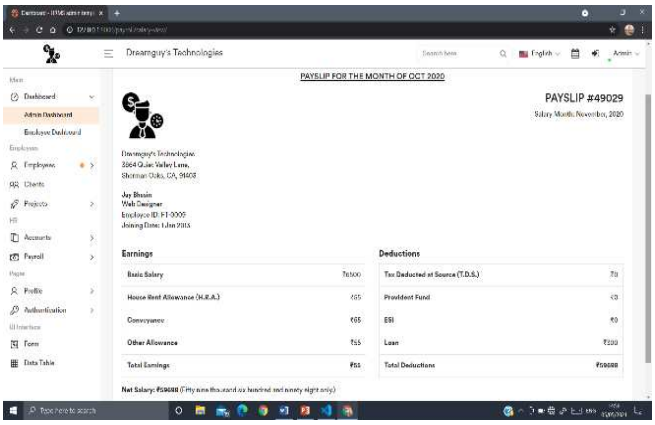

Fig. 6-Payslip

Above Fig. 6 shows a payslip generated in which it contains employee's basic salary, DA, HRA, TDS and other allowances and employee's net salary.

6. DISCUSSION

There are various system available to access employee data and payroll management which are based on different languages for frontend, backend and database. A payroll system was developed in php, html and javascript which was used by small scale industries only. There was another system implemented as a desktop based where vb.net and Microsoft access 2007 sql is used. A computerized system was developed using html, css and jquery languages and uses json and ajax for data exchange from server. Another payroll system was implemented using mysql as database where admin controls login and logout accessibility.

In this proposed system html, css and javascript is used for frontend programming and python with django framework is used for backend programming and posgresql for database tools. This system manages and store all information required for company organization in database. It can be managed by both administrator (admin) and company (HR). This web based system is accessible through desktop as well as smart phones.

7. CONCLUSIONS

This project is built for different types of companies and it is user friendly. By adapting this system one can handle all employee's details in a sequential manner and effectively. All Employee details, Login, Registration, Salary details, Leaves, Tasks has been stored in database successfully. Data of the employees is also secured and even if they want an employee's detail they can get it as fast as possible. It also helps to erase all human errors occurred during manual approach. It can give a quick calculations about all payroll management. This application can update salary records and all the problems related to salary, employee attendance, overtime work, leave, etc. Therefore, this application will help to automate company data of that organization.

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