ABSTRACT

1. Is implemented in JAVA platform. Main aim of this project is to develop a software application for organization through which they can manage financial information of employee's salary. Using this application, organization will manage employee salary for every month etc.

2. Details are maintained in Data Base for future use. In existing system still many organization's use manual methods of managing employee's salary. Payments are given to hand which is not an effective method

3. This method will not provide accurate information on tax and pay related information for employees' when they apply for bank loans. In order to solve this problem we develop a payroll system through which different aspects of employee information is managed through a single application.

4. In existing system it is hard to retrieve old data because, data is maintained in records there is chance or loosing data in this method. In present system data is managed in centralized data base so retrieving old data is easy.

ACKNOWLEDGEMENT

We would like to take this opportunity to thank a lot of eminent personalities, without whose constant encouragement, this endeavour of ours would not have become a reality.

Firstly, we would like to thank the **VTU Belgaum**, for having this project as part of its curriculum, which gave us a wonderful opportunity to work on our research and presentation abilities and **RAJARAJESWARI COLLEGE OF ENGINEERING** for providing us with such excellent facilities, without which, this project could not have acquired the shape it has now done.

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We express our thanks to **Dr. J. Amutharaj, Prof and Head of Department of ISE** for providing excellent climate in college, which helped us in every way during the proceeding of the project work

.

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I extend my sincere thanks to the teaching and non-teaching staffs for their co-operation, for providing a very good infrastructure and all the kindness forwarded to us carrying out this project work in college.

Finally, we express our sincere thanks to our parents, well-wishers and friends for their moral support, encouragement & help throughout the completion of the project.

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CHAPTER 1

INTRODUCTION

"Employee Payroll Management" is a distributed application, developed to evaluate the performance of employees working in any organization. It maintains the information about a company, personal details of their employees, also project details the assigned to particular developer. The application is actually a suite of applications developed using Java. It is simple to understand and can be used by anyone who is not even familiar with simple employees system. It is user friendly and just asks the user to follow step by step operations by giving him few options. It is fast and can perform many operations of a company.

This software package has been developed using the powerful coding tools of JAVA at Front End and SQLite manager at Back End. Because of the Visual features, the software is very user friendly. The package contains different modules like Contacts, Search for property and other useful Links. This version of the software has multi-user approach. For further enhancement or development of the package, user's feedback will be considered.

Payroll system is the heart of any Human Resource System of an organization. The solution has to take care of the calculation of salary as per rules of the company, income tax calculation and various deductions to be done from the salary including statutory deductions like Income tax and provident fund deductions. It has to generate pay-slip.

It is understood that we are tired of managing thousand of odd papers, pay slips, payroll reports, and salary details and so on. Imagine that we have a payroll processing system which will generate our pay slips and payroll reports within seconds. We can help others automated your payroll system by developing a customised payroll application that suits your specific requirements.

The payroll process typically includes calculating employee pay, recording payroll transactions and determining and paying payroll taxes. A company must have in place a timekeeping system that accurately reflects the hours put in by non-exempt employees as well as the regular salary payments for exempt workers.

CHAPTER 2

Literature Survey

A literature review is an evaluative report of information in the literature related to your selected area of study. The review should describe, summarize, evaluate and clarify this literature. It should give a theoretical base for the research and help you (the author) determine the nature of your research. Works which are irrelevant should be discarded and those which are peripheral should be looked at critically

A literature review is more than the search for information, and goes beyond bring a descriptive. All works included in the revies must be read, evaluated and analyzed. Relationships between the literature must also be identified and articulated, in relation to your field of research

1. H. Bucknall and W. Zhang, "Magic Numbers for human resource management: basic measures to achieve better Results", John Wiley & Sons Press, 2016.

Based on the SAP payroll standard architecture, an enhancement to the standard accounting schema is designed in this page. The enhancement achieves the goal that system performs accurate retroactive accounting on the level of single wage type and list all the details of replenishment or deduction in the payroll accounting results of the current payroll period when employee's payment standard of past periods have been changes, which improves the efficiency of payroll accounting and convenience of payroll result check.

2. E. A. Slaoui , M. Marrone, D. Nikolova and W. Feng, A Practical Payroll System Design that Aimed at Small Business Management, in proceedings of the 18th International Conference on Computer Application in Industry and Engineering (ISCA, CAINE-2005), Honolulu, Hawaii, USA,2018.

In Architectural payroll system paper we propose a functional model for the design and testing of the payroll system, a business application in the real world. With domain of the user actions and range of the system reactions, the function simulates the entire system, and defines the mathematical aspect of the application in high level of view.

CHAPTER 3

SYSTEM REQUIREMENTS

1. Software Requirements

>>>O/S : Windows 10/11

>>>Language : JAVA

>>>Data Base: MySQL

>>>IDE : NetBeans IDE 6.9.1

Net Beans

The Net Beans Platform is a reusable framework for simplifying the development of Java Swing desktop applications. The Net Beans IDE bundle for Java SE contains what is needed to start developing Net Beans plug-in and Net Beans Platform based applications; no additional SDK is required. Applications can install modules dynamically. Any application can include the Update Centre module to allow users of the application to download digitally-signed upgrades and new features directly into the running application. Reinstalling an upgrade or a new release does not force users to download the entire application again.

The platform offers reusable services common to desktop applications, allowing developers to focus on the logic specific to their application. Among the features of the platform are:

*User interface management (e.g. menus and toolbars)

*User settings management

*Storage management (saving and loading any kind of data)

MySQL

*The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation.

*Free-software-open source projects that require a full-featured database management system often use MySQL. For commercial use, several paid editions are available, and offer additional functionality. Applications which use MySQL databases include: TYP03, Joomla, WordPress, phpBB, Drupal and other software built on the LAMP software stack.

Java

Java is a programming language originally developed by James Gosling at Sun Microsystems (now a subsidiary of Oracle Corporation) and released in 1995 as a core component of Sun Microsystems' Java platform. The language derives much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities. Java applications are typically compiled to byte code (class file) that can run on any Java Virtual Machine (JVM) regardless of computer architecture. Java is a general-purpose, concurrent, class-based, objectoriented language that is specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere." Java is currently one of the most popular programming languages in use, particularly for client-server web applications.

3.2Hardware Requirements

>>> System : Pentium IV 2.4 GHz

>>> Hard Disk : 40GB

>>> Monitor : 15 VGA colour

>>> RAM : 512 MB

CHAPTER 4

SYSTEM ANALYSIS

4.1 Feasibility study of s/w includes its types

1. Feasibility Study
2. Operational Feasibility
3. Technical Feasibility
4. Economical Feasibility
5. Motivational Feasibility
6. Scheduled Feasibility

*Feasibility study :

Every project is feasible for given unlimited resources and infinitive time. Feasibility study is an evaluation of the proposed system regarding its workability, impact on the organization, ability to meet the user needs and effective use of resources. Thus when a new application is proposed it normally goes through a feasibility study before it is approved for development. Feasibility and risk analysis and related in many ways. If a project risk is great and feasibility of producing software is reduced. During the feasibility analysis in this project has been discussed below in the above mentioned topics.

*Operational Feasibility:

Feasibility of the working of the system after the installation in the organization as mentioned in the feasibility analysis.

***Technical Feasibility:** Technical feasibility is frequently the most difficult area to ensure this stage. It is essential that the process of analysis and definition to be conducted parallel to an assessment of the technical feasibility. consideration that is normally associated with technical feasibility includes the resources availability of the Organization where the project is to be developed and implemented. By taking these facts into consideration before developing the

resource availability at RetailOutlet of Hindustan Petroleum was observed. As very limited resource are required for this project hence this project is considered feasible for development.

*Economic Feasibility:

An evaluation of development cost is weighted against the ultimate income or benefits derived from the developed system. There was no need of extra hardware and software for development of this project. Hence this project has economically justified for development in this organization.

*Motivational Feasibility:

An evaluation of the probability that the organization is sufficient motivation to support the development and implementation of the application with necessary user participation user participation, resources, training etc. The interest and support shown by the organization during the system study not seem that the new system developed to have efficient support from the organization.

*Schedule Feasibility:

An evaluation of the time needed for the development of this project. The time schedule required for the development of this project is very important, since more development more development time effects machine time, costs and delays in the development of the other systems. So the project should be complete within affixed schedule time as far as the organization is concerned.

CHAPTER 5

SYSTEM DESIGN

5.1 Introduction to System Design

System design is the process of planning of new systems or one to replace an existing system. During this stage the analyst works with the user to develop a physical model of the system flow chart. The modelling process and its outcome depend upon the system to a certain extent and whether or not object oriented design is followed. The detailed step followed in arriving at the model is known as the methodology. There are several methodologies available.

Input design is the process of creating user defined input in computer defined format. User originated inputs are converted to a computer based format. It includes determining the record media, methods of input, speed of capture and entry into the system. The goal of designing input data is to make data entry easy. Thus the objective of the designer is to achieve highest possible level of accuracy and ensure that the input is acceptable and understood by user and the staff. A formatted form of the data entry is also provided which requested the user to enter the data in appropriate location.

A quality output is the one, which needs the user requirements and presents information carefully. Output design is an important step in the system design. Computer output is the most direct and important information source to the user. Efficient, intelligible output design should improve the system relationships with user and helps in decision making. The primary consideration in design of output is the information requirement and objectives of the end users. The major formation of the output is to convey the information and so its layout and design need a careful consideration.

In system design we discuss various diagrams such as Entity Relationship diagram. Schema diagram, Flowchart, Data flow diagram, and activity diagram.

5.2 Database design

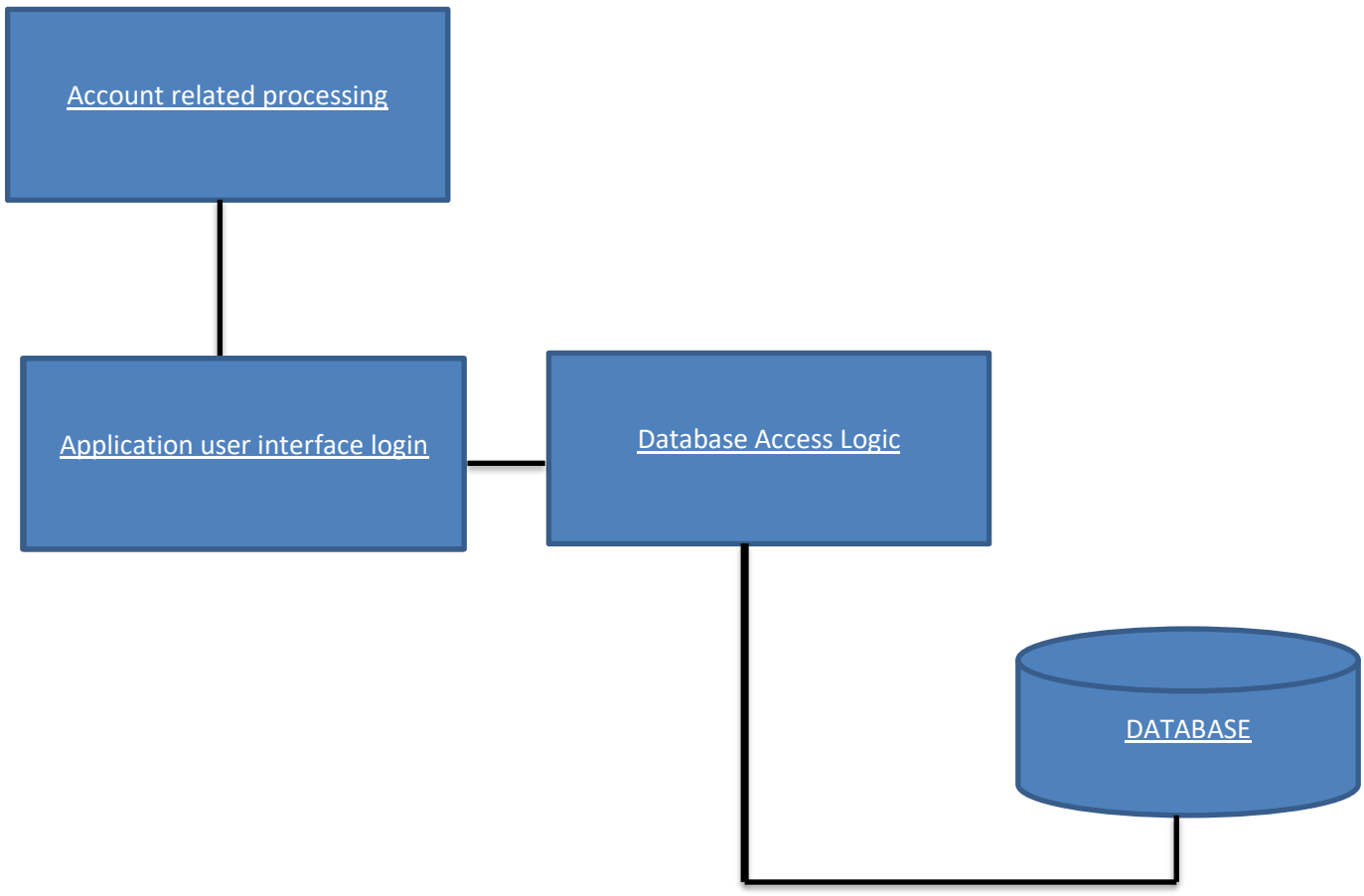


Figure 5.2: Database Design

5.3 Tables

We have various tables in our project namely:

1. Allowance table
2. Audit table
3. Deductions table
4. Users table
5. Staff information table

All the above tables are now briefly explained in which the Primary key and the Data Type of all fields are discussed.

5.3.1 Allowance Table

In this table, we have various fields to be filled about the employees for specific purpose, especially with the set of regulations.

Field Name	Key	Data Type
ID	Primary	integer
Overtime	-	varchar
Medical	-	varchar
Bonus	-	varchar
Others	-	varchar
Emp id	-	integer
Salary	-	integer
Rate	-	integer
Total Allowance	-	integer
First Name	-	varchar
Surname	-	varchar
Created by	-	integer

Table5.1 : Allowance Table

5.3.2 Audit table:

In this table, we will have the details of Employees status along with the details of employee.

Field Name	Key	Data Type
Audit id	Primary	integer
Emp id	-	integer
Date	-	varchar
Status	-	Integer

Table 5.2: Audit Table

5.3.3 Deduction Table:

In this table, we will have the deduction of employees salary based on certain reasons.

Field Name	Key	Data Type
ID	Primary	Integer
First Name	-	Varchar
Surname	-	Varchar
Salary	-	Integer
Deduction amount	-	Integer
Deduction reason	-	Varchar
Emp id	-	Integer
Made by	-	Integer

Table 5.3: Deduction Table

5.3.4 User Table

In this table, we will have the details of username and password of the employee.

Field Name	Key	Data Type
ID	Primary	Integer
Division	-	Varchar
Username	-	Varchar
Password	1	Varchar
Emp id	-	Integer

Table5.4: User Table

5.3.5 Staff information

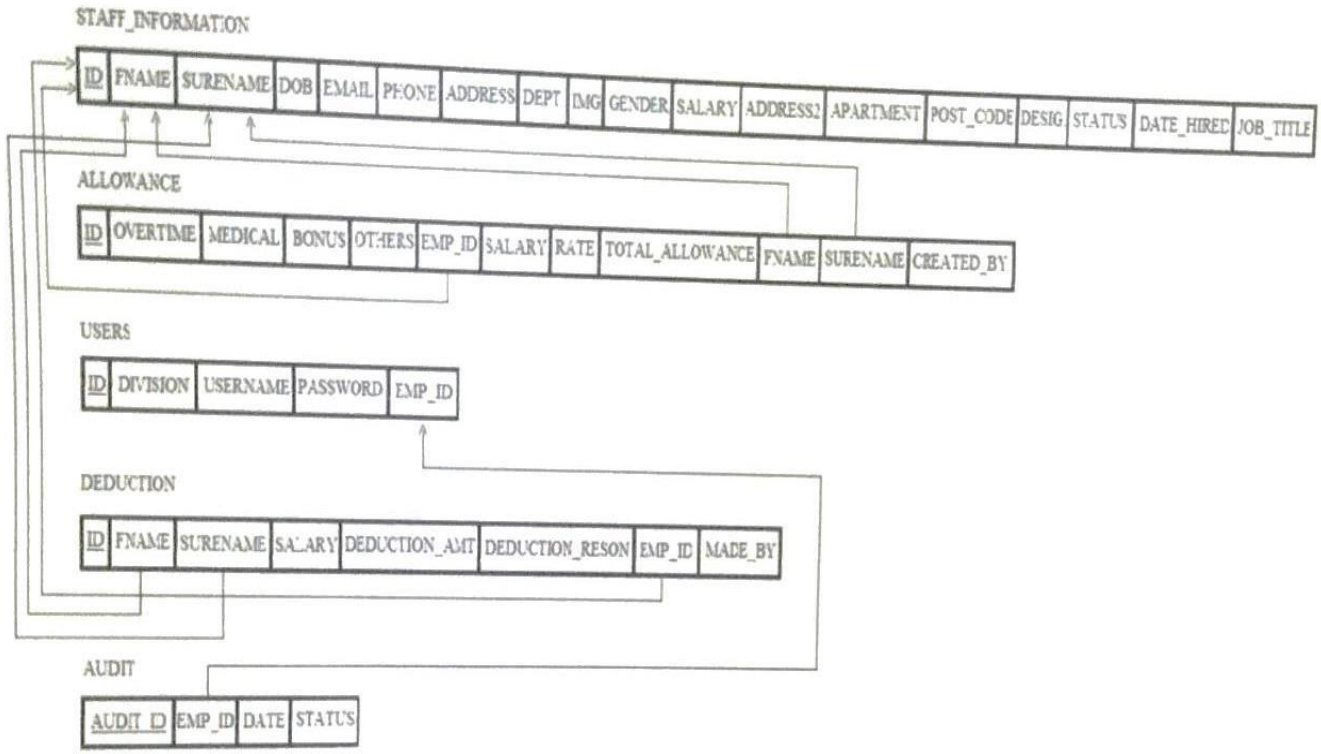
In this table, we will have a complete employee details like id, first name, surname, date of birth, email-id and telephone number etc.

Field Name	Key	Data Type
ID	Primary	Integer
First name	-	Varchar
Surname	-	Varchar
Dob	-	Varchar
Email	-	Varchar
Telephone	-	Integer
Address	-	Varchar
Department	-	Varchar
Image	-	Blob
Gender	-	Char
Salary	-	Integer
Address 2	-	Varchar
Apartment	-	Varchar
Postcode	-	Integer
Designation	-	Varchar
Status	-	Varchar
Date hired	-	Varchar
Job title	-	Varchar

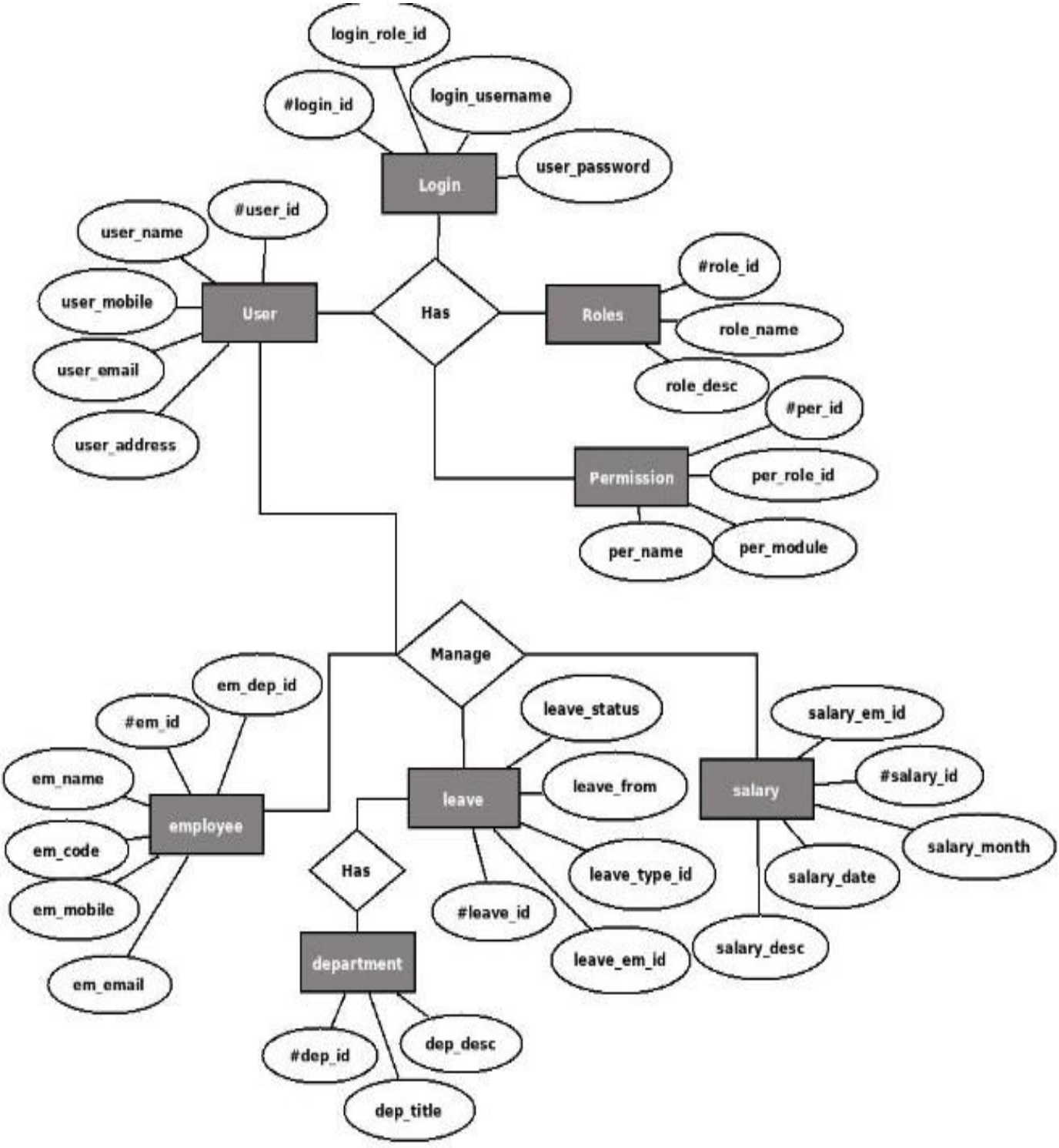
Table 5.5 : Staff Information Table

5.4 Schema Diagram:

The database schema of a database system is its structure described in a formal language supported by the database management system (DBMS). The term “schema” refers to the organization of data as a blueprint of how the database is constructed (divided into database tables in the case of relational database). The formal definition of a schema is a set of formula called integrity constraints imposed on the database. This integrity constraints ensure compatibility between parts of the schema.



5.5 Entity Relationship Diagram



CHAPTER 6

TESTING

6.1 TESTING METHODOLOGY(TYPES)

Test cases are developed using various test techniques to achieve more effective testing. By this, software completeness is provided and conditions of testing which get the greatest probability of finding errors are chosen. So, testers do not guess which test cases to chose, and test techniques enable them to design testing conditions in a systematic way. Also, if one combines all sorts of existing test techniques, one will obtain better results rather if one uses just one test technique. Software can be tested in two ways, in another words, one can distinguish two different methods:

- lWhite box testing and Black box testing.

White box testing is highly effective in detecting and resolving problems, because bugs (bug or fault is a manifestation of an error in a software) can often be found before they cause trouble. We can shortly define this method as testing software with the knowledge of the internal structure and coding inside the program . White box testing is also called white box analysis, clear box testing or clear box analysis. It is a strategy for software debugging in which the tester has excellent knowledge of how the program components interact.

Black box testing is testing software based on output requirements and without any knowledge of the internal structure or coding in the program .1n other words, a black box is any device whose workings are not understood by or accessible to its user. For example, in telecommunications, it is a resistor connected to a phone line that makes it impossible for the telephone company's equipment to detect when a call has been answered. In data mining, a black box is an algorithm that doesn't provide an explanation of how it works. In film—making, a black box is a dedicated hardware device: equipment that is specifically used for a particular function, but in the financial world, it is a computerised trading system that doesn't make its rules easily available.

6.2 System Testing

System testing, or end-to-end testing, tests a completely integrated system to verify that it meets its requirements. For example, a system test might involve testing a logon interface, then creating and editing an entry, plus sending or printing results, followed by summary processing or deletion (or archiving) of entries, then logoff.

In addition, the software testing should ensure that the program, as well as working as expected, does not also destroy or partially corrupt its operating environment or cause other processes within that environment to become inoperative (this includes not corrupting shared memory, not consuming or locking up excessive resources and leaving any parallel processes unharmed by its presence).

6.3 Unit Testing

Unit testing, also known as component testing , refers to tests that verify the functionality of a specific section of code, usually at the function level. In an object-oriented environment, this is usually at the class level, and the minimal unit tests include the constructors and destructors.

These types of tests are usually written by developers as they work on code (white-box style), to ensure that the specific function is working as expected. One function might have multiple tests, to catch corner cases or other branches in the code. Unit testing alone cannot verify the functionality of a piece of software, but rather is used to assure that the building blocks the software uses work independently of each other.

Chapter 7

Result Analysis

7.1 Front End

7.1.1 Login Page

Figure 7.1: Login page

- **This is the first window which opens when we run the project.**

- **We have to enter the admin username and password to login. If we enter the correct username and password it opens the next window.**

7.1.2 Main menu

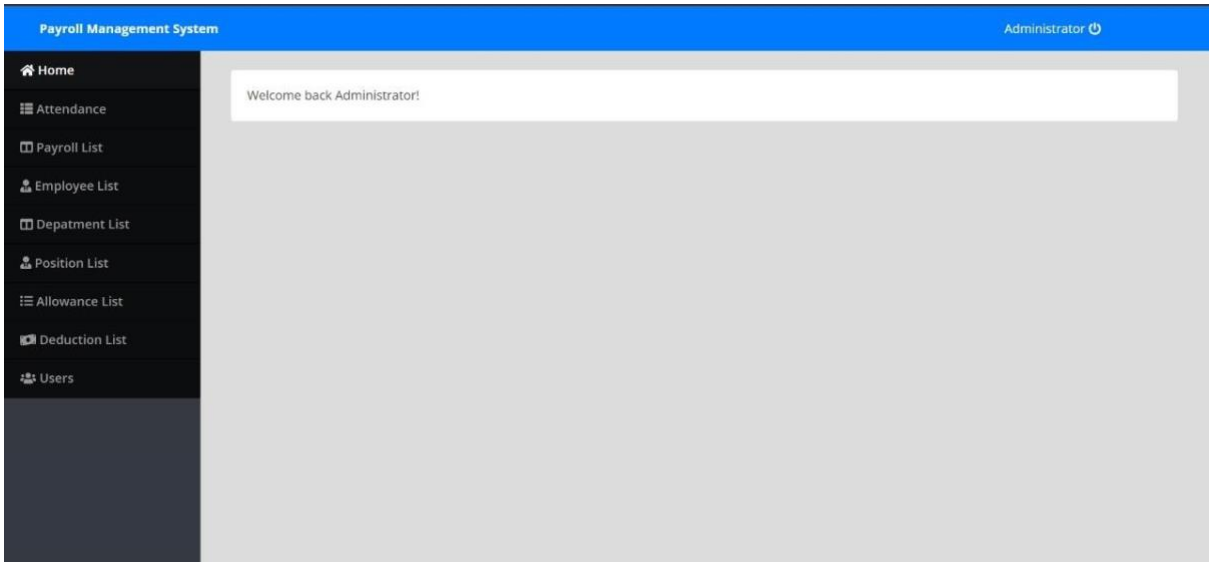
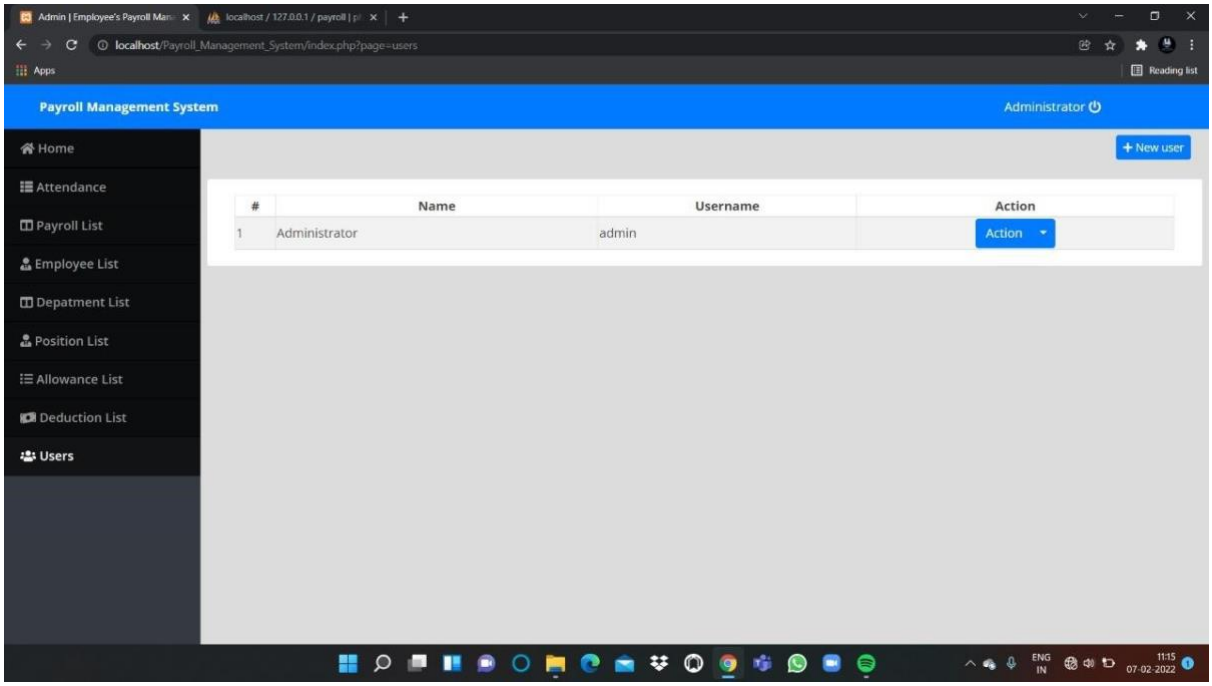


Figure7.1.2: Main menu

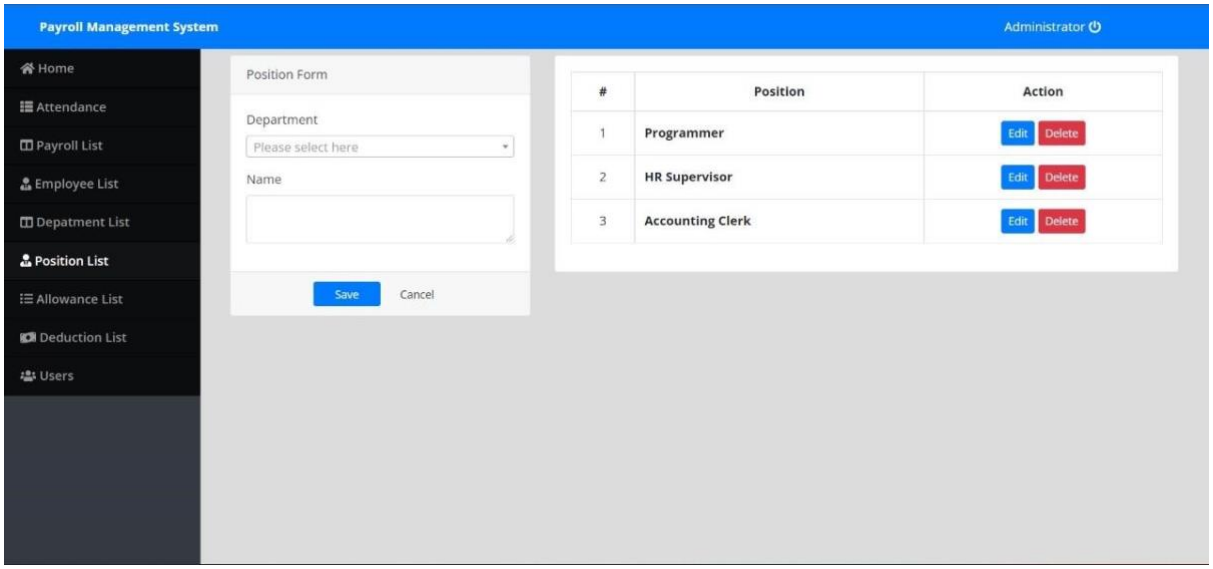
Only the admin has the permission to use this, where he can update employee details. There is a logout button where we can exit anytime we want.

7.1.3 Employee Registration



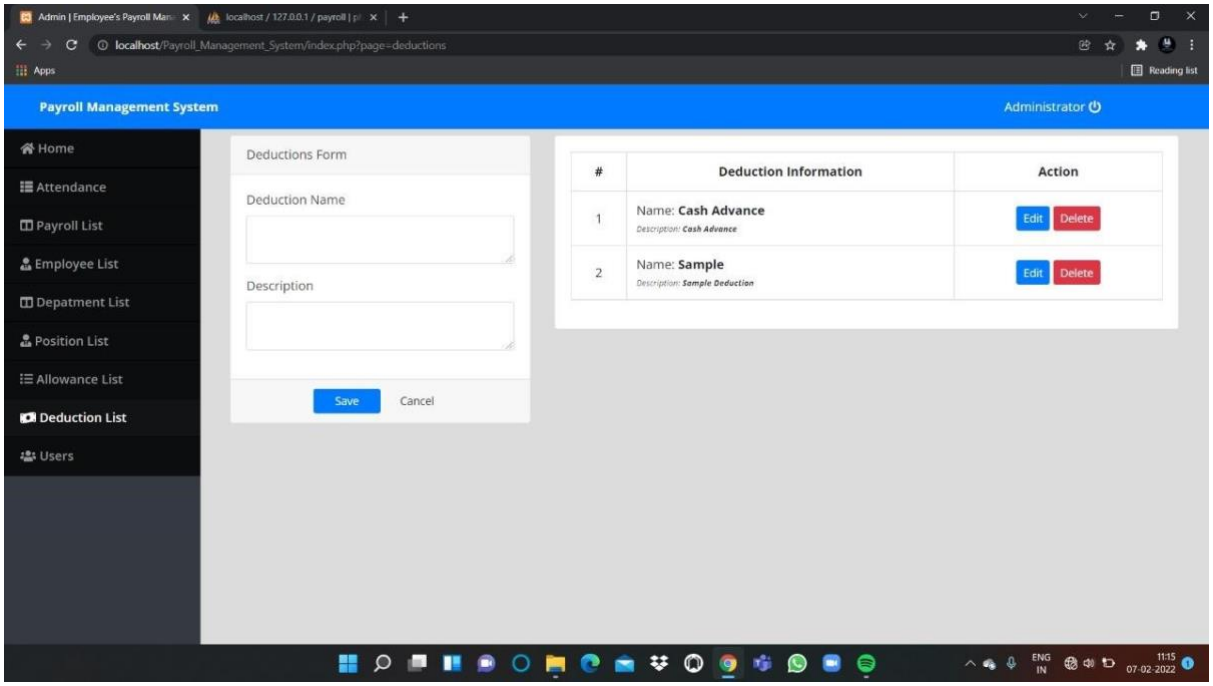
When we enter the Employee Registration module admin has to enter all details of their employee with all the personal details of employee with his personal details and his photo

7.1.4 Search Employee



Search employee:- Admin can search any employee stored in database. And he can update or delete the details of his employee anytime.

7.1.5 Deduction



Deduction :- Admin can deduct the salary of employee based particular reason.

7.1.6 Update Salary

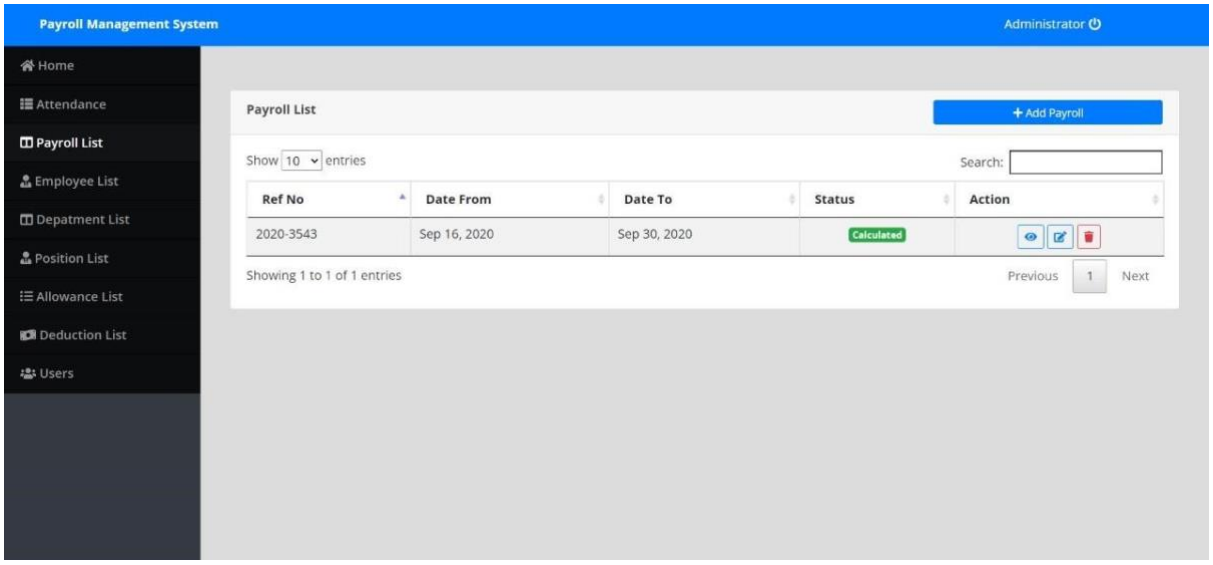


Figure7.1.6: Salary Update

In this module admin we can update the salary of each employee based on the percentage or amount.

7.1.7. Allowance

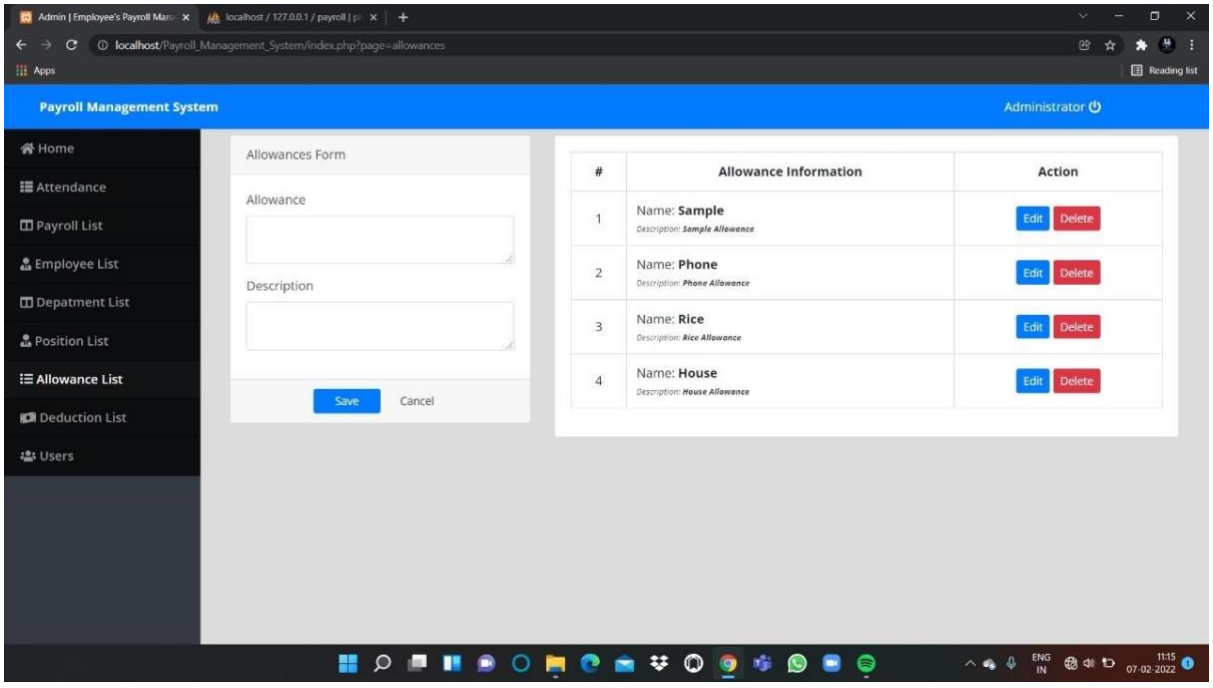
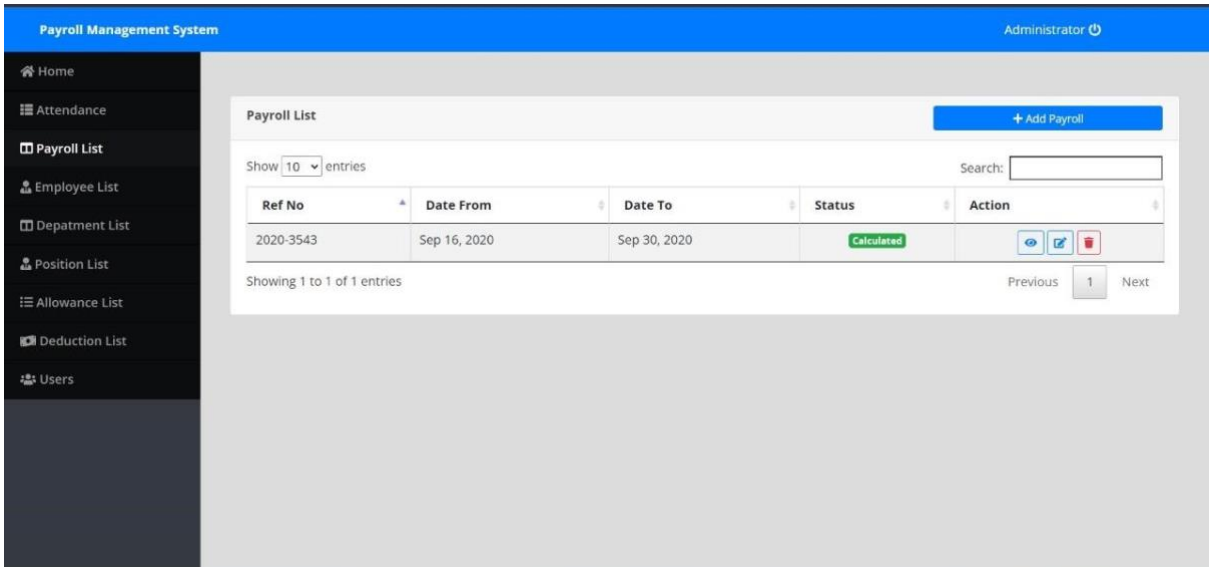


Figure7.1.7 Allowance

In this allowance module admin can calculate the overtime duty and oyther medical and bonus fees and save the record.

7.1.8 Payment



7.1.9 Employee Deduction List

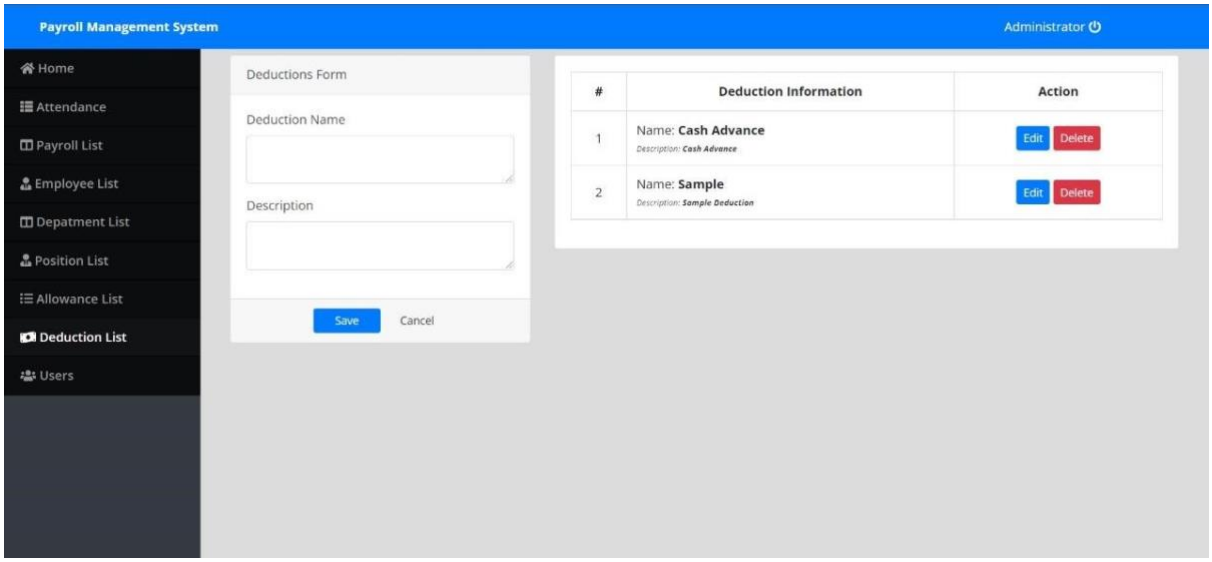
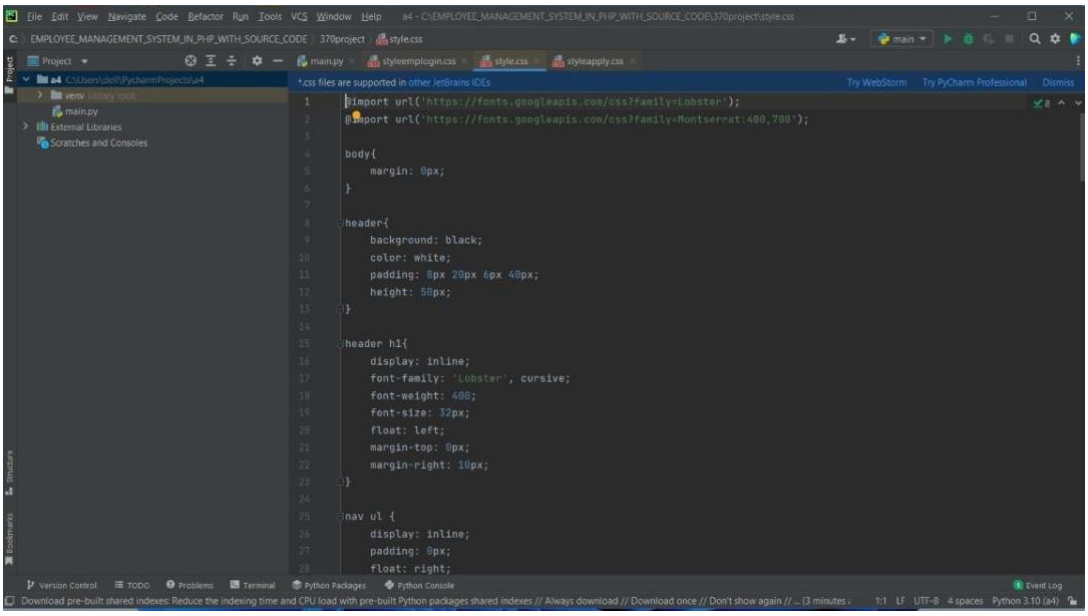


Figure 7.1.9

Report modules contains the details of numbers of employees and their allowances and deductions. A slip can also be generated for further pupose.

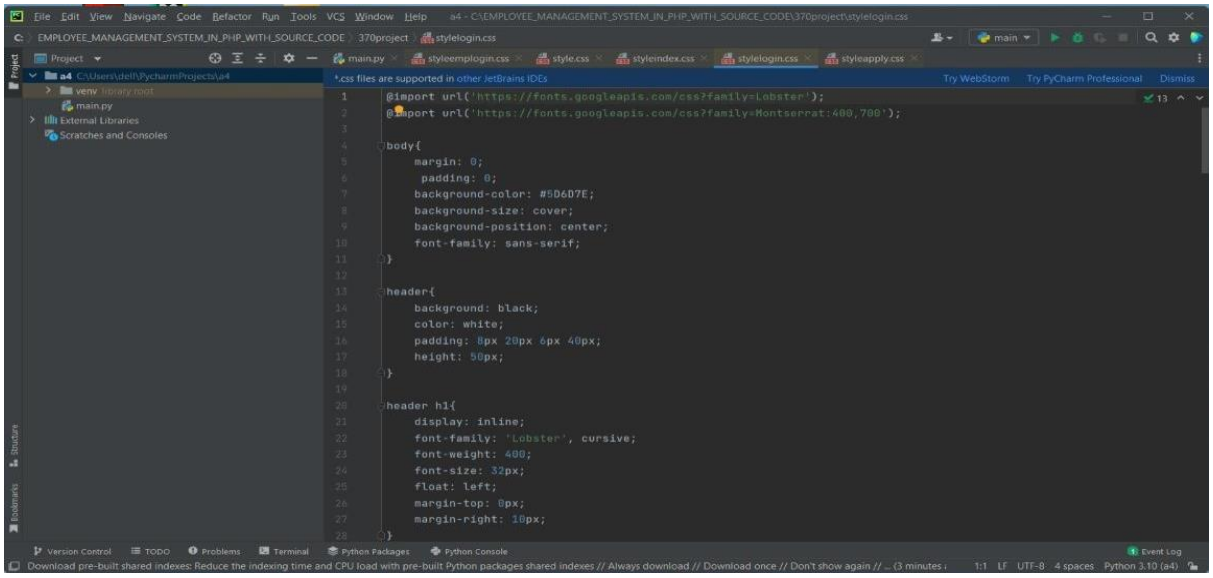
7.2 BACK END

7.2.1 Login



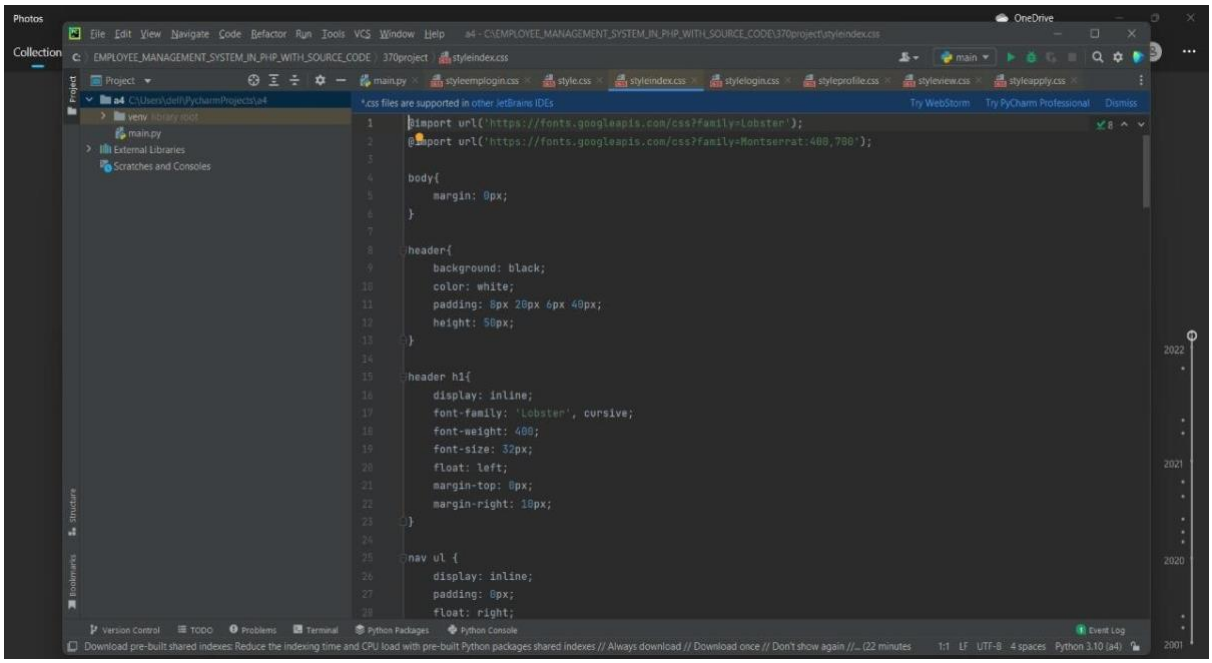
```
@import url('https://fonts.googleapis.com/css?family=Lobster');
@import url('https://fonts.googleapis.com/css?family=Montserrat:400,700');

body{
    margin: 0px;
}

header{
    background: black;
    color: white;
    padding: 8px 20px 6px 40px;
    height: 50px;
}

header h1{
    display: inline;
    font-family: 'Lobster', cursive;
    font-weight: 400;
    font-size: 32px;
    float: left;
    margin-top: 0px;
    margin-right: 10px;
}

nav ul {
    display: inline;
    padding: 0px;
    float: right;
```

7.2.2 Employee Registration

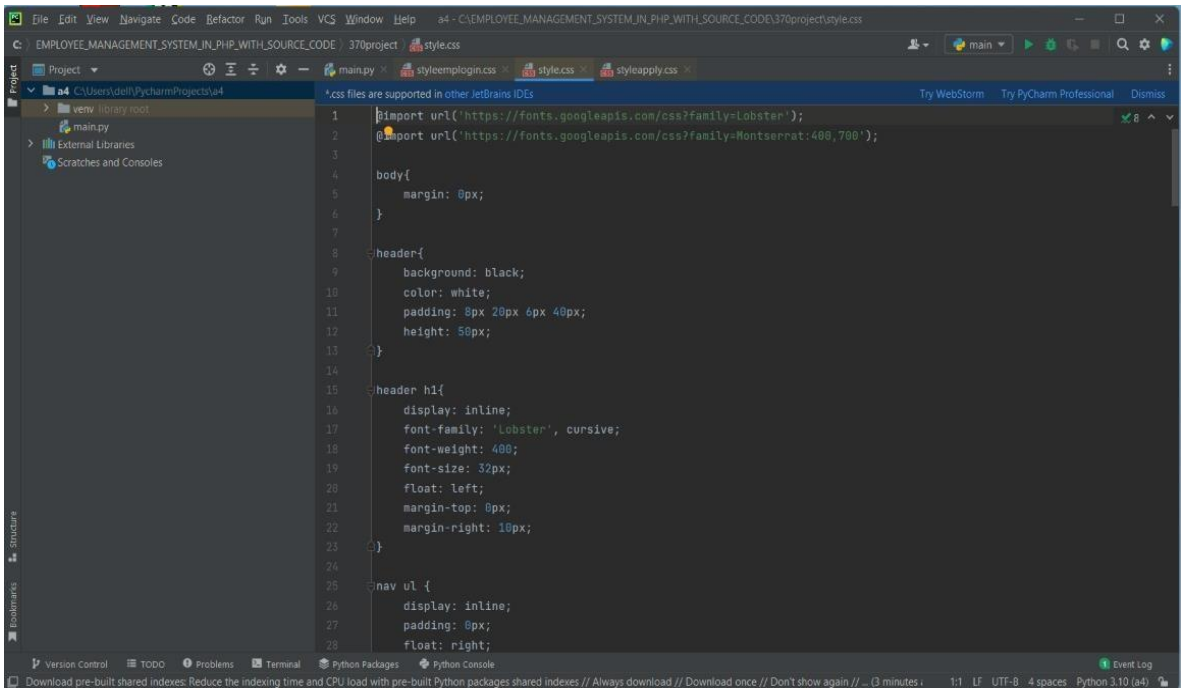


```
@import url('https://fonts.googleapis.com/css?family=Lobster');
@import url('https://fonts.googleapis.com/css?family=Montserrat:400,700');

body{
    margin: 0;
     padding: 0;
    background-color: #5D6D7E;
    background-size: cover;
    background-position: center;
    font-family: sans-serif;
}

header{
    background: black;
    color: white;
    padding: 8px 20px 6px 40px;
    height: 50px;
}

header h1{
    display: inline;
    font-family: 'Lobster', cursive;
    font-weight: 400;
    font-size: 32px;
    float: left;
    margin-top: 0px;
    margin-right: 10px;
}
```

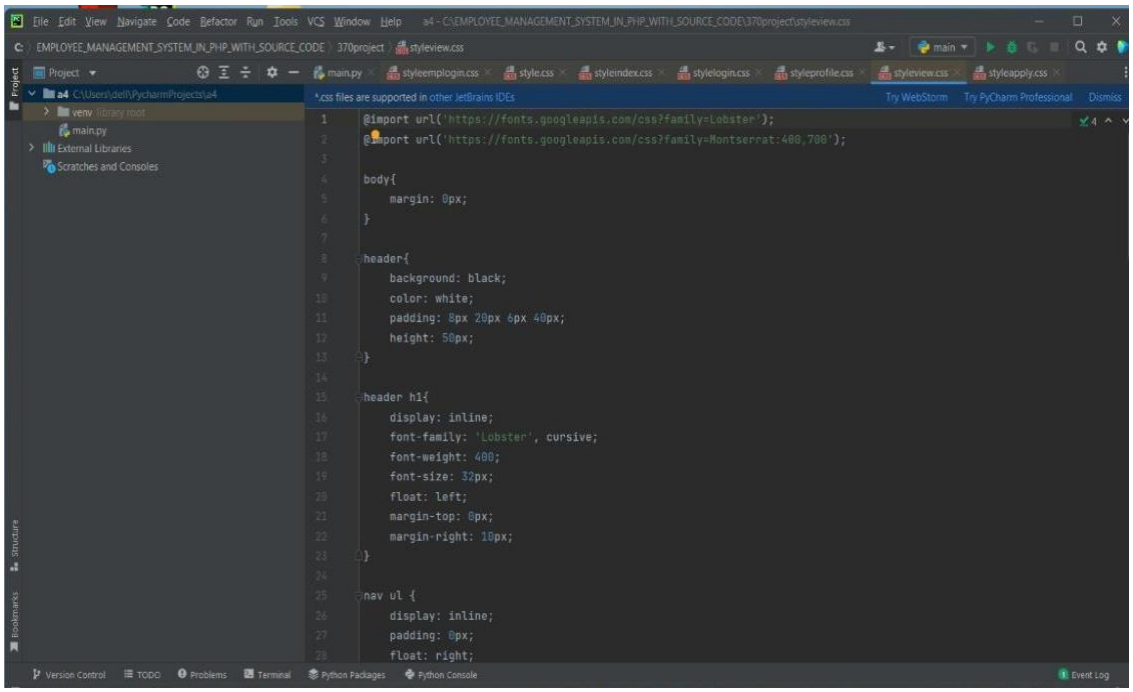
7.2.3 Salary update and payment



7.2.4 Allowance



7.2.5 Deduction



CHAPTER 8

CONCLUSION

With the theoretical inclination of our syllabus it becomes very essential to take the utmost advantage Of any opportunity of gaining practical experience that comes along. The construction of this Mini Project "EMPLOYEE PAYROLL MANAGEMENT SYSTEM" was one of these opportunities. It gave us the requisite practical knowledge to supplement the already taught theoretical concepts thus making us more competent as a computer engineer.

The project from a personal point of view also helped us in understanding the following aspects of project development:

*The planning that goes into implementing a project.

*The importance of proper planning and an organized methodology.

*The key element of team spirit and co-ordination in a successful project

The project also provided us the opportunity of interacting with our teachers and to gain from their vast experience.

Future enhancements can be made:-

*Existing system provides different menus to make system more interactive & user friendly.

We can add on more menu if required.

*Improvement in graphics and database handling can be made.

*It can be developed as a web based application.

*Many modules can be added such as promotion.

*With modifications it can be possible for employee attendance to be controlled through a server by connecting them to a network.

*Employee can communicate with each other.

*Implement the backup mechanism for taking backup of codebase and database on regular basis on different servers.

Limitation of System:-

*In the present system we cannot search for the report of an employee by entering the name of that employee. Search is based on the employee id.

*If the payroll company is understaffed and has an abundance of clients, it may become difficult to reach someone when you need it immediately such as when paycheque discrepancies arise.

Because the payroll company is located off-site, it is difficult to always know what's going on with your payroll until the actual pay date arrives.