

# **"PAYROLL MANAGEMENT SYSTEM"**

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**Submitted to**

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,  
BHILAI**

*in partial fulfillment of requirement for the award of degree of*

**Bachelor of Technology**

**In**

**Computer Science Engineering**

**Semester VI**

**By**

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**Under the Guidance of**

**Prof. K.J. Satao**

**Dean Academics (Practical's and Project's)**

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**DEPARTMENT OF COMPUTER SCIENCE ENGINEERING  
RUNGTA COLLEGE OF ENGINEERING & TECHNOLOGY,  
KOHKA-KURUD ROAD, BHILAI, CHHATTISGARH, INDIA**



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**Session: 2021-2022**

We the undersigned solemnly declare that this report on the project work entitled **“PAYROLL MANAGEMENT SYSTEM”** is based on our own work carried out during the course of our study under the guidance of **Prof. K.J. Satao, Dean Academics (Practical's and Project's), Department of Computer Science Engineering, RCET Bhilai.**

We assert that the statements made and conclusions drawn are an outcome of the project work. We further declare that to the best of our knowledge and belief the report does not contain any part of any work which has been submitted for the award of any other degree/diploma/certificate in this University or any other University.

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## C E R T I F I C A T E

This is to certify that this report on the project submitted is an outcome of the project work entitled “**PAYROLL MANAGEMENT SYSTEM**”, carried out by the students in the **DECLARATION**, is carried out under my guidance and supervision for the award of Degree in Bachelor of Technology in **Computer Science Engineering** of Chhattisgarh Swami Vivekanand Technical University, Bhilai(C.G.), India.

To the best of my knowledge the report...

- i) Embodies the work of the student(s) themselves,
- ii) Has duly been completed,
- iii) Fulfills the requirement of the Ordinance relating to the B.Tech. degree of the University, and
- iv) Is up to the desired standard for the purpose for which it is submitted.

**Prof. K.J. Satao**

Dean Academics

(Practical's and Project's)

This project work as mentioned above is hereby being recommended and forwarded for examination and evaluation by the University,

**Prof. Tripti Sharma**

Head

Department of Computer Science

Rungta College of Engineering & Technology,

Kohka - Kurud Road, Bhilai(C.G.), India

## **CERTIFICATE BY THE EXAMINERS**

This is to certify that this project work entitled **“PAYROLL MANAGEMENT SYSTEM”**,

submitted by...

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is duly examined by the undersigned as a part of the examination for the award of Bachelor of Technology degree in **Computer Science Engineering** of Chhattisgarh Swami Vivekanand Technical University, Bhilai.

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Name & Signature

Date:

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Name & Signature

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## ACKNOWLEDGEMENT

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Last but not the least, we would like to express our deepest gratitude to our parents and the management of Rungta College of Engineering and Technology, Bhilai respected **Shri Santosh Ji Rungta**, Chairman, respected **Dr. Sourabh Rungta**, Director, Technical, and respected **Shri Sonal Rungta**, Director, Finance & Administration for their continuous moral support and encouragement.

We hope that we will make everybody proud of our achievements.

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## **ABSTRACT**

“Payroll Management System” is one of the core areas of your business. Usually, it is pursued to manage the employees the employee’s expenses, Allowances, salary. Gross Salary, Detection, Tax and many more for a specific time period. Management and Accounting are two main essential parts of payroll.

Payroll is an area in which you do not want to take any risk because it leads to some financial and serious legal consequences. Payroll is serious condemns for every SME. It is mandatory for all business to pay every employee as per the government rules and regulations.

Furthermore, this project will develop for company management and enhance business in market and maintain the prestigious and reputation of the company. Others, this project to facilitate company to handle all the legal process and employee’s expenditure properly and systematically.

Employee payroll management system is a web-based application, which any organization can use to manage the records of the employees working in the company. Payroll Application has been designed to for the purpose of maintaining details of various employees, their allowances and deductions that need to be given to the employees of the organization. There will entry (Unique ID) of all the employee of any organization. According to the date of joining and date up to which salary is created, Number of days will be entered. Basic pay will be defined according to the post of employee and department. Then component like

1.DA

2.HRA

3.Medical allowance

4.Arrears

will be added, and

1.Charges of Hostel/ Bus

2.Security, welfare fund and other will be deducted. Number of leaves taken by the employee. This system can be easily extended to any

1.Educational Institutes

2. Corporates

3. Any other organizations with minimal modifications.

Keywords: - Payroll Management, Salary, Allowances, leaves, deductions, web-based application, educational institutes, corporates.

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# **INTRODUCTION**

## **1.1 Overview**

“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 the project details assigned to particular developer. This project basically deals with four modules and their further sub modules. First module is the employee module into which we can enter employee details such as his name, address, phone number, his basic salary and many more. After that we can view the details further by using the employee id, and we can modify the details also. 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.

## **1.2 Objective**

The payroll management system is a set of processes that helps you streamline salaries, bonuses, deductions, taxes, and other necessary aspects of the net pay of all the employees in your organization.

There are two primary objectives of the payroll management system in India. One is the macro objective, which is related to sales, strategy, revenue, etc. Another is micro, which is associated with the daily tasks of the business.

The aim behind having a payroll management system is to automate and streamline micro tasks such that the HR team has time to focus on the macro tasks.

You don't have to worry about handling, managing, and creating pay slips, salaries, and deductions of the employees. The tax deductions are also automated or handled by the outsourcing team. You only have to focus on major tasks such as the efficiency of sales, revenue, strategy, etc.

## **1.3 Scope**

This system deals with the financial aspects of employee's Salary, Deductions, allowances, Net pay. The user can view the account of each and every employee's and update their payments, and the user can also manage deductions, modify overtime and salary rate.

## **1.4 Advantages**

- (i) work out payroll calculations and deductions quicker
- (ii) generate accurate pay slips
- (iii) calculate bonuses, expenses, holiday pay, etc. with minimum effort

- (iv) send returns to HMRC and print P45, P60 and other forms for employees
- (v) automate certain tasks, such as year-end reporting
- (vi) reduce the burden of compliance
- (vii) remove the need to understand complex tax legislation
- (viii) store data such as pay slips and annual reports in a secure, easily accessible system

## 1.5 Disadvantage

- (i) Data security, loss or theft
- (ii) Cyber security and fraud
- (iii) Information access, quality and control

## 1.6 Theoretical Background

Pyqt5, Python, MySQL, has been used. Pyqt5 has been used for front end development since years. Python 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.

## **Problem Identification**

- I. 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.
- II. 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.
- III. 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.
- IV. The ease of installation of this system aims to make it a suitable choice for easy insertion and management of records in any domain.
- V. 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.
- VI. personal details, leaves taken, salary deducted and all the functionalities mentioned above.

### Functionalities summary

<b>APPLICATION ADMINISTRATION AND SETTINGS</b>	
User account and Permission	<ul style="list-style-type: none"><li>✓ Creating new application user</li><li>✓ Modifying existing application user</li><li>✓ User permission on different functionalities</li></ul>
Grouping	✓ Department structure setting, each employee will be assigned for his/her group. This will the reporting easy
Shift Setting	<ul style="list-style-type: none"><li>✓ Defining one or more than one shift</li><li>✓ Each shift has its own check in, check out and tolerance time</li></ul>
Day off Setting	✓ Flexible day off setting, Helps to give employee day off in any days. If attendance importing date is day off and if there are employees

	who worked on that day and they are approved, they will be entitled for overtime. The application will give a report
Holiday Setting	✓ Holiday registration, if attendance importing date is holiday and if there are employee who worked on that day and they are approved, they will be entitled for overtime. The application will give a report
Database backup	✓ Application administrator can set backup time ✓ The application will back up the database based on the saved timer
<b>EMPLOYEE REGISTRATION</b>	

Employee registration	✓ Basic employee information registration, the use of this information is to process attendance not for other personal details used by HR department
<b>ATTENDANCE PROCESSING</b>	
Attendance Processing	✓ Starts from registration of finger print template ✓ The application will automatically import employee's attendance from biometric device ✓ The application will check each employee current shift, holiday, day off and save the attendance ✓ Users of the application will be able to see attendance reports based on the imported attendance ✓ Attendance report with different filter options like group, shift, etc.
Leave processing	✓ Leave types will be defined ✓ Leave entry

	<ul style="list-style-type: none"> <li>✓ Leave reports</li> </ul>
Shift management and rotation	<ul style="list-style-type: none"> <li>✓ A shift will be assigned for employee</li> <li>✓ Employee(s) or group can have a fixed shift or shift can be defined for those employees who have a specific day based shift rotation so that they can be managed with the new shift. The application administrator can change setting anytime. Each employees shift will be automatically changed to the rotated shift</li> <li>✓ Shift report</li> </ul>
Overtime Processing	<ul style="list-style-type: none"> <li>✓ Overtime in and out controlling</li> <li>✓ Report by group</li> </ul>
Third party integration	<ul style="list-style-type: none"> <li>✓ The system will be flexible in being integrated with other devices like RF printers, Barcode Printers and third-party software like NAVISION.</li> </ul>

## **LITERATURE REVIEW**

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.

(i) 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.

(ii) 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. This information are preexisting in the database. The database administrator manages it not the users.

(iii) 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.

### **3.1 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. 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. 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.

### 3.2 Software design specification diagrams

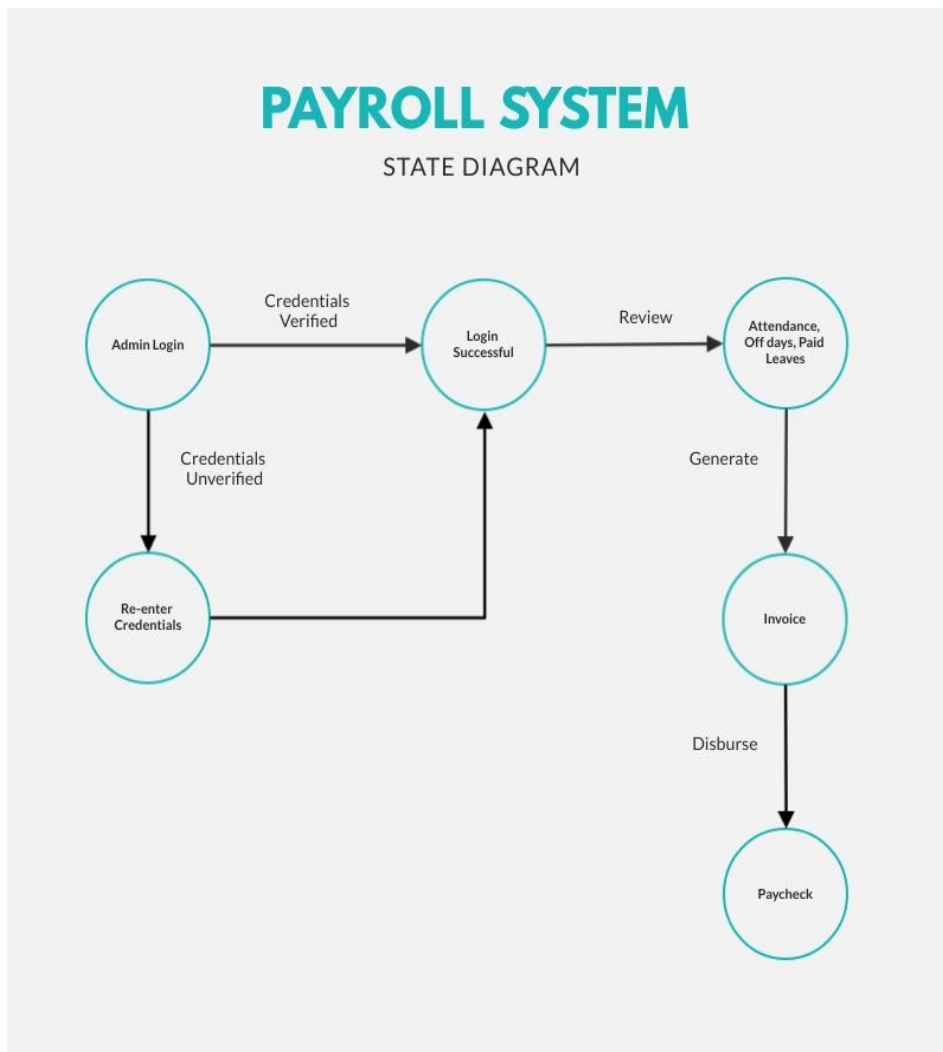


Fig 1.1 State diagram



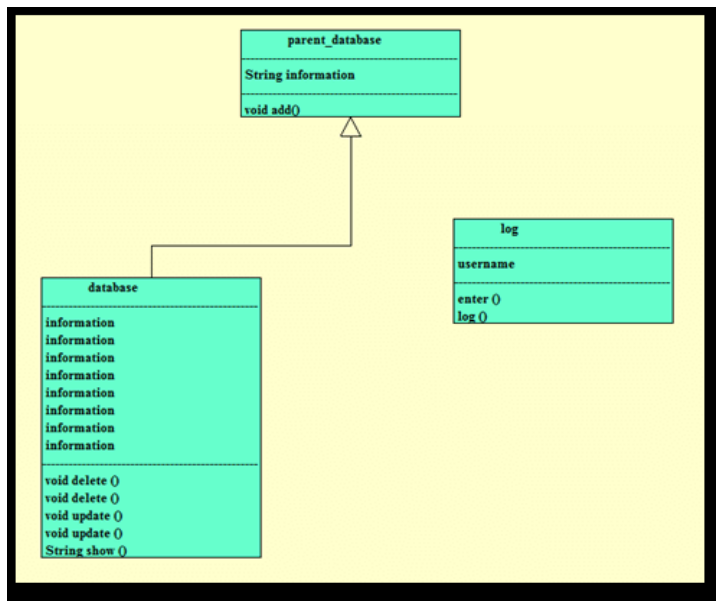


Fig 1.2 Payroll class diagram

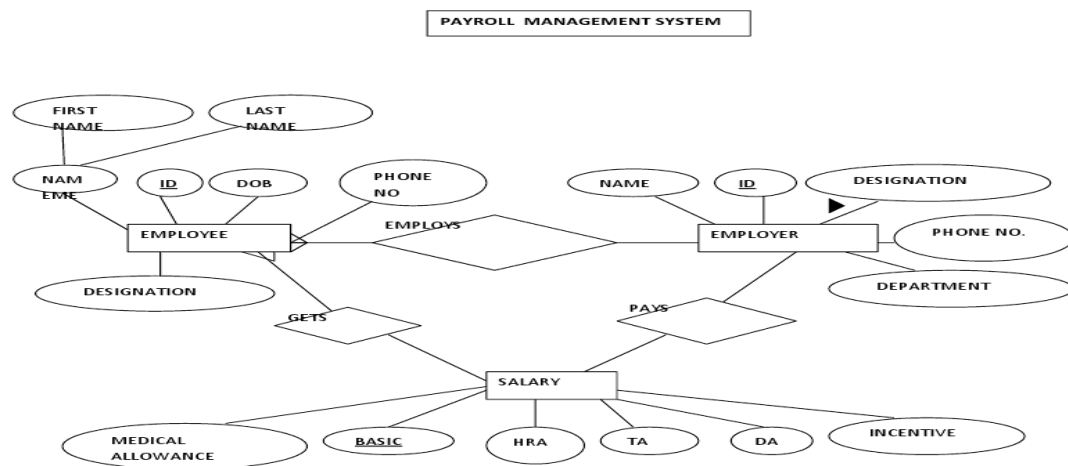


Fig 1.3 ER diagram

## Data Flow Diagrams - Payroll System

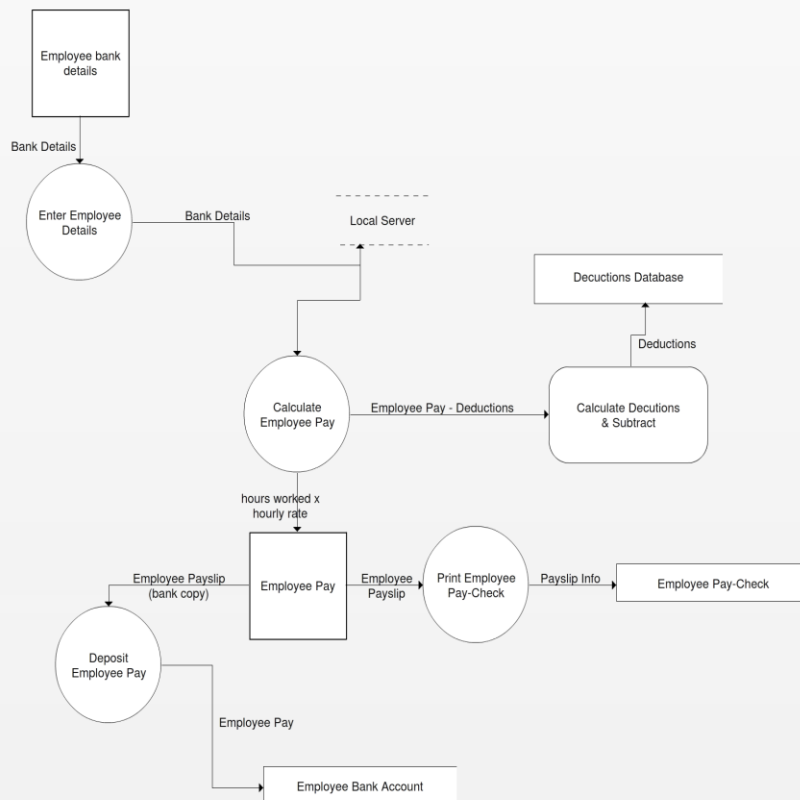


Fig 1.4 Data flow diagram

## System Requirements

- Hardware Requirements  
Processor: I3 or any
- Software Requirements  
Windows 7,8,10,11  
pyqt5 library  
Python  
MySQL

### 3.3 Implementation

#### (i) Front-end

For front end we have used Pyqt5. We have used XAMPP server for hosting the application.



Fig 1.5 Software interface

Fig 1.6 Employee salary list

	Earning		Deduction
Basic Pay		P.F.	
D. A		Income Tax	
H. R. A		LIC	
C. C. A		Bank Loan	

Fig 1.7 Employee Pay-slip structure

## (ii) Back-end

This part provides facility for each store owner to edit and modify information in his own store. Providing validation check for member and store identification, the back-end system can securely protect users' proprietary information. In addition, all page views employ session variables to deter manually defined variables by users. Applying user friendly approach, and focusing on web programming inexperience, the user can effortlessly manage his back-end information. Inside the back end, users can control and view all store information. Besides that, using content management design, the back-end part encompasses with these modules: product management, shop information management, web board management, shopping cart management, member management, promotion management, banner management, plaza management, poll management, currency management and article management. This part is consists of MySQL, XAMPP Server, Python, PyQt5, etc. In back end part each function module in system background uses the same design scheme, which involves management functions of goods, product reports, product categories and orders to add, delete, update and check. They all have adopted the front-end page requests sent to the controller action, invoke the service of business processing module, the last action to deal with the results back to the view layer, and the service layer is call one or more DAO methods for data processing. We have developed admin login module for management of our system. In order to enter background management system, administrator must log into our system by providing username and password. When the administrator input correct user name and password, he can enter the main interface of the system background. In background of the system admin can manage the product information, order information, product category, sales report, and product report. All the background system are developed by using MySQL, XAMPP server and Python. We have handled the database by using MySQL, and also handled server by XAMPP and scripting server and making dynamic and interactive web pages by PyQt5. We have developed product management option for an admin so that he can add, delete and update product information. Admin can also add, delete and update the product category. Apart from admin can add, delete and update the brand name of our shop. We have developed order management for the administration. Order management enables administrators to easily see all the order information, change the orders and delete the order. We have implemented customer management so that admin can see all the information of a customer. Moreover, back end part consists of report management. Admin can see the sales report and product report so that admin can know about how much products are sold and also know about the quantity of the product. Our system has also the option for the admin to see the weekly, monthly and yearly report of the sales report by date picker option. Apart from we have developed search option for admin so that he can find information about any product. That's all about the back-end development of our system.

## **METHODOLOGY**

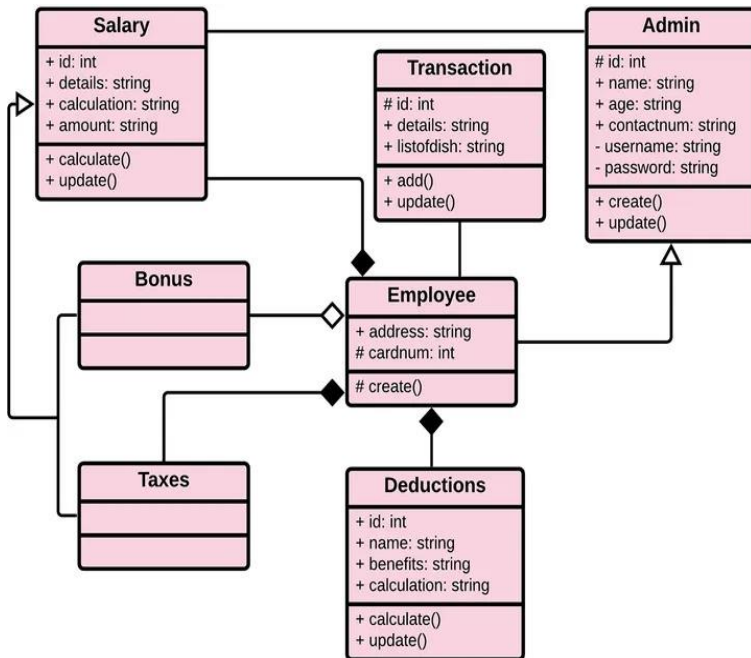
### 4.1 Design method

An Introduction to the methods and techniques adopted within the design

- (i) The software was built using Visual Basic and it can run on computers that have the NET Framework installed.
- (ii) We divided the whole project into five main modules: employee data, payroll records, rates, ledger and help.
- (iii) When a data is saved, the data gets written into an XML file. Keeping in line with making the software platform-independent, XML is also a highly platform-independent format for storing data.
- (iv) This is where all the data of the employee is stored, along with each month's payroll data for the employee.
- (v) There is also a separate XML file for storing current rates. For an employee data or payroll data to be saved to the file, it has to be serialized.
- (vi) Getting any data from the file will require the data to first be deserialized before it can be used. Serialization and deserialization helped make the data storage very simple.
- (vii) We also used the object-oriented paradigm to code and organize our program.
- (viii) This ensured code reuse, and efficient updating of the code later on.

More detailed description of the most important modules of the design

- (i) The most important modules of the design are the employee data, payroll records and rates. For the employee data module, we had to keep track of the identification number, name, union membership status, pension plan agreement and payroll of an employee.
- (ii) We also had to link these to a general module that will hold all the other employees. There had to be a means of storing all these data, retrieving them, adding data and deleting data without giving any errors.
- (iii) From the employee data module, we had to create a link to the employee's pay records. The payroll records had to contain the number of hours that the employee had worked and in what month and year that the employee worked.
- (iv) We also had to keep in mind the rate with which we would be able to calculate the employee's pay.
- (v) The payroll records also had to contain the employee's deductions, that is, the deductions from the pension plan, union membership fee and taxes. Obviously, the payroll records also had to contain the gross and net pay of the employee.



### Indication of how the design fulfills the requirements

- (i) From the design picture above, it is clear that the software is meant to accept employee data, i.e., the identification number, name, union membership status and pension plan. It should stores these data in an XML file.
- (ii) The software computes the employee payroll depending on the rate and deductions that has been specified for the employee.
- (iii) New employees can always be added to the list of existing employees. There is no limit to the number of employees that the list holds.
- (iv) An employee's data can be modified as well as deleted from the list. Each employee has a link to a pay data in the payroll records module.
- (v) From the design diagram, we can see that a new payroll data can be added to the employee's list of existing pay data.
- (vi) The payroll calculates the employee's pay depending on the hours worked, the employee's rates and deductions that include pension dues, union membership dues and taxes. Each pay data is stored according to the month and year is was calculated.

## 4.2 Database Design

- (i) For a system all data we have store in database. In database all the date are stored in table wise.
- (ii) This section is going to describe how to the systems database is designed and categories. We have designed our database such a way that the key value are responsible to implement the another results.

### Description of Company in Database Table

The table shows serval the attributes of company are arranged in database and what value are required for each value like company name, company id, company types, address, mobile.

Table: Company attributes in database table

Name	Type	Collation	Attributes	Null	Default	Comments	Extra
id 📌	int(10)			No	None		AUTO_INCREMENT
name	varchar(30)	latin1_swedish_ci		No	None		
company_type	varchar(20)	latin1_swedish_ci		Yes	Regular		
address	varchar(50)	latin1_swedish_ci		No	None		
mobile	varchar(20)	latin1_swedish_ci		No	None		
delete_status	enum('0', '1')	latin1_swedish_ci		No	0		
details	varchar(50)	latin1_swedish_ci		No	None		
Name	Type	Collation	Attributes	Null	Default	Comments	Extra
emp_id 📌	int(10)			No	None		AUTO_INCREMENT
lname	varchar(20)	latin1_swedish_ci		No	None		
fname	varchar(20)	latin1_swedish_ci		No	None		
gender	varchar(6)	latin1_swedish_ci		No	None		
emp_type	varchar(20)	latin1_swedish_ci		No	None		
division	varchar(30)	latin1_swedish_ci		No	None		
mobileNo	varchar(20)	latin1_swedish_ci		Yes	NULL		
salary	int(10)			No	0		
bonus	int(10)			No	0		
loan	int(11)			No	0		
delete_status	enum('0', '1')	latin1_swedish_ci		No	0		

### Description of Employee in Database Table

The table shows serval the attributes of employee are arranged in database and what value are required for each value. The employee table contain the employee's salary, bonus and how arrange it for each other.

Table: Employee attributes in database table

Name	Type	Collation	Attributes	Null	Default	Comments	Extra
id 📌	int(10)			No	None		AUTO_INCREMENT
name	varchar(30)	latin1_swedish_ci		No	None		
company_type	varchar(20)	latin1_swedish_ci		Yes	Regular		
address	varchar(50)	latin1_swedish_ci		No	None		
mobile	varchar(20)	latin1_swedish_ci		No	None		
delete_status	enum('0', '1')	latin1_swedish_ci		No	0		
details	varchar(50)	latin1_swedish_ci		No	None		
Name	Type	Collation	Attributes	Null	Default	Comments	Extra
emp_id 📌	int(10)			No	None		AUTO_INCREMENT
lname	varchar(20)	latin1_swedish_ci		No	None		
fname	varchar(20)	latin1_swedish_ci		No	None		
gender	varchar(6)	latin1_swedish_ci		No	None		
emp_type	varchar(20)	latin1_swedish_ci		No	None		
division	varchar(30)	latin1_swedish_ci		No	None		
mobileNo	varchar(20)	latin1_swedish_ci		Yes	NULL		
salary	int(10)			No	0		
bonus	int(10)			No	0		
loan	int(11)			No	0		
delete_status	enum('0', '1')	latin1_swedish_ci		No	0		



## 4.3 Functional Requirements

### Masters:

- (i) This module helps the administrator to enter the designation and the related description.
- (ii) It also helps to add the department.

### Employee:

This module helps to add the details of the employee like the personal detail and the employee detail.

### Search:

This module helps to search the employee details department wise and designation wise.

### Attendance:

- (i) This module helps to different types of leave for different year.
- (ii) It also helps the employee to enter their entry and exit time.
- (iii) Using the attendance module, the employee can also check their remaining leaves and also apply for the leave.

### Salary:

- (i) This module helps to calculate the salary by adding the allowances and the basic salary and by deducting the deductions based on the leaves and also the PF, ESI.
- (ii) It also helps to generate the employee pay slip.

### Report:

This module helps to generate the administrative reports like the Salary Report, Attendance Report and the Employee Report which can be exported to word, pdf.

#### 4.4 Performance Requirements

- (i) The overall system should be fast and error free.
- (ii) It should have built in error checking and correction facilities.
- (iii) The system should be able to handle large amount of data comfortably.

##### Design constraints

- (i) The system runs under Windows XP.
- (ii) The application is developed on VB.Net platform and SQL server 2008 as back end.

## **RESULTS**

Employee details, Leaves and salary has been correctly stored in the database.

## **CONCLUSION**

- (i) We conclude, using this application we can easily insert the records and maintain them for long period of time. There is no chance of losing data and prevents data redundancy.
- (ii) We have prepared application where no other person other than the employee of the collector office can make changes in the database.
- (iii) The departments we used were Agricultural loans, Civil and construction projects, Voter ID department, and school and education department and energy consumption department.
- (iv) The main records are to be recorded and handled by the collector office's employees in order to keep a check on the customers and applicants.
- (v) The employees cannot lose the data as there is delete option provided, but could be altered from the backend for future purpose.
- (vi) We can easily view the present details of the department so that we can cross check or do verification.

