PROJECT REPORT

On

IPAYMASTER PAYROLL SYSTEM

Submitted in partial fulfillment of the requirement for the award of the

Bachelor's Degree in Computer Science

Of

Mahatma Gandhi University

Submitted by

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Certificate

Certified that this is a bonafide report of project entitled **IPayMaster Payroll System** submitted by **Abhijith Syam, Amal Suman, Justin Thomas, Shyam Mohan** of sixth semester Computer Science during the year of 2018-2019, in the partial fulfillment of the requirements for the award of Bachelor's Degree in Computer Science, of Mahatma Gandhi University, Kottayam.

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ABSTRACT

"IPayMaster Payroll System" is a web based employee payroll system for IHRD. Payroll system is used for managing employee details, leave and also to generate employee salary report and salary pay slip. Only Admin has the accessibility to operate this system. The Admin has right to Add new member. Each employee has a unique username and password to login to the system. After logging to the system, all employee can apply for leave with valid reason. The admin can check the leave request and he/she can approve or reject the leave request. If the leave is approved, the leave deduction will be deducted from the salary. This application will help to calculate the employee's salary and other relevant calculations automatically. This helps to administer the financial record of employee's salaries, wages, bonuses, netpay, increment, conveyance, loan and deductions.

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1. INTRODUCTION

Payroll is the procedure by which employers reimburse the employee for the amount of work that he or she has done. Though, payroll seems like everyday duty, there are many complicated aspects including, taxes and maintaining accuracy that needs to be performed with utmost caution. Software on the payroll system helps manage the long list of data with exactness and perform the calculation without minimum error.

Payroll Management System is one of the core areas of our college. Usually, it is pursued to manage the employees the employee's expenses, allowances, salary, gross salary, deduction, tax and many more for a specific time period. Management and Accounting are two main essential parts for payroll.

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

A payroll system is a software designed to organize all the tasks of employee payment and the filing of employee taxes. These tasks can include keeping track of hours, calculating wages, withholding taxes and deductions, printing and delivering checks and paying employment taxes to the government.

Payroll software often requires very little input from the employer. The employer is required to input employee wage information and hours then the software calculates the information and performs withholdings automatically. Most payroll software is automatically updated whenever a tax law changes and will remind employers when to file various tax forms.

The Payroll Management System deals with the financial aspects of employee's salary, allowance, deductions, gross pay, net pay etc. and generation of pay slips for a specific period. The outstanding benefit of payroll management

system is its easy implementation. Other advantages of payroll management system are its extensive features and reports.

The main exiting feature of our application is that it will calculate the monthly salary automatically. If the salary is payable in the month of any festival, application will automatically add the bonus amount with the respective employee's salary. After every year system will increment the salary of the employees depending on a predefined rate or amount. Conveyance is also a part that will add with the salary considering particular employee's designation. Our developed system will also cover the loan of employee. If any employee takes loan from the university, the system will automatically deduct the amount in a specific rate or in amount.

Finally, this system will help the management to watch the current salary statement of employees at any time. It will show individual and collection of salary report of all employees. Using this application management can print the salary slip one by one or print all of the slips with only one click of mouse.

Payroll Management System gives you the power to:

- Manage employee information efficiently.
- Define the salary income, deductions and leave etc.
- Generate Pay-Slip at the convenience of a mouse click.
- Generate and manage the payroll processes according to the salary structure assigned to the employee.
- Generate all the reports related to employee, attendance/leave, payroll etc.
- Manage your own security.

2. SYSTEM ANALYSIS

2.1 Existing System

Existing system is not completely digitalised. Only few details are computerised. The important information are written in 'PAY BILL REGISTER'. So existing pay rolling need more man power and time consuming. All the calculations and salary bill generation are done by human itself. This written records are needed for future reference. So huge area is required for storing these records. We need to keep the written records safely for a long period of time.

Presently salary calculation is done manually, it take so much of time to compose salary of all employees. It also takes very long time to make salary slip ready. Due to manual process some time it takes very long time, in turn it delays the salary distribution.

This is a big problem to manage when salary is not generated in time. The other main problem is errors, even with double cross check here or there some errors will happen, this again create large problem.

2.1.1 Drawback of existing system

- Time Consuming

High time consuming is the main weakness of the existing system. A lot of time is wasted in searching records from different files, which result in loss of time, and moreover workload also increases. Also a lot of time is wasted in duplicating the same entries in different registers. The overall checking of the records and modifications if necessary has to be made at several places which is time consuming and error prone.

- Difficulties in Retrieving Information

Sometimes, to get any type of instant information more than one document need to search. This requires opening of both files and then combining the information to get the required in information. Further the files may not be indexed according to the need, which causes the difficulty in retrieving information.

- Not Easy to understand by new user

To understand the manual system the user have to get more practise and have all a grape all fields that help by other employee and have to be in contact with the person. If the person was in leave the user can get the information from him.

- Need more space to store

Here by using the paperwork system the user need to maintain all the document in proper way to avoid the difficulty in action and need more space to store these document because they can't destroy the old document.

- Very Expensive

The existing manual system is very expensive method as lot of paper work has to be done and lot of wastage of manpower, which increase the expense of the existing system.

- Data sharing

The difficult user in the different department cannot share the data simultaneously

- Security feature are not prominent in the existing system.

2.2 Proposed System

Our proposed system is fully digitalised. Information and records are stored in digital form. It provide security to sensitive data. All calculations and salary bill generation are done fully automatically, also the pay bill register is built in this system. As a result, this system reduce man power and consumes time. It provide real time backup. Our system provide following modules:

1. Employee Management.
2. Leave Module.
3. Allowance and deduction.
4. Salary Module.

Employee Management: Admin can add new employee and manage employee details. Each employee has unique username and password for operating the system.

Leave Module: Employee can apply for leave after logging the system. Admin can response to the leave request by approving or rejecting. Employee can check his/her leave status.

Allowance and Deduction: At the time of salary generation, admin can set manually HR, DA, Travel, and Medical for each employee. Leave amount will be deducted from the salary.

Salary Module: Admin can generate month wise salary for each employee one by one and generate salary pay slip.

2.2.1 Need for a New System

- User friendly

To make the system user friendly this using window as its run time environment and is developed using Web2by frame work, which is very user-friendly rapid application development tool. Because in the existing system register work as very difficult to handle by each user was boring job.

- Data Security

The proposed system will also prevent unauthorized aces to the system. At the beginning, the username and password is to be entered by user and if it is correct only then the permission to use the software is given to user. There are different users according to different roles and one user can't use the resources given to another user.

- Data Redundancy

The data is stored only once which can be accessed by any one at any time and at any place. So it can be minimized but cannot be removed completely.

- Easy to Access

In this database project, data can be easily access through computer network

- Cost Reduction

It requires less amount of cost as compared to existing system.

- Concurrency Control

This Database provides mechanisms to provide concurrent access and ensure the correctness of data

- Time and Effort Reduction

It requires fewer amount of time and effort

- Security and mechanism

Database can be secured by applying password, encryption and decryption techniques.

- No Documentation

Everything is Stored on the computer so there is no need of documentation or maintaining the files or registers.

2.3 Requirement Specifications

2.3.1. Hardware Requirements

The selection of the hardware is very important in the existence and proper functioning of any software, when selecting hardware, the size and capacity requirements are also important.

Processor - core i7 processor, HDD-RAID
RAM - 8GB

2.3.2. Software Requirements

One of the most difficult task is selecting software .Once the system requirement is found then we have to determine whether a particular software package fits for those system requirements.

Operating System - WINDOWS
Front End - Python
Back End - SQL Lite
Frame Work - Web2py

2.4 Feasibility Analysis

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 abovementioned topics.

After doing the project Payroll Management System, study and analysing all the existing or required functionalities of the system, the next task is to do the feasibility study for the project. All project are feasible- given unlimited resources and infinite time.

Feasibility study include consideration of all the possible ways to provide a solution to the given problem. The proposed solution should satisfy the all the user requirement and should flexible enough so that future can be easily done based on the future upcoming requirements.

- 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.

This is a very important aspect to be considered while developing a project. We decided the technology based on minimum possible cost factor

1. All hardware and software cost has to be borne by the organisation

2. Overall we have estimated that the benefits the organisation is going to receive from the proposed system will survey overcome the initial costs and the later on running cost for system
3. We are complete our project in the range of 300 hours
4. In our system, a clerk admin can do the duties of 2 clerk. So we will reduce the economic cost.

- Technical Feasibility:

Technical feasibility is frequently the most difficult area to ensure at this stage. It is essential that the process of analysis and definition to be conducted parallel to an assessment of the technical feasibility. The consideration that is normally associated with technical feasibility includes the resources availability of the Organization where the project is to be developed and implemented. As very limited resources are required for this project hence this project is considered feasible for development.

For this feasibility study, we studied complete functionality to be provide in the system, as described in the system requirement specification, a check if everything was possible using different of frontend and backend platforms.

- Operational Feasibility:

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

No doubt the proposed system is fully GUI based that is very user friendly and all inputs to be taken all self-explanatory. Besides, a proper training has been conducted to let know the essence of the users so that they feel comfortable with new system. As far study is concerned the client are comfortable and happy as the system has cut down their loads and doing.

- 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, resources, training etc. The interest and support shown by the organization during the system study do 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 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.

3. SYSTEM DESIGN

It is a transition from user oriented documents to documents oriented programmers or database personnel. This phase's act as a bridge between the software requirement specifications and Implementation phase, which satisfies the requirement. The System should be designed to output with all likely errors and any subsequent changes and modifications. When the user system specifications is complete, It should be present with the management of the proposal that outlines the main features of the design and provide a restatement or revision of objectives, Cost and benefits to be expected. Normally the system design is done in three stage such as external design, architectural design and output design.

The major steps in the preparation of input and the design of output form, which is acceptable to the user and the database design.

3.1 Introduction

Staff Payroll and Salary processing Software module is the process to generate salaries of employees in an institutions colleges/schools. The entire process of payroll includes calculation of salaries, deductions, additions of any kind of benefit and final payment of salaries done either by cash/or cheque. Payroll System in Advantage Rapid ERP is fully integrated with simplicity to process the salaries for staff.

For this, you need to set up your employees first, then you can further process payroll system; like defining of departments along with designation, framing salary structure, leaves structures, deduction categories etc. Once you are done with this, you can enter data like working hours of employees for the particular period and deduction calculation is done automatically, which eliminate the need for manual calculations. This module helps to maintain records for staff which includes staff profile; staff's leave register, attendance. Payroll System is governed by Government Statutory, which includes deductions and earnings.

3.2 Input Design

Input design of a process of converting the user oriented description of the input of the system. The goal of the designing input data to make data entry as easy as logical and free from errors as possible. When we approach input data design source document that capture the data design and then selected the media use to enter them into the computer.

The Input Screen in the project are

1. Login page

IPayMaster payroll system start with the Login page. This page contain 2 text field namely “email and password” and one Login button. Clerk admin, principal and Employees are logged into the system through this page

2. Sign up page

This page is used for signing up new employees. Clerk can add new employee signing. This page provide 3 text field and one submit button for entering new employee signing.

3. Employee Registration page

Employee registration page is used for adding new employees in the system. Only clerk admin can fill-up this form. This page is entering employee personal details including PEN, address, contact number, LIC/SLI/PLI no: etc. For entering that information, this page provide 23 text field and one submit button.

4. Bank details entering page

This page is used for entering the employee’s account details. Clerk admin can fill-up this form. Account details including account number, IFSC-code and Aadhaar number etc. This page provide 7 text field and one submit button.

5. Remittance entering page

This page is used for entering the employee's remittance details. Clerk admin can fill-up this form. Remittance details including remittance type and amount etc. This page provide 8 text field and one submit button

6. Leave application page

Leave application page allow provision to apply leave Request. Clerk admin can also applying leave request of each employee. So this page is used by both employee and clerk admin. Leave application page provide 8 text field and one submit button for applying leave request.

7. Salary entering page

Only Clerk admin can use this page. It is used for entering salary heads values such as income and deduction values. This page provide 8 text field and one submit button. At time of salary generation, Clerk admin can add income and deduction values separately. Each salary heads values are entering one by one.

8. Designation adding page

This page is used for adding new designation (department) into the system. Designation table is just a reference table for other tables. That means designation values are displayed in dropdown list of some text field. This page provide one text field and submit button for entering new designation.

9. Salary heads adding page

This page is used for adding new salary heads into the system. Salary heads table is just a reference table for other tables. That means salary heads are displayed in dropdown list of some text field. This page provide 2 text field namely salary heads and type, and submit button for entering new designation.

3.3 Output Design

The primary consideration in the design of all output is the information requirement and other objective of the user. It is the most important and direct source of information to the user. A major form of output is hard copy. Print out should be given a specific name or title. The output data is displayed on the visual display unit and output can be redirected to printers and or sorted in a file for later use.

The Output Screen in the project are

1. Home page

Home page contain number of menus and submenus. Our system provide separate home page for admin, principal and employees. Admin home page contain 7 menus namely Home, Manage employee, Manage leave, Manage salary, Process, Salary history and other. Principal home page contain 3 menus namely Home, View bills and View leave request. Employee home page contain 3 menus namely Home, Apply for leave and leave history

2. Employee Management page

Employee management page will display the details of all registering employees. Only Clerk admin can view this details. Employee details are displayed just like table format. . It provide view button at the last column to view the employee details of particular employee.

3. Bank Management page

Bank management page will display the bank account details of all registering employees. Only Clerk admin can view this details. Bank account details are displayed just like table format. It provide view button at the last column to view the account details of particular employee.

4. Remittance Management page

Remittance management page will display the Remittance details of all registering employees. Only Clerk admin can view this details. Remittance details are displayed just like table format. It provide view button at the last column to view the remittance details of particular employee.

5. Leave Management page

Leave management page will display the leave requests of all registering employees. Leave applications details are displayed just like table format. Clerk admin and principal view this page. It provide view button at the last column to view the leave request details of particular employee.

6. Pay Bill register page

Pay Bill register page will display the salary details of all registering employees. Only Clerk admin can view this page. Employee salary details are displayed just like table format. Pay bill register is the important document of payroll system. It provide view button at the last column to view the salary details of particular employee.

7. Bill history page

This page display the history of Clerk admin generated salary bill. Admin and principal view this page. This page provide 2 button for normal viewing and pdf viewing of each salary bill. Pdf button is enabled only after the principal approval. Bill history are displayed just like table format.

8. Pay bill slip

This page display the salary slip of particular employee. Salary slip contain name of the institution, employee details such as name and designation, month and year and salary. Salary details are displayed in table format. Income and deduction are

calculations are displayed separately. Bill slip also display the Net pay in words. Only Clerk admin can view this page

9. Salary slip page

This is the PDF format of pay bill slip. This salary slip contain all the details of pay bill slip. It also include the account number and IFSC code of the particular transferred account. It provide special space for principal and casher signature. This page can be printed and distributed to particular employee.

10. Salary history page

This page display the salary history of particular employees in particular month and year range. Only Clerk admin can view this page. It provide provision to select employee name and range.

11. Leave history page

This page display the leave history of the particular employee. Only employee can view this page. Employees can view the status of their leave request.

3.4 Data Flow Diagram

Data flow diagrams can be used to provide the end user with physical idea of the data they input ultimately has an effect up on the structure of the whole system from order to dispatch to report. On a DFD, data items flow from an external data source or an internal data store to an internal data store or external data sink, via an internal process. A DFD provides no information about the timing of processes, or about whether processes will operate in sequence or in parallel. A DFD illustrates components of data flow diagrams.

Process:

The first components of the DFD is known as process. Transform incoming data flow into outgoing data flow. The processes shows a part of the system that transform inputs into output. The process is represented graphically as a circle.

Data Flow:

A flow is represented by an arrow into or out of a process. They are pipelines through which information flow. The name of data flow represent the meaning of packets that moves along the flow. Data flow are represented by directed arrow.

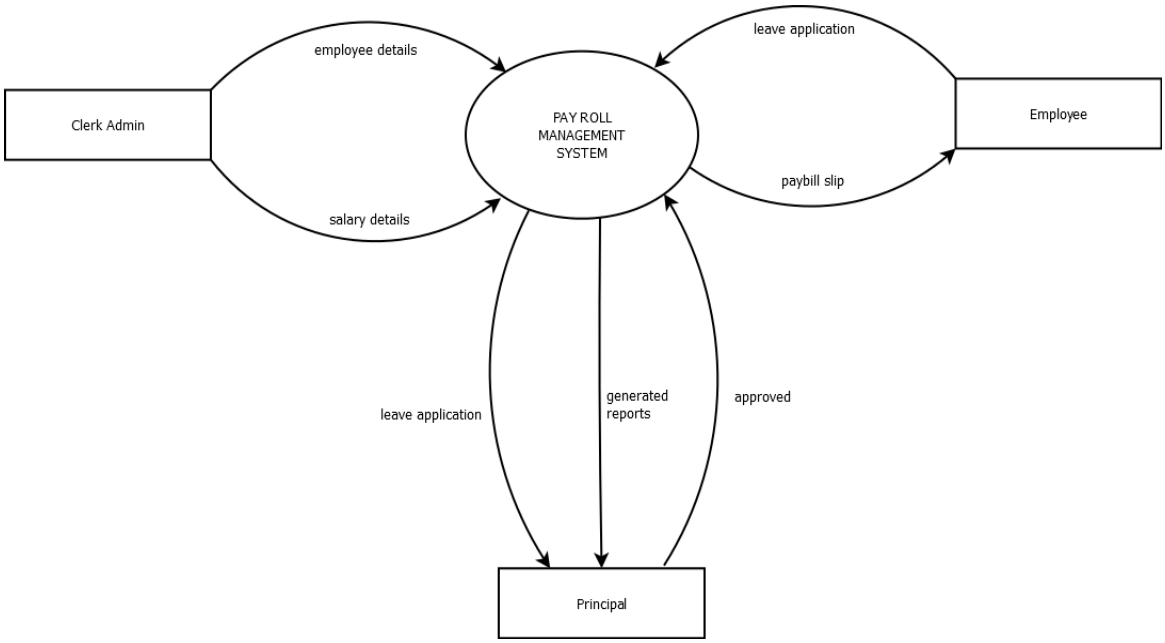
Data Store:

Data store are repositories in the system. The store is used to model a collection of data packets at rest. They normally indicate tables of database. Dataflow from a data store is commonly known as the read operation. Data stores represented by open rectangle, or by parallel lines.

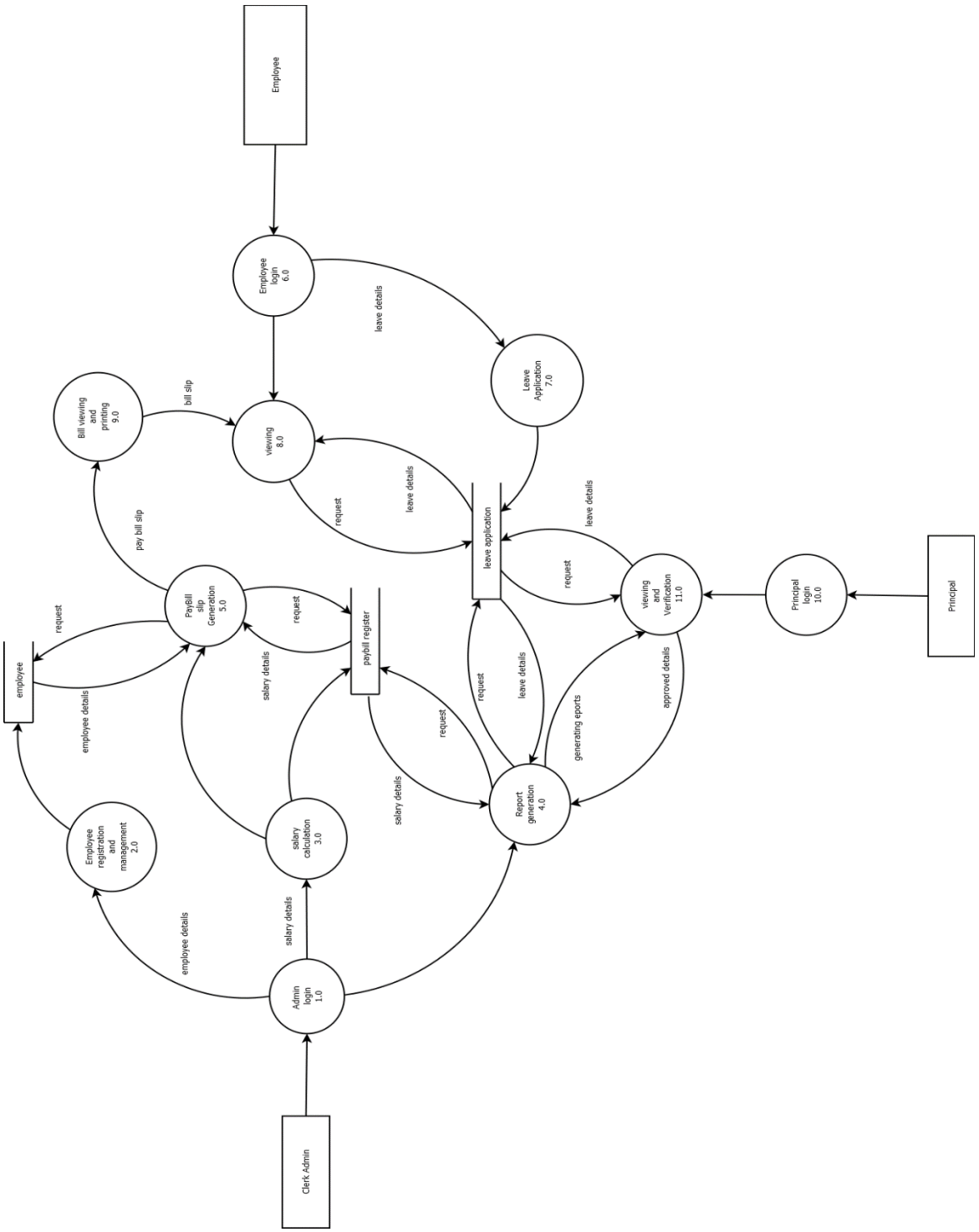
External Entities:

External entities are terminators which the system communicates. They are the source and destination of input and outputs. They are the system we are modelling. The flow connecting the terminators to various process in our system represent the interface between our system and outside world. They are represented by rectangle with name of external entity.

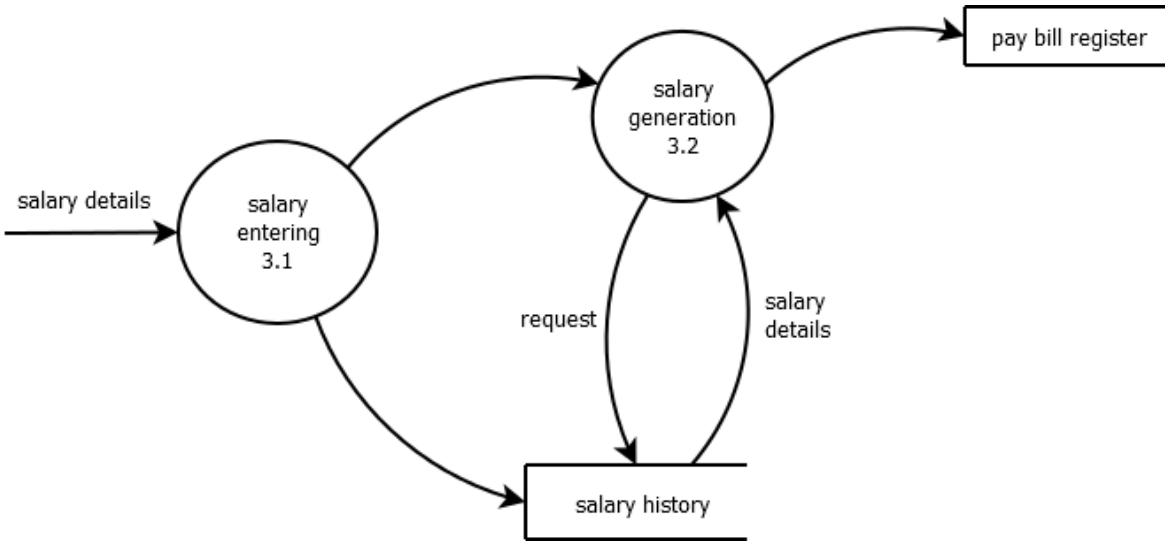
3.4.1 Context diagram



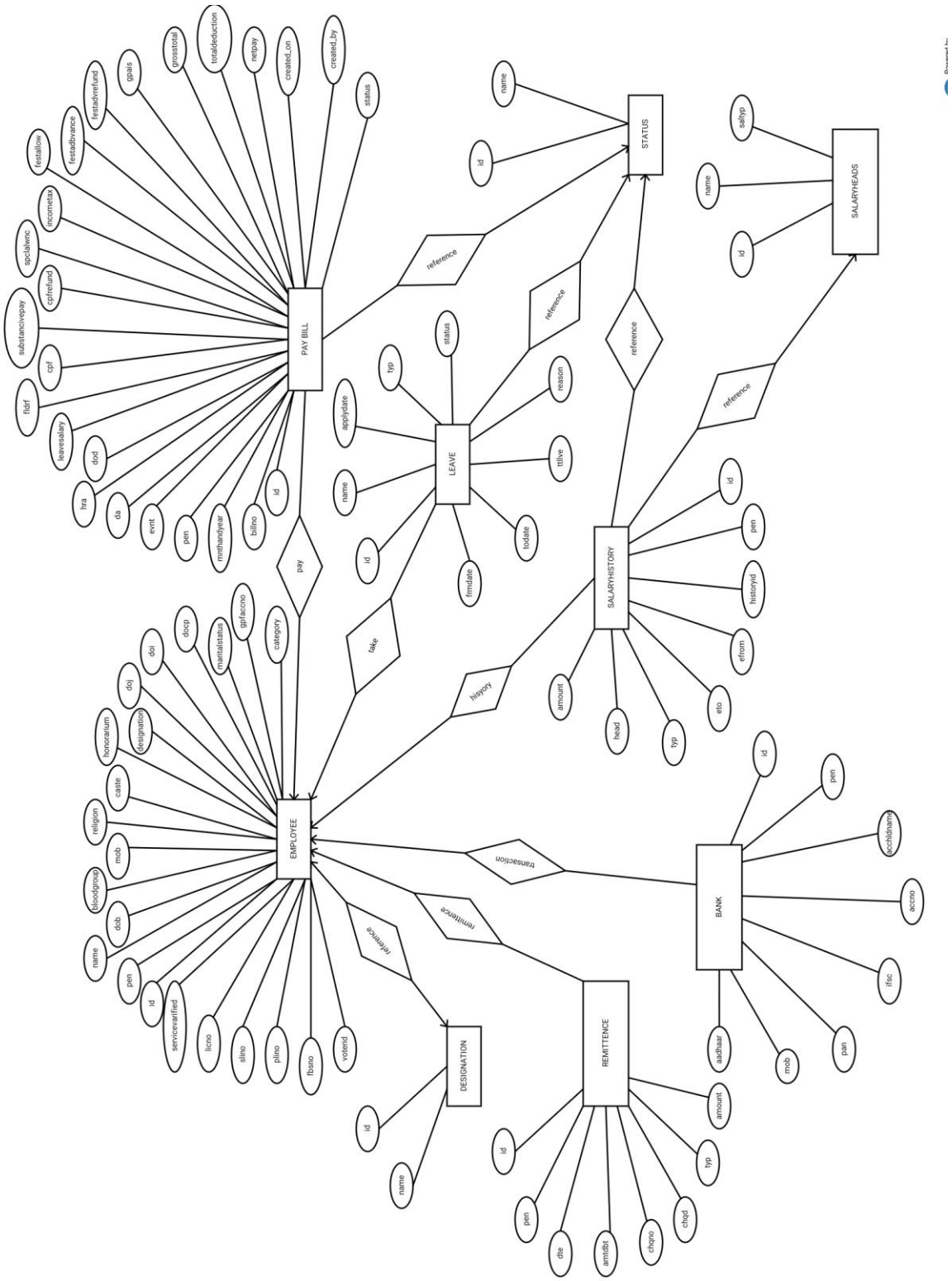
3.4.2 Level 0 DFD



3.4.2 Level 1 DFD



3.5 ER DIAGRAM



3.6 Database Design

The design of the database includes decision about the nature and content of the database, the tables that is to be used, and its attributes in our system. Database design is recognized as a standard of MIS and is available which several authorized users can use. The general theme behind a database is to handle information as an integrated whole a database is an integrated collection of data and provides a centralized access to the data from the program sends it makes possible to treat data as a separate resource. Usually, centralized data managing software is called a Database Management System [DBMS].

A database is a collection of stored data organized in such a way that all the user data requirements are satisfied by the database. In order to design database and the tables used in the system, Oracle provides extra facilities, which aid and control each user‘s access to use the database for adding, modifying and retrieving data and facilitate data independence, integrity and security.

3.6.1 Table Design

Table 1: Employee

Description: This table are used to store the personal details of employee.

Sl. No	Field Name	Data Type	Constraints
1	Id	Id	Primary Key
2	Pen	Integer	Not null
3	name	String(512)	
4	Dob	Date	
5	bloodgroup	String(512)	
6	Mob	String(512)	
7	religion	String(512)	
8	Caste	String(512)	
9	voterid	String(512)	
10	designation	Reference Designation	Foreign Key
11	scaleofPay	String(512)	
12	curnbasicpay	Integer	
13	Doj	Date	
14	Docp	Date	
15	maritalstatus	String(512)	
16	Doi	Date	
17	gpfaccno	Integer	
18	category	String(512)	
19	Fbsno	Integer	
20	Licno	Integer	
21	Slino	Integer	
22	Plino	Integer	
24	serviceverified	String(512)	
25	honararium	String(512)	

Table 2: PBR

Description: This table are used to store the salary details of the employee.

Sl. No	Field Name	Data Type	Constraints
1	id	Id	Primary Key
2	pen	Reference Employee	Foreign Key
3	Billno	Integer	
4	mnthandyear	String(512)	
5	evnt	String(512)	
6	basicpay	Integer	
7	dod	Date	
8	fldrf	Integer	
9	substanpay	Integer	
10	accdetails	String(512)	
11	leavesalry	Integer	
12	da	Integer	
13	hra	Integer	
14	spclalwnc	Integer	
15	cpf	Integer	
16	cpfrefund	Integer	
17	incometax	Integer	
18	festallow	Integer	
19	festadvance	Integer	
20	festadvrefund	Integer	
21	houseloan	Integer	
22	gpas	Integer	
23	grsstotal	String(512)	
24	totaldeduction	String(512)	
25	netpay	String(512)	
26	status	Reference Status	
27	created_on	Date Time	
28	created_by	Reference Auth_User	

Table 3: Remittance

Description: This table store salary remittance details of the employee.

Sl. No	Field Name	Data Type	Constraints
1	id	Id	Primary Key
2	pen	Reference Employee	Foreign Key
3	date	Date	
4	amountdebit	Integer	
5	chqdetails	String(512)	
6	chqno.	Integer	
7	chqdate	Date	
8	typ	String(512)	
9	amount	Integer	

Table 4: Leave

Description: This table store leave application details of the employee.

Sl. No	Field Name	Data Type	Constraints
1	Id	Id	Primary Key
2	name	Reference Employee	Foreign Key
3	applydate	Date	
4	Typ	String(512)	
5	frmdate	Date	
6	todate	Date	
7	Ttllvs	Integer	
8	reason	String(512)	
9	status	String(512)	

Table 5: Bank

Description: This table store bank details of the employee.

Sl. No	Field Name	Data Type	Constraints
1	Id	Id	Primary Key
2	Pen	Reference Employee	Foreign Key
3	accchldname	String(512)	
4	Accno	Integer	Not null
5	Ifsc	String(512)	Not null
6	Pan	String(512)	
7	Mob	String(512)	
8	aadhaar	String(512)	

Table 6: Salary History

Description: This table store the salary history details of the employee.

Sl. No	Field Name	Data Type	Constraints
1	Id	Id	Primary Key
2	Pen	Reference Employee	Foreign Key
3	historyid	Integer	
4	Efrom	Date	
5	Eto	Date	
6	Typ	String(512)	
7	Head	Reference Salary Head	Foreign Key
8	Status	String(512)	

Table 7. Designation

Description: This table used for reference. It contain number of designations.

Sl. No	Field Name	Data Type	Constraints
1	Id	Id	Primary Key
2	Name	String(512)	

Table 8: Status

Description: This table used for reference. It contain number of status values.

Sl. No	Field Name	Data Type	Constraints
1	Id	Id	Primary Key
2	Name	string(512)	

Table 9. Salary Head

Description: This table used for reference. It contain salary heads and its type.

Sl. No	Field Name	Data Type	Constraints
1	Id	Id	Primary Key
2	Name	String(512)	
3	Saltyp	string(512)	

4. DEVELOPMENT PHASE

4.1 Why web2py

Web2py is one of many web application frameworks, but it has compelling and unique features. Web2py was originally developed as a teaching tool, with the following primary motivations:

• Easy for users to learn server-side web development without compromising functionality. For this reason, web2py requires no installation and no configuration, has no dependencies (except for the source code distribution, which requires Python 2.5 and its standard library modules), and exposes most of its functionality via a Web interface, including an Integrated Development Environment with Debugger and database interface.

• Web2py has been stable from day one because it follows a top-down design; i.e., its API was designed before it was implemented. Even as new functionality has been added, web2py has never broken backwards compatibility, and it will not break compatibility when additional functionality is added in the future.

• Web2py proactively addresses the most important security issues which plague many modern web applications, as determined by OWASP below.

• Web2py is lightweight. Its core libraries, including the Database Abstraction Layer, the template language, and all the helpers amount to 1.4MB. The entire source code including sample applications and images amounts to 10.4MB.

• Web2py has a small footprint and is very fast. It uses the Rocket [19] WSGI web server developed by Timothy Farrell. It is as fast as Apache with mod wsgi, and supports SSL and IPv6.

• Web2py uses Python syntax for models, controllers, and views, but does not import models and controllers (as all the other Python frame works do) - instead it executes them. This means that apps can be installed, uninstalled, and modified

without having to restart the web server (even in production), and different apps can coexist without their modules interfering with one another.

• Web2py uses a Database Abstraction Layer (DAL) instead of an Object Relational Mapper (ORM). From a conceptual point of view, this means that different database tables are mapped into different instances of one Table class and not into different classes, while records are mapped into instances of one Row class, not into instances of the corresponding table class. From a practical point of view, it means that SQL syntax maps almost one-to-one into DAL syntax, and there is no complex meta class programming going on under the hood as in popular ORMs, which would add latency.

4.2 SQL

SQLite is a relational database management system contained in a C programming library. In contrast to many other database management systems, SQLite is not a client–server database engine. Rather, it is embedded into the end program.

SQLite is ACID-compliant and implements most of the SQL standard, generally following SQL syntax. However, SQLite uses a dynamically and weakly typed SQL syntax that does not guarantee the domain integrity. This means that one can, for example, insert a string into a column defined as an integer. SQLite will attempt to convert data between formats where appropriate, the string "123" into an integer in this case, but does not guarantee such conversions, and will store the data as-is if such a conversion is not possible.

SQLite is a popular choice as embedded database software for local/client storage in application software such as web browsers. It is arguably the most widely deployed database engine, as it is used today by several widespread browsers, operating systems, and embedded systems (such as mobile phones), among others. SQLite has bindings to many programming languages.

MySQL is an Oracle-backed open source relational database management system (RDBMS) based on Structured Query Language (SQL). MySQL runs on virtually all platforms, including Linux, UNIX and Windows. Although it can be used in a wide range of applications, MySQL is most often associated with web applications and online publishing.

MySQL is an important component of an open source enterprise stack called LAMP. LAMP is a web development platform that uses Linux as the operating system, Apache as the web server, MySQL as the relational database management system and PHP as the object-oriented scripting language. (Sometimes Perl or Python is used instead of PHP.)

Originally conceived by the Swedish company MySQL AB, MySQL was acquired by Sun Microsystems in 2008 and then by Oracle when it bought Sun in 2010. Developers can use MySQL under the GNU General Public License (GPL), but enterprises must obtain a commercial license from Oracle.

MySQL is based on a client-server model. The core of MySQL is MySQL server, which handles all of the database instructions (or commands). MySQL server is available as a separate program for use in a client-server networked environment and as a library that can be embedded (or linked) into separate applications.

MySQL operates along with several utility programs which support the administration of MySQL databases. Commands are sent to MySQL Server via the MySQL client, which is installed on a computer.

MySQL was originally developed to handle large databases quickly. Although MySQL is typically installed on only one machine, it is able to send the database to multiple locations, as users are able to access it via different MySQL client interfaces. These interfaces send SQL statements to the server and then display the results.

4.3 Python

Python is an object-oriented, interpreted and high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance. Python supports modules and packages, which encourages program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freely distributed.

Often, programmers fall in love with Python because of the increased productivity it provides. Since there is no compilation step, the edit-test-debug cycle is incredibly fast. Debugging Python programs is easy: a bug or bad input will never cause a segmentation fault. Instead, when the interpreter discovers an error, it raises an exception. When the program doesn't catch the exception, the interpreter prints a stack trace. A source level debugger allows inspection of local and global variables, evaluation of arbitrary expressions, setting breakpoints, stepping through the code a line at a time, and so on. The debugger is written in Python itself, testifying to Python's introspective power. On the other hand, often the quickest way to debug a program is to add a few print statements to the source: the fast edit-test-debug cycle makes this simple approach very effective.

4.3.1 Python Features

Python provides lots of features that are listed below.

- Easy to Learn and Use

Python is easy to learn and use. It is developer-friendly and high-level programming language.

- Expressive Language

Python language is more expressive means that it is more understandable and readable.

- Interpreted Language

Python is an interpreted language i.e. interpreter executes the code line by line at a time. This makes debugging easy and thus suitable for beginners.

- Cross-platform Language

Python can run equally on different platforms such as Windows, Linux, Unix and Macintosh etc. So, we can say that Python is a portable language.

- Free and Open Source

Python language is freely available at official web address. The source-code is also available. Therefore, it is open source.

- Object-Oriented Language

Python supports object-oriented language and concepts of classes and objects come into existence.

- Extensible

It implies that other languages such as C/C++ can be used to compile the code and thus it can be used further in our python code.

- GUI Programming Support

Graphical user interfaces can be developed using Python.

- Integrated

It can be easily integrated with languages like C, C++, and JAVA etc.

5. SYSTEM TESTING

5.1 Testing

No matter how well Software has been designed and coded, it will inevitable Still contain defects. Testing is the process of executing a program with the intent of finding defects. A “successful” test is one that finds errors, not one that doesn’t find errors. Testing can “prove” the presence of faults and can increase confidence that a program “works”. System Testing is usually required before and after a system is put in a place. A series of systematic procedures are referred to while testing is being performed. These procedures tell the tester how the system should perform and where common mistakes may be found. Tester usually try to “break the system” by entering data that may cause the system to malfunction or return incorrect information.

5.2 Program Testing

Program testing checks for two type of errors logic and syntax errors shown through error message generated by the computer, but logic errors cannot be detected by diagnostic, the programmer must examine the output carefully for them. When a program is tested, the actual output is compared with the expected output.

Syntax and logic of the program are tested while testing the program. The system is tested with sample data and program is to be made error free.

5.3 String Testing

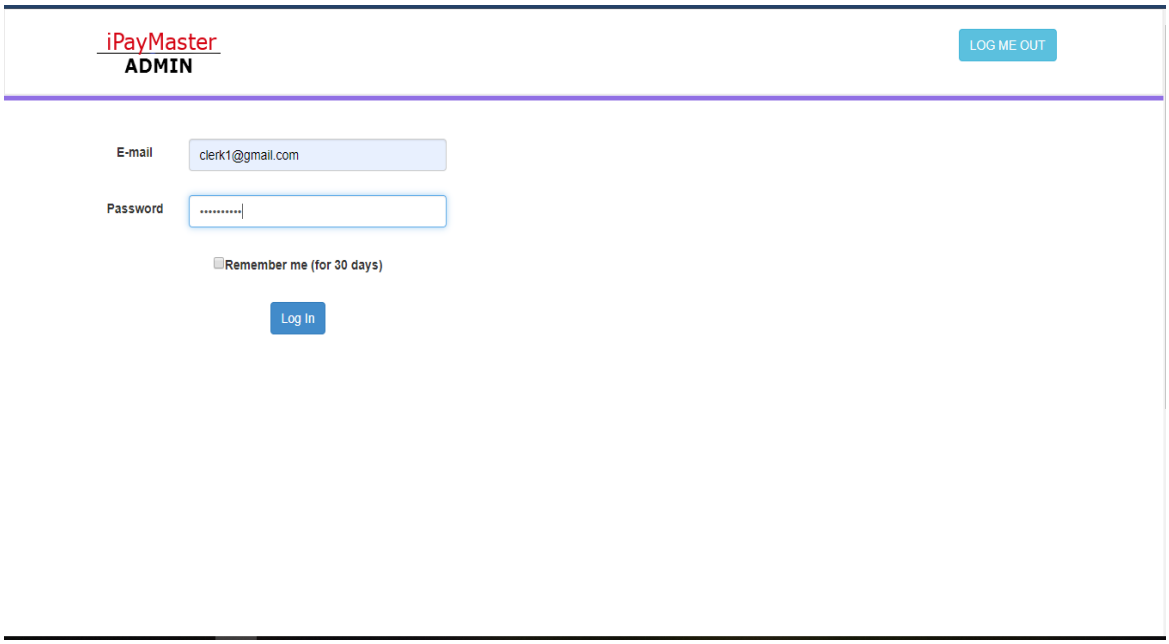
Programmers are invariably related to one another and interact in a total system. Here a set of related programs are integrated and tested. It is also known as integration testing. This include the function like turnaround time testing and backup testing. These functions have been checked and satisfactory results have been obtained.

6. SECURITY AND MAINTENANCE

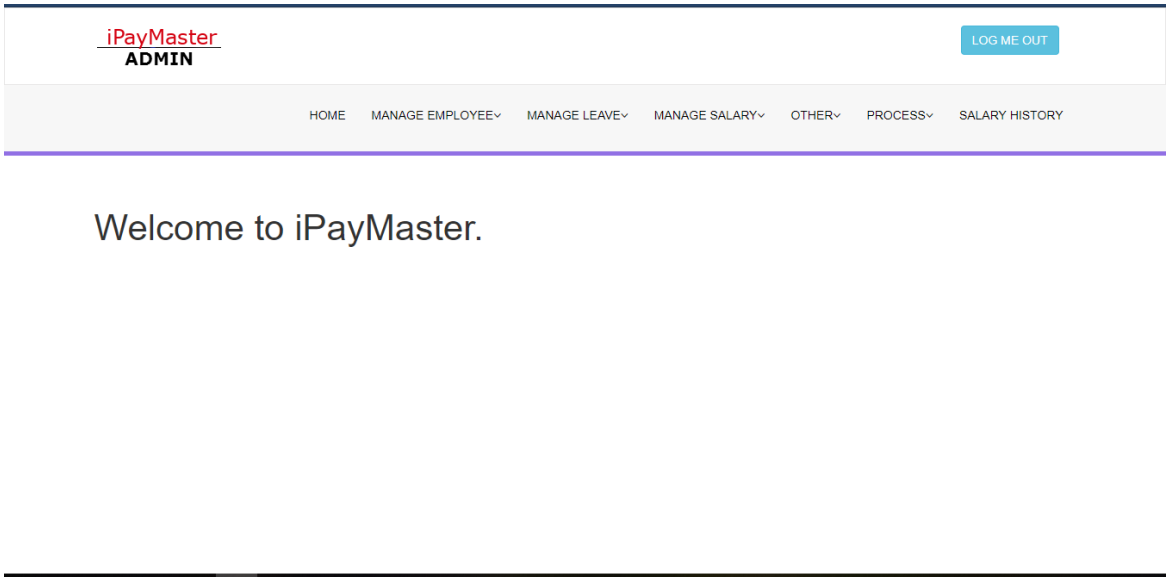
The last part of the system development lifecycle is system maintenance, which is actually the implementation of the post implementation review plan. When systems are installed, they are generally used for long periods. The average life of a system is 4-6 years, with oldest application often in use for over ten years. However, this period of use brings with it the need to continually maintain the system. Programmers/analyst Spend sufficient time for maintaining programs. The maintenance can be classified as corrective, adaptation. Corrective maintenance means repairing processing or Performance failures or making alterations because of ill-defined problems. Maintenance covers a wide range of activities including correcting coding and design errors updating documentation and test data and upgrading user support. Many activities classified as maintenance actually fall enhancements.

7. INPUT OUTPUT SCREEN LAYOUT

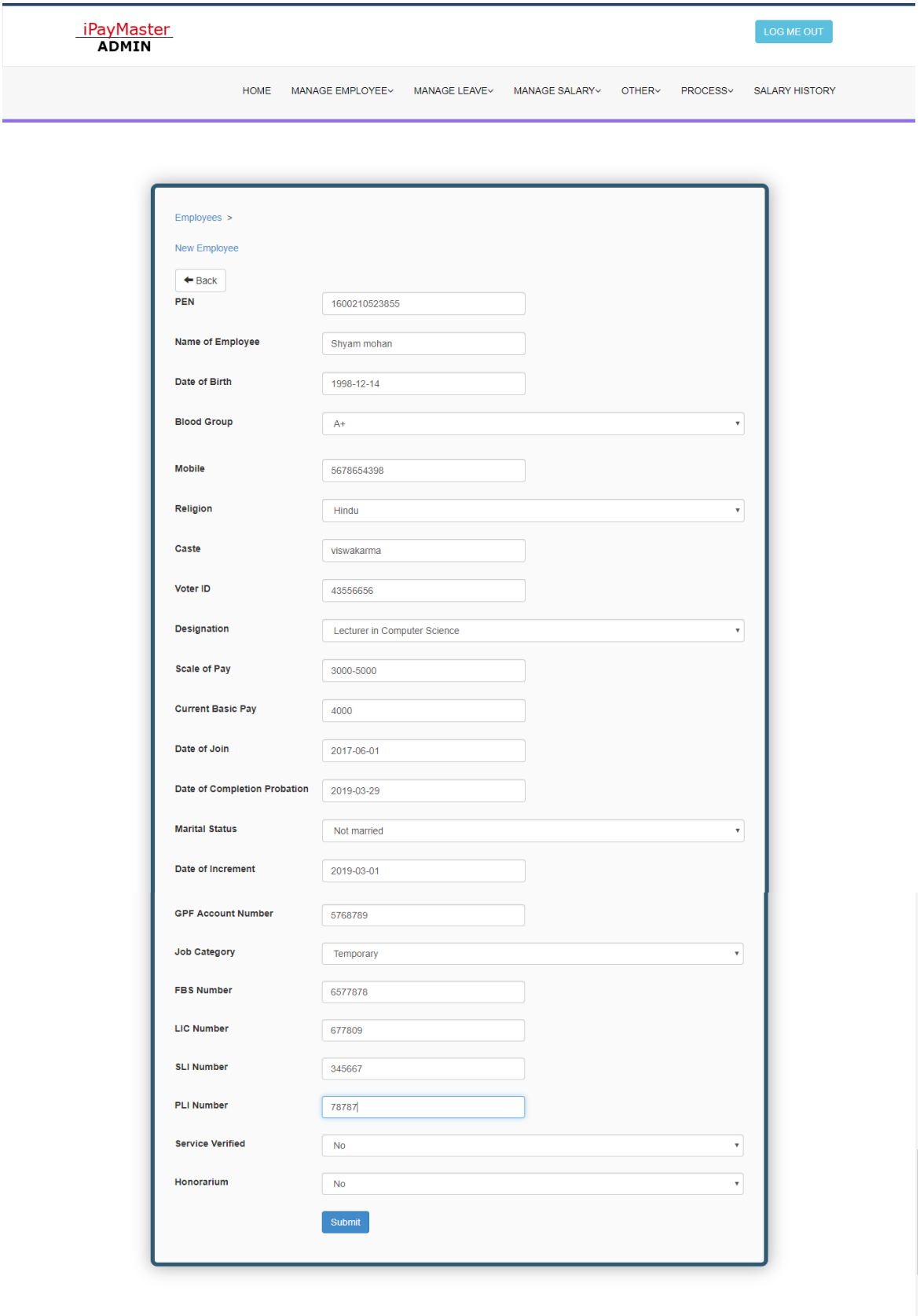
Clerk Login page



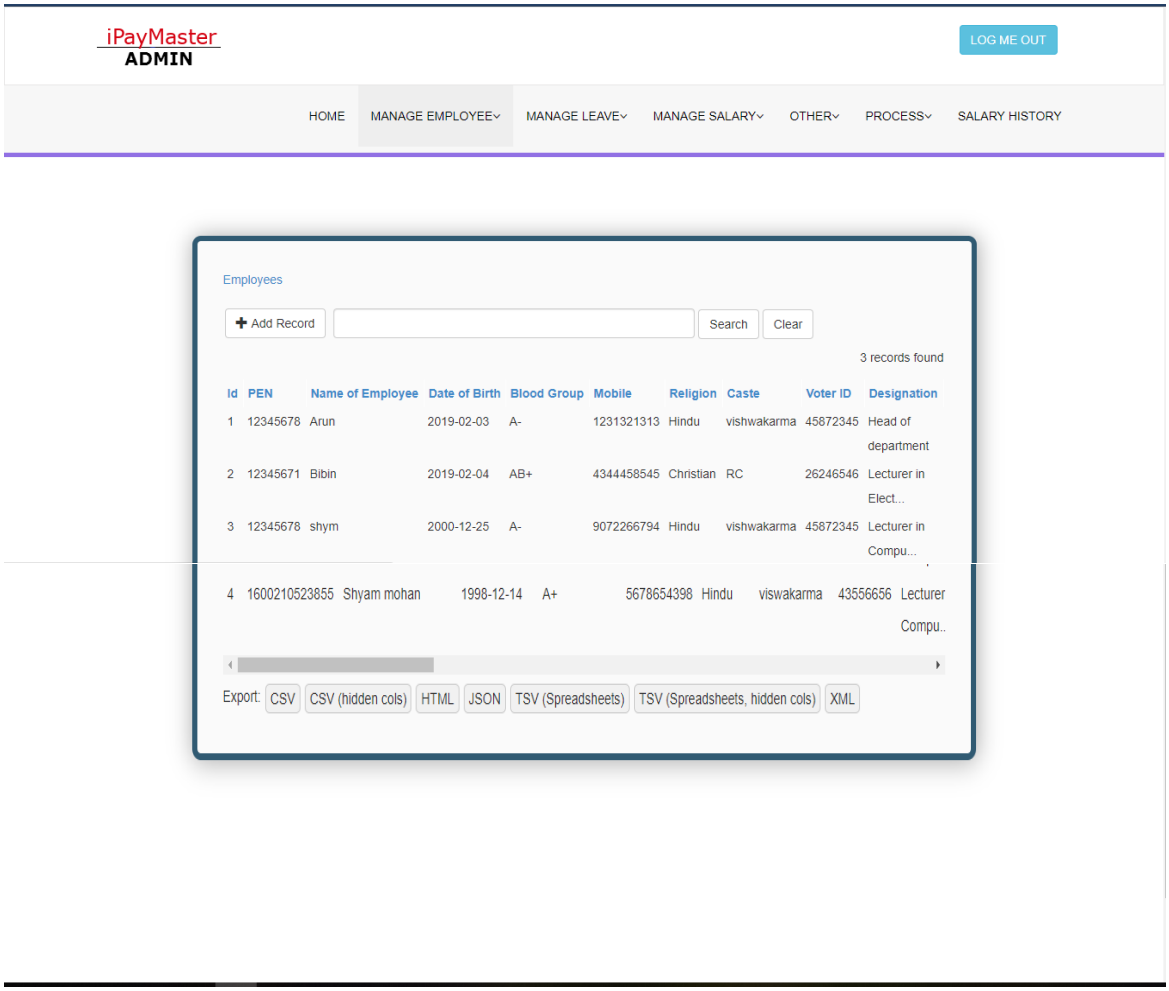
Clerk Home Page



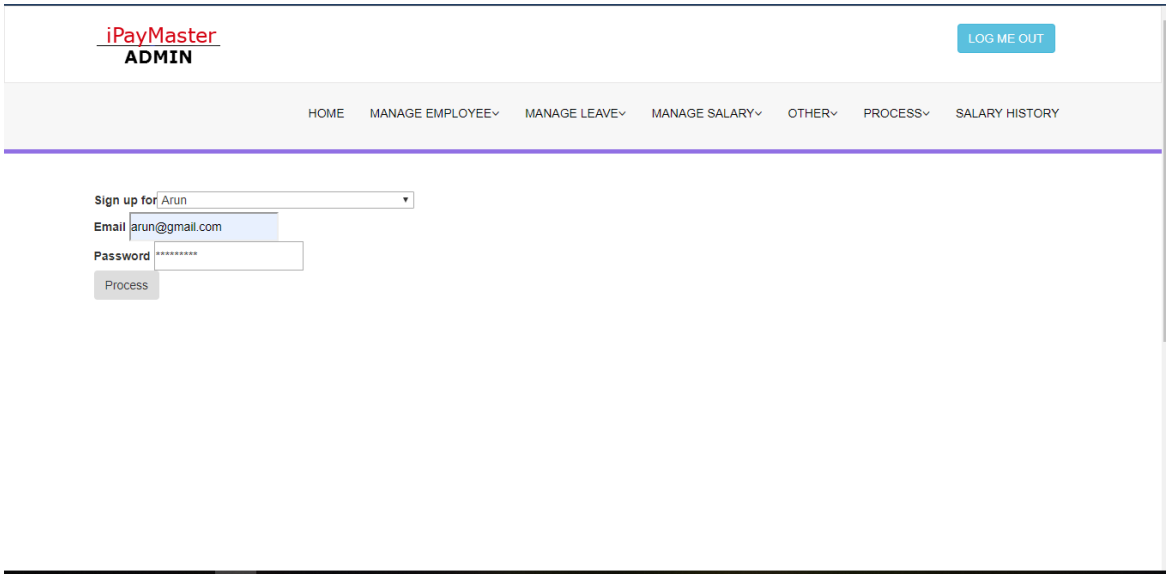
Employee Registration page



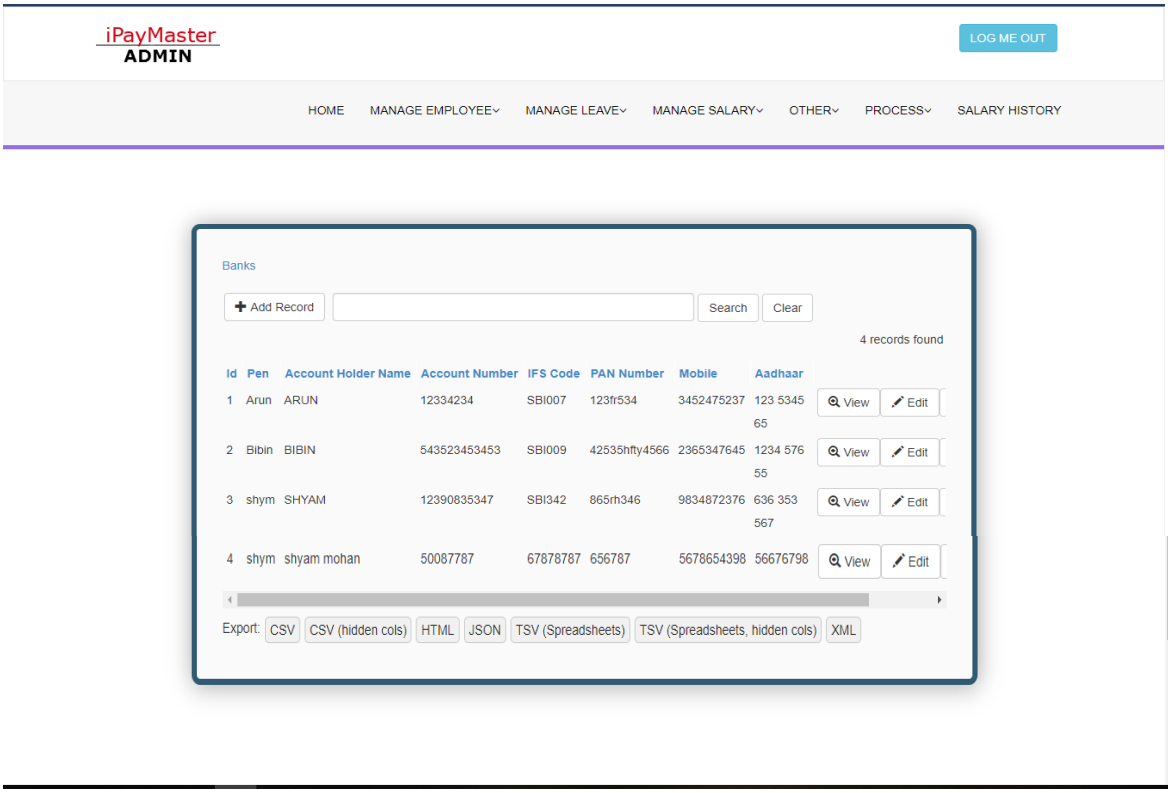
Employee Management page



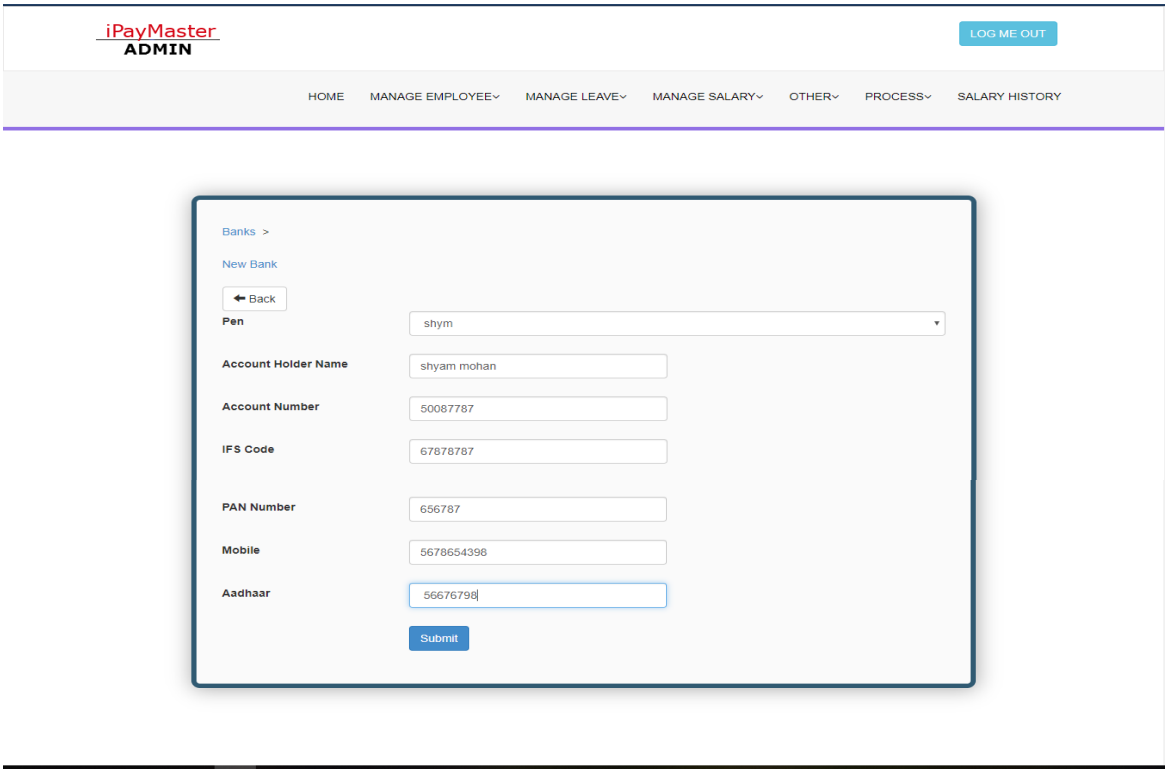
Signup Page



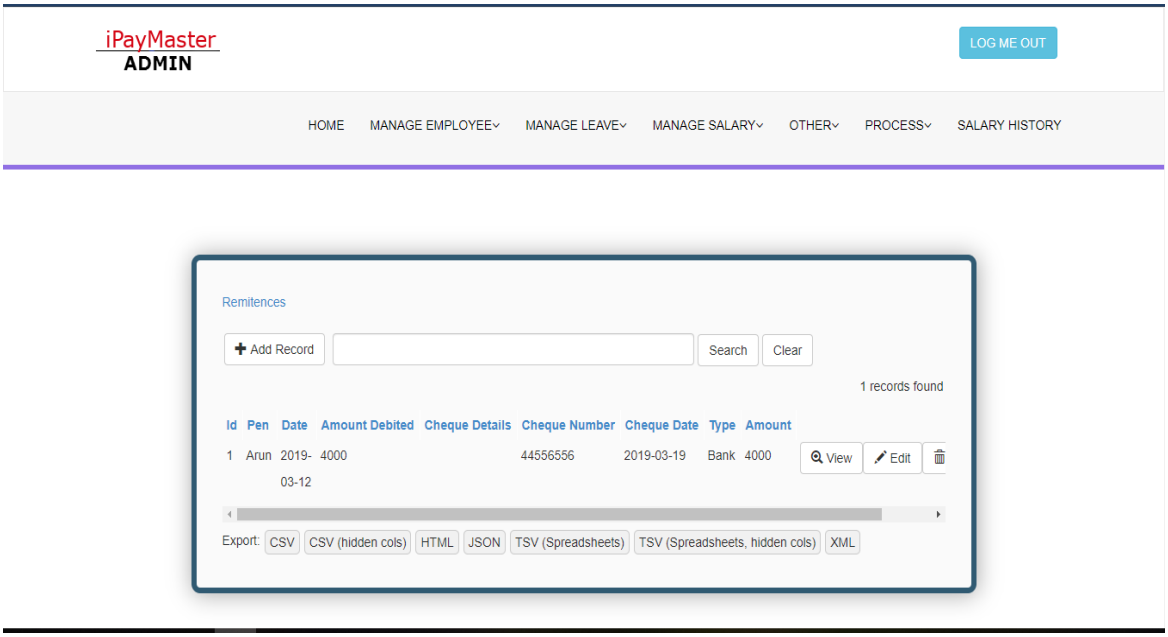
Bank details management page



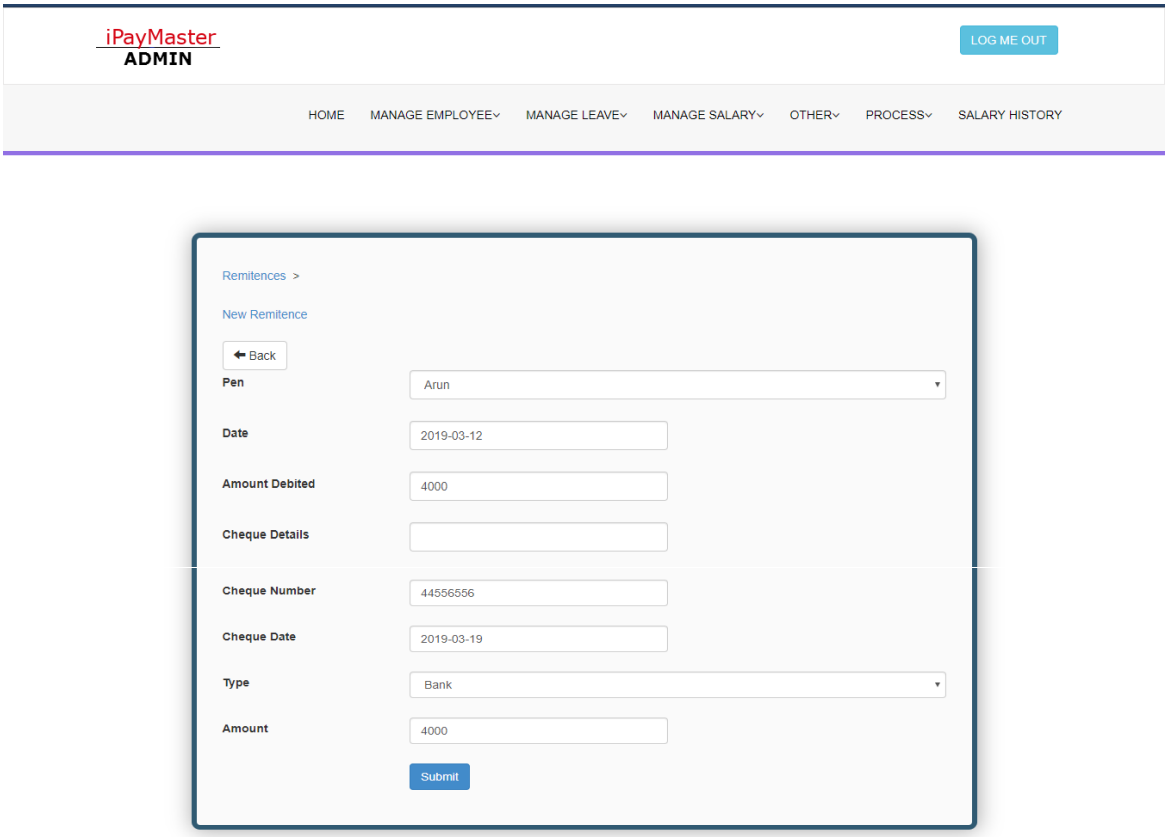
Bank details entering page



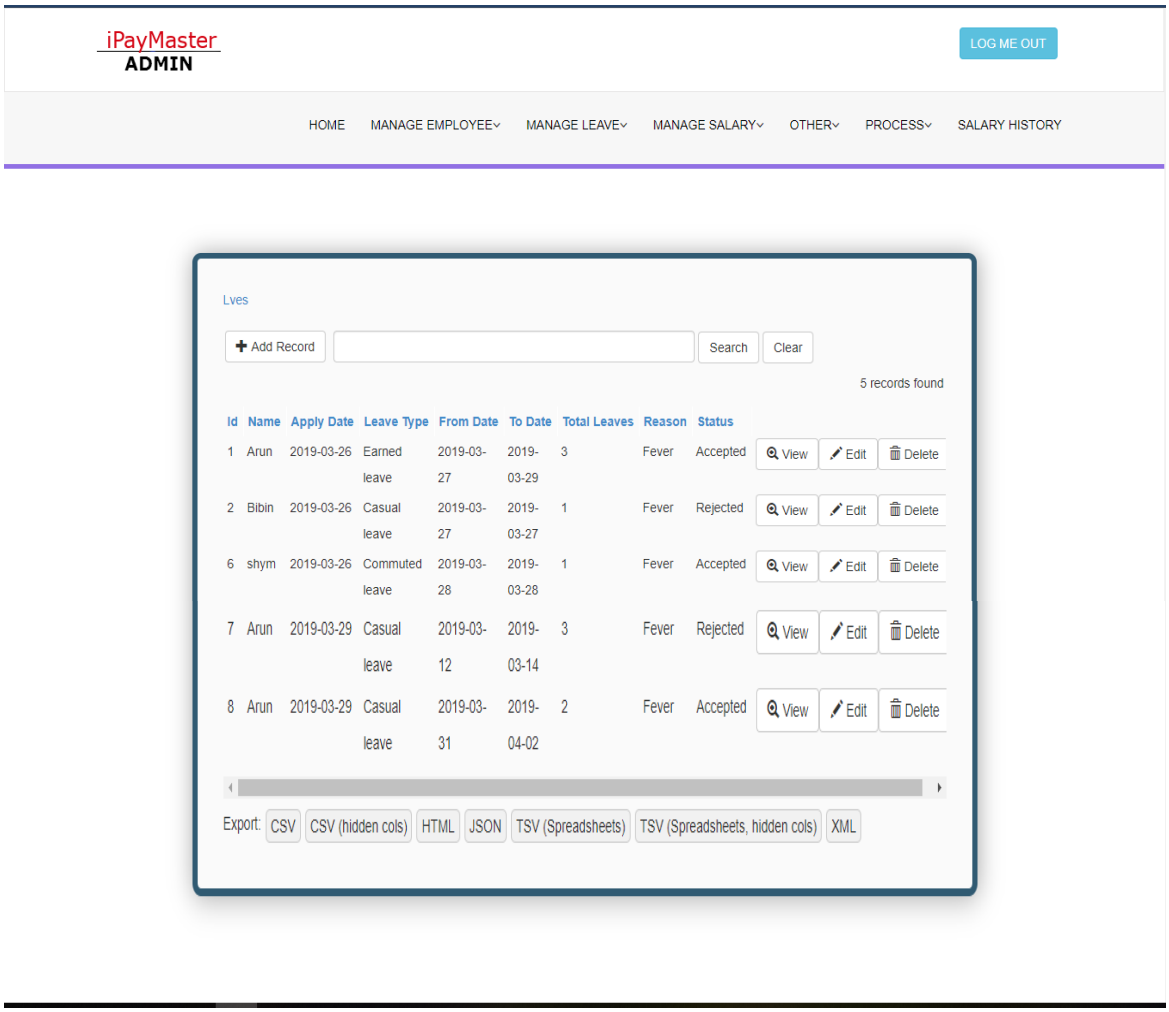
Remittance management page



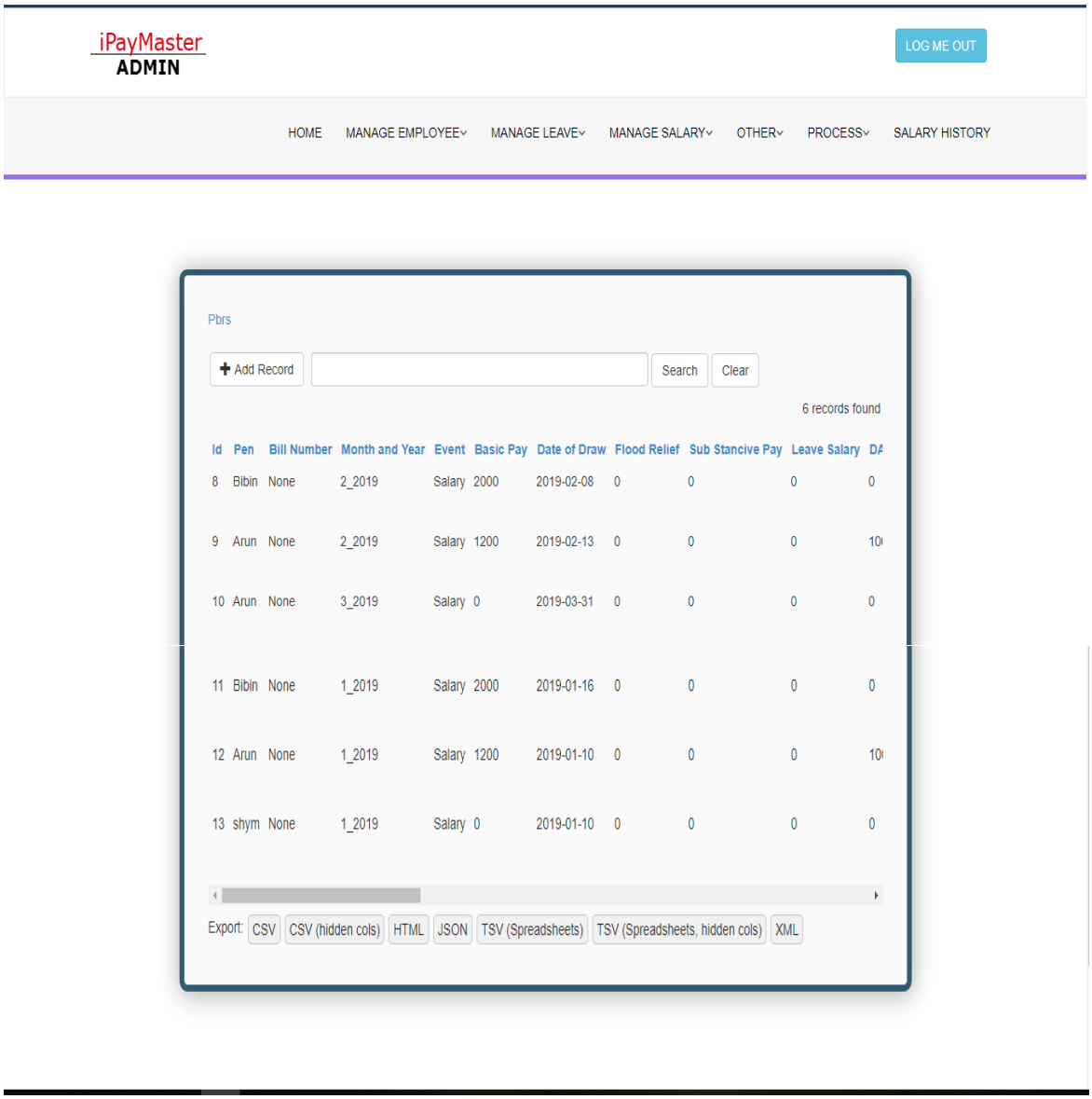
Remittance entering page



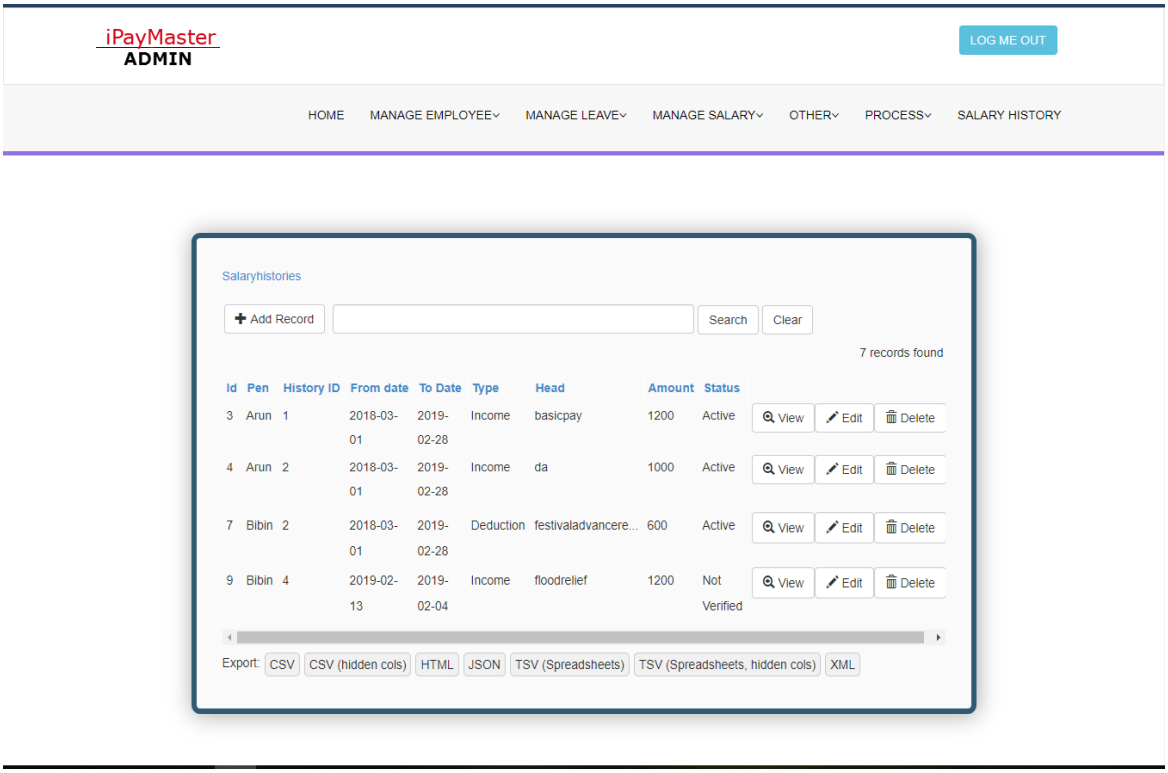
Leave management form



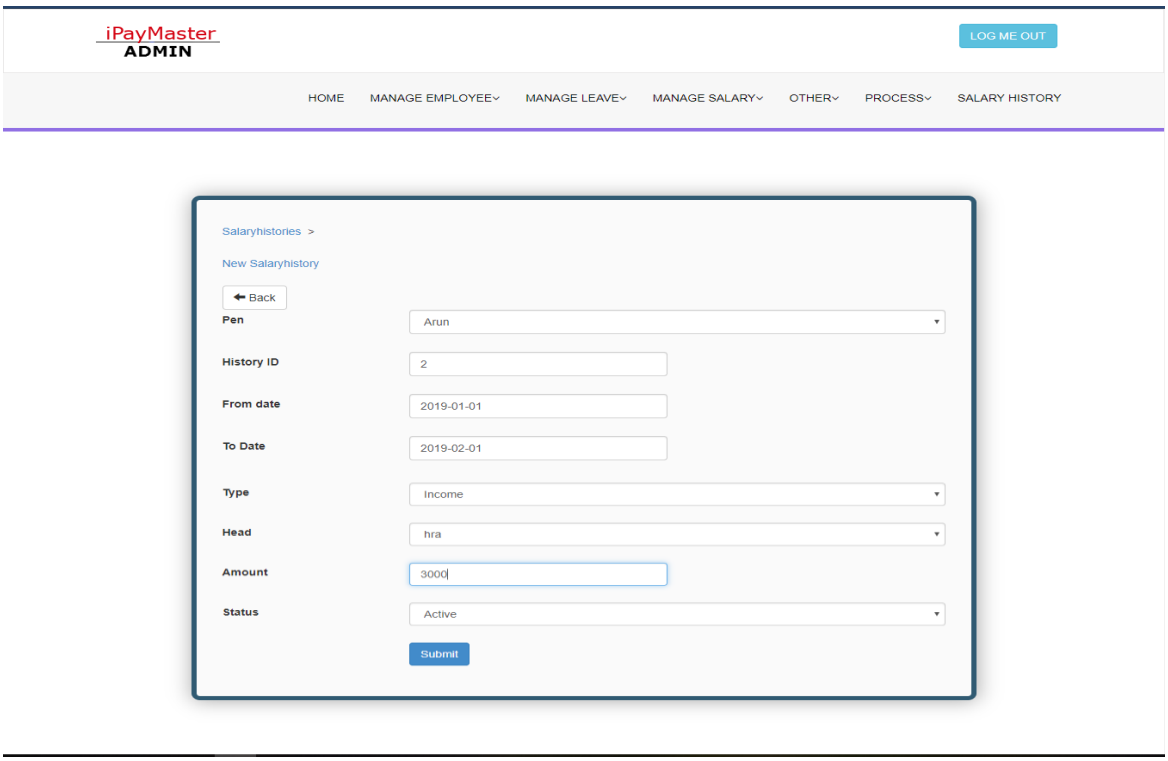
Pay bill register page



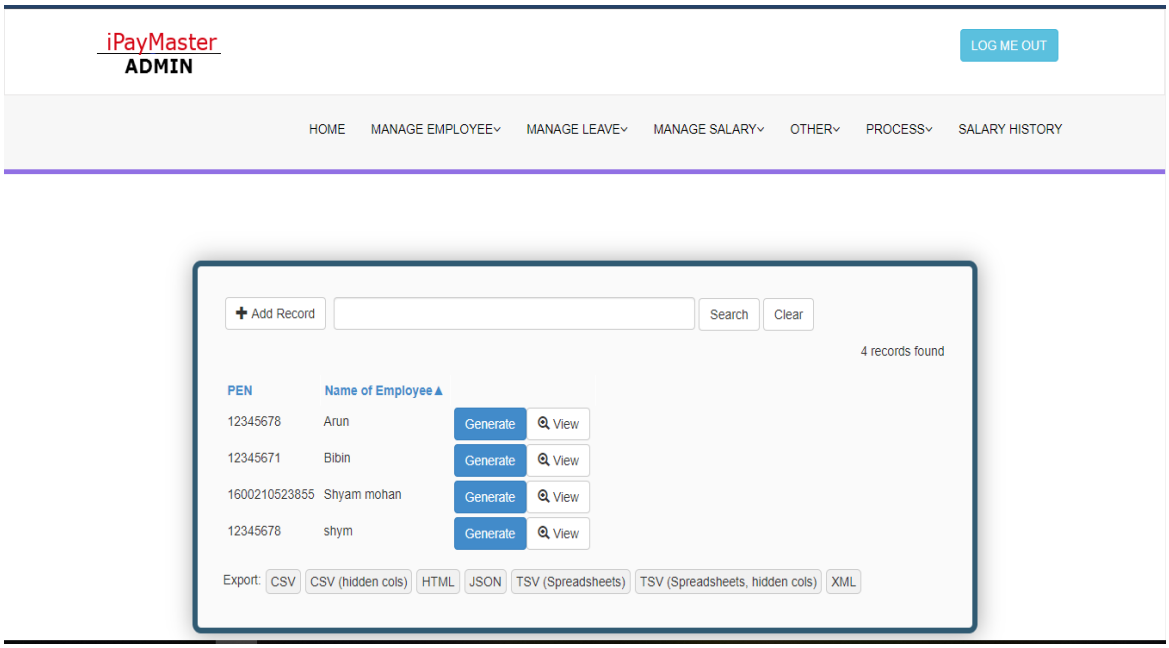
Salary history Management page



Salary entering page



Bill generation page



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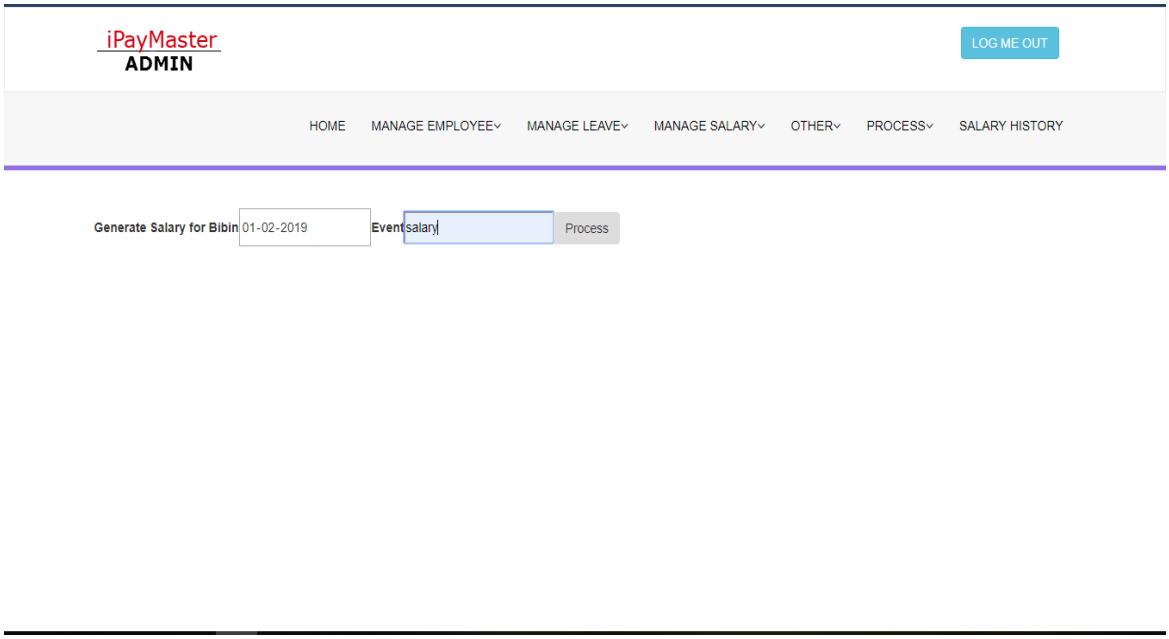
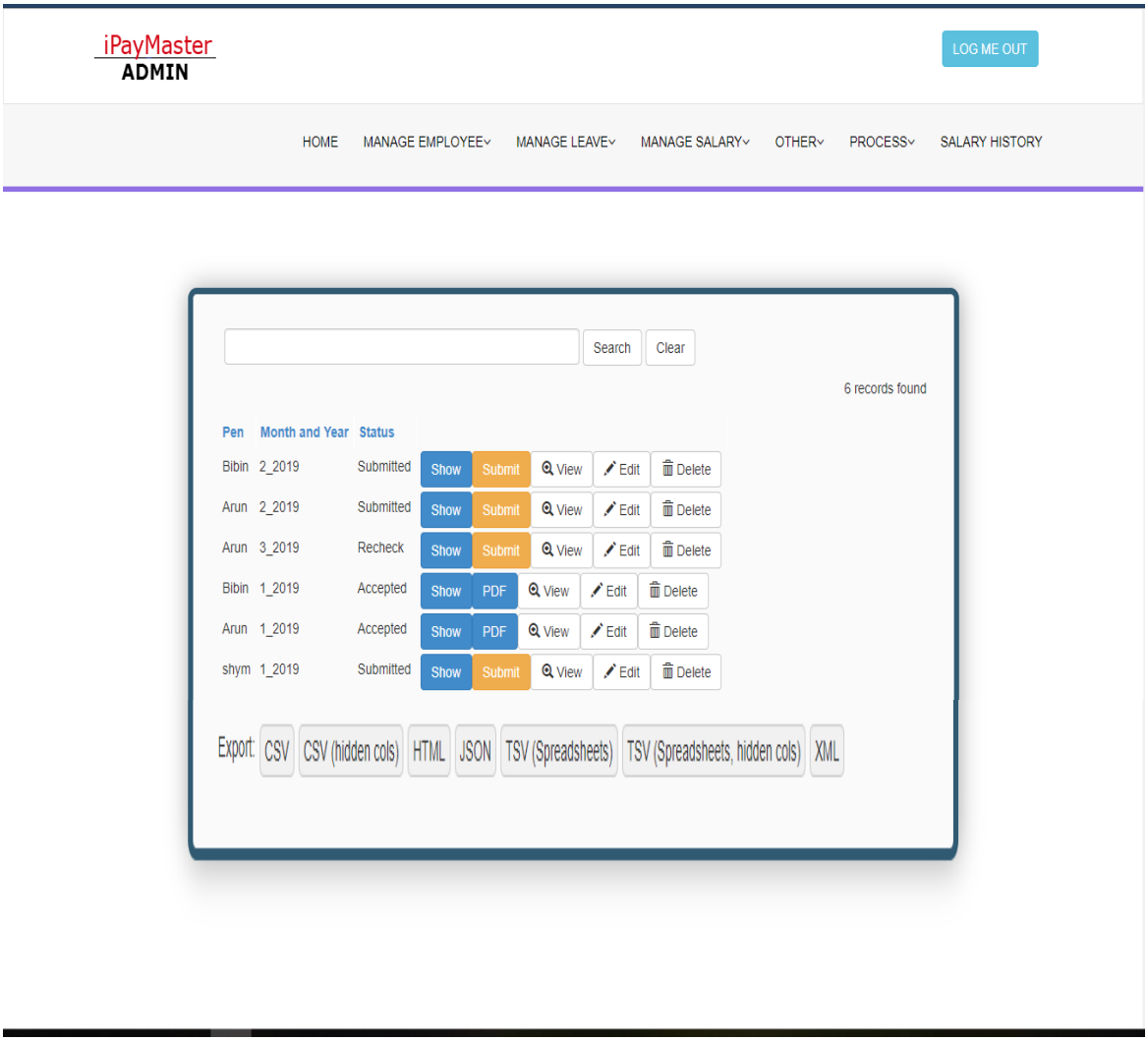
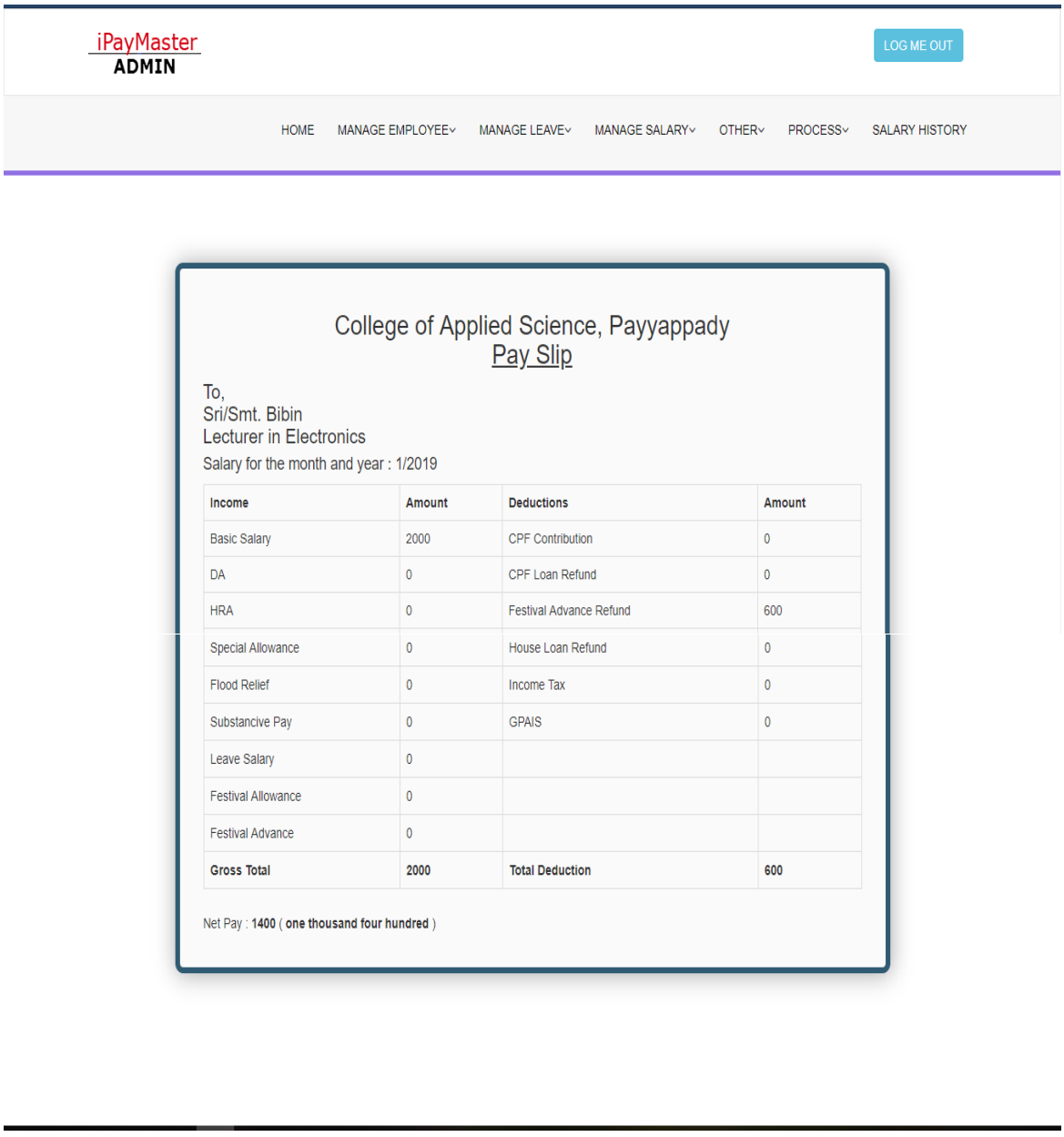


Bill history page



Pay Bill slip page



Salary slip (PDF) page

CAS Payyappady PaySlip

To,

Sri/Smt. Bibin

Lecturer in Electronics

Payslip for the month and year 1/2019

Income	Amount	Deduction	Amount
Basic Salary	2000	CPF Contribution	0
DA	0	CPF Loan Refund	0
HRA	0	Festival Advance Refund	600
Special Allowance	0	House Loan Refund	0
Flood Relief	0	Income Tax	0
Substancive Pay	0	GPAIS	0
Leave Salary	0		
Festival Allowance	0		
Festival Advance	0		

Gross Total 2000 Total Deduction 600

Net Pay : 1400

Rs. one thousand four hundred Only

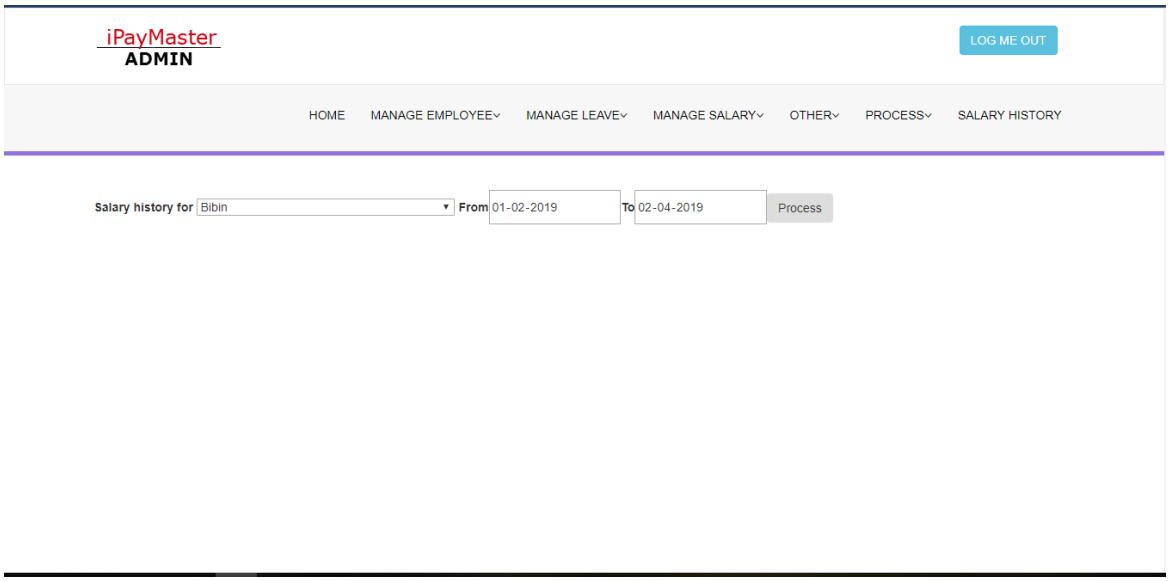
Account Details

Transfered to Account number :543523453453
IFSC code :SBI009

PRINCIPAL CASHIER

Page 1 of 1

Salary history page



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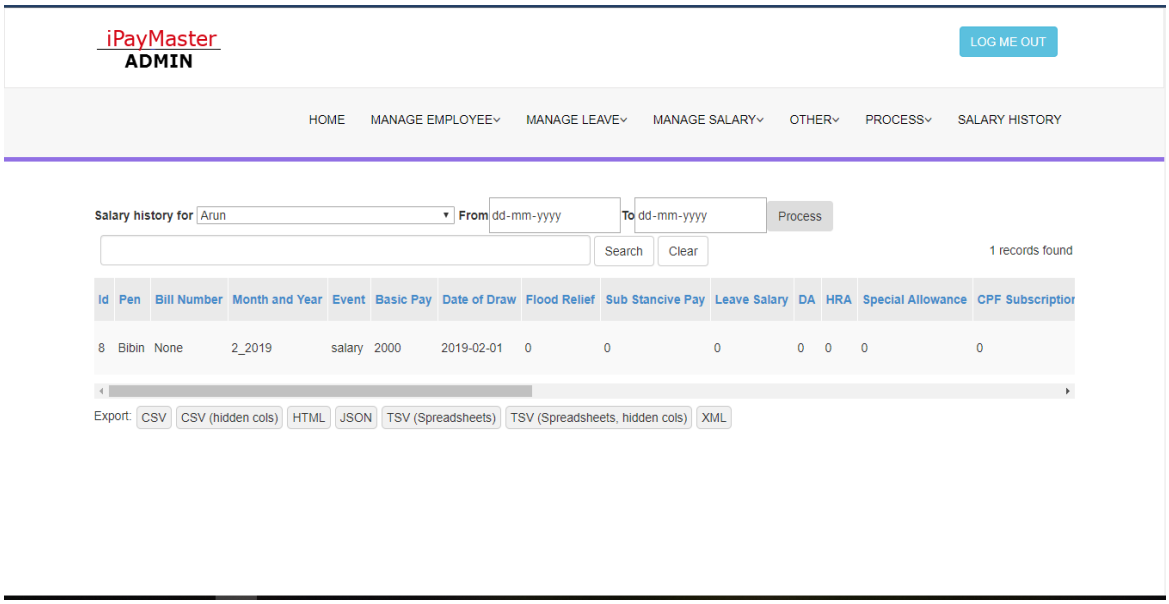

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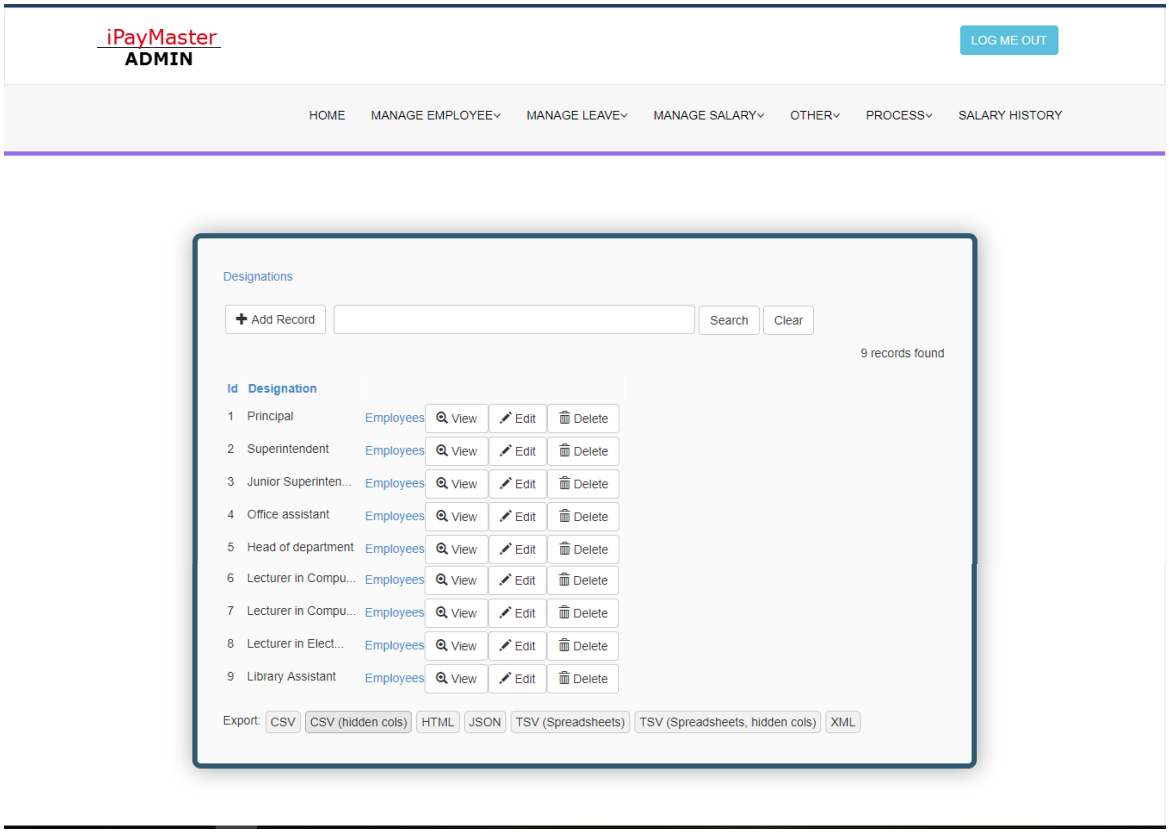
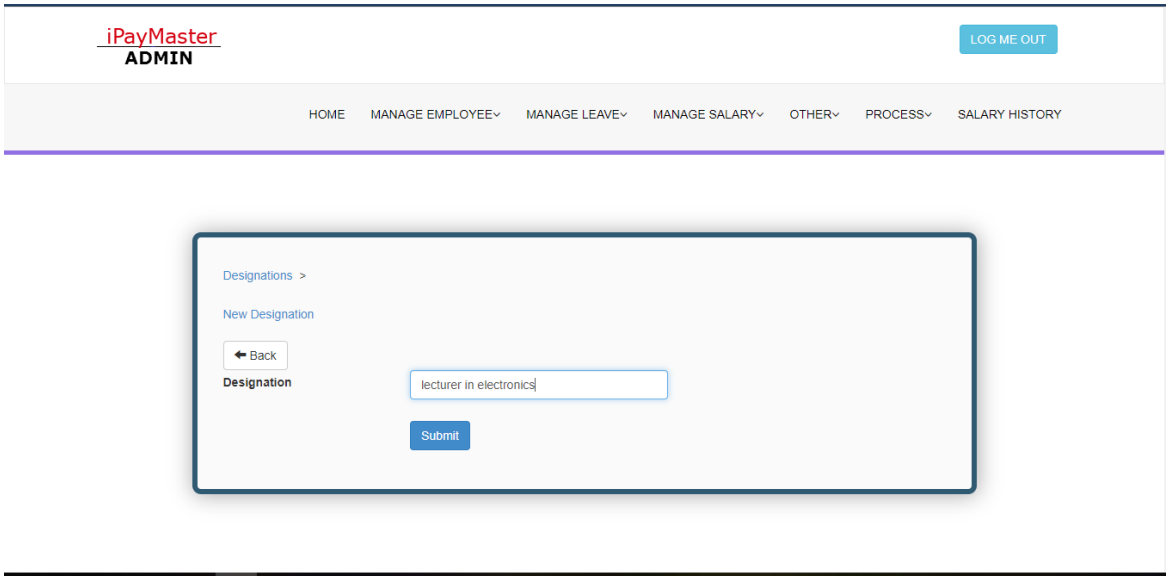
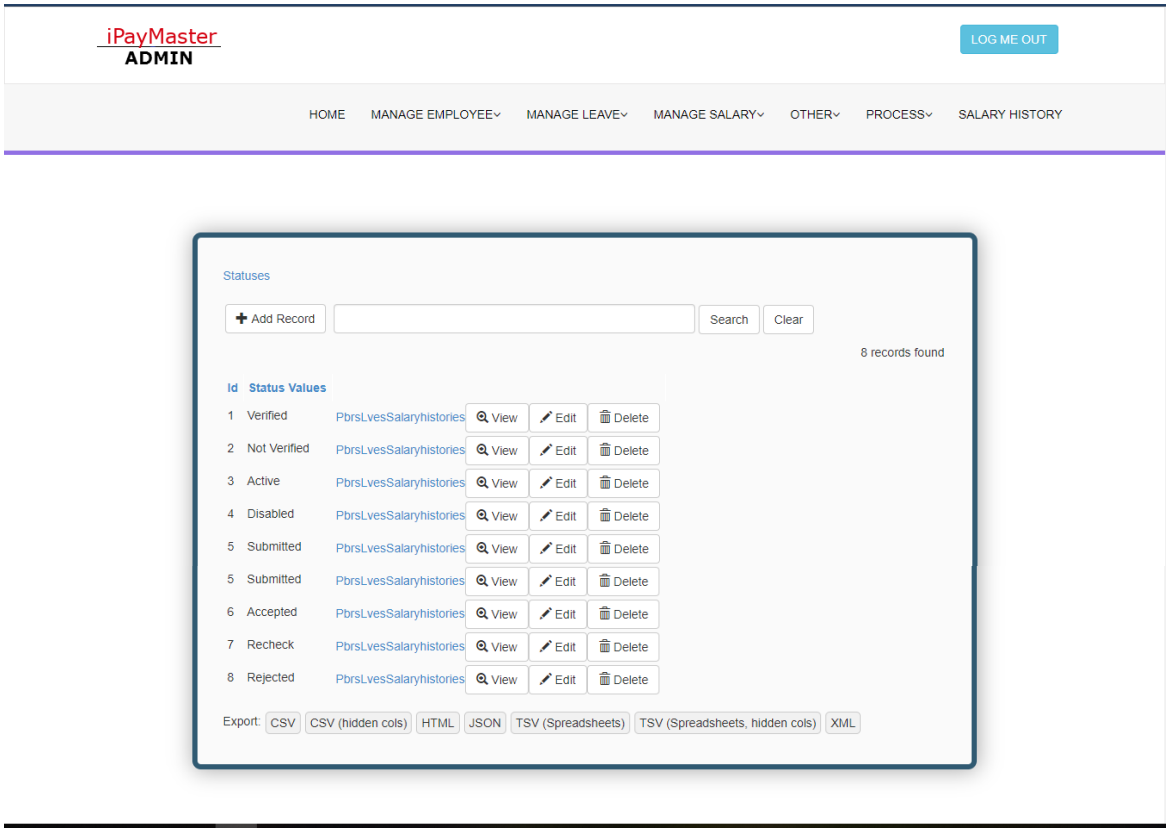


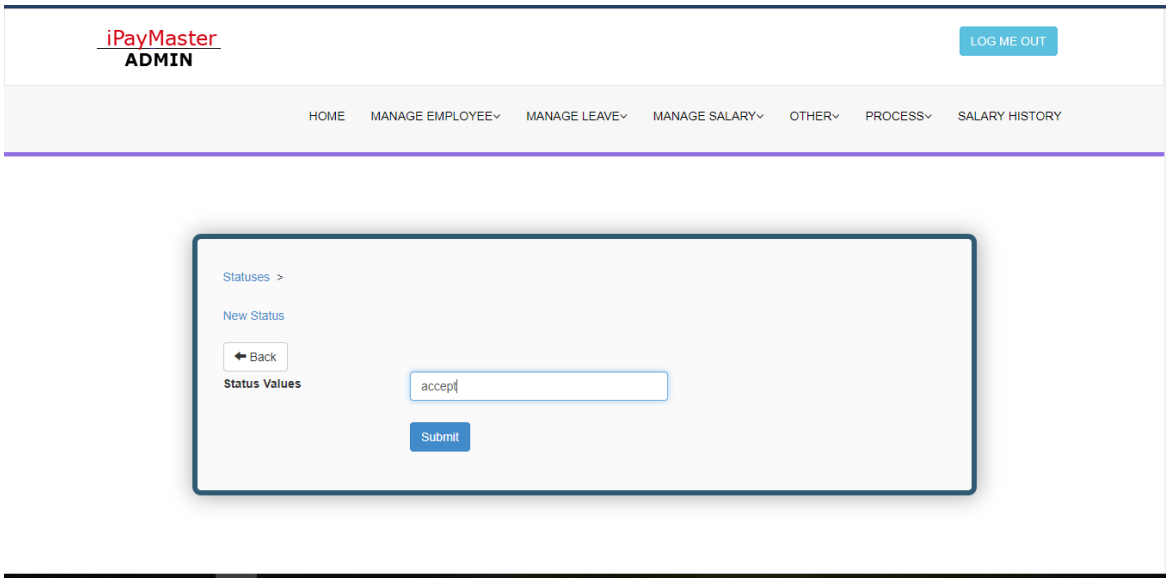
Designation adding page



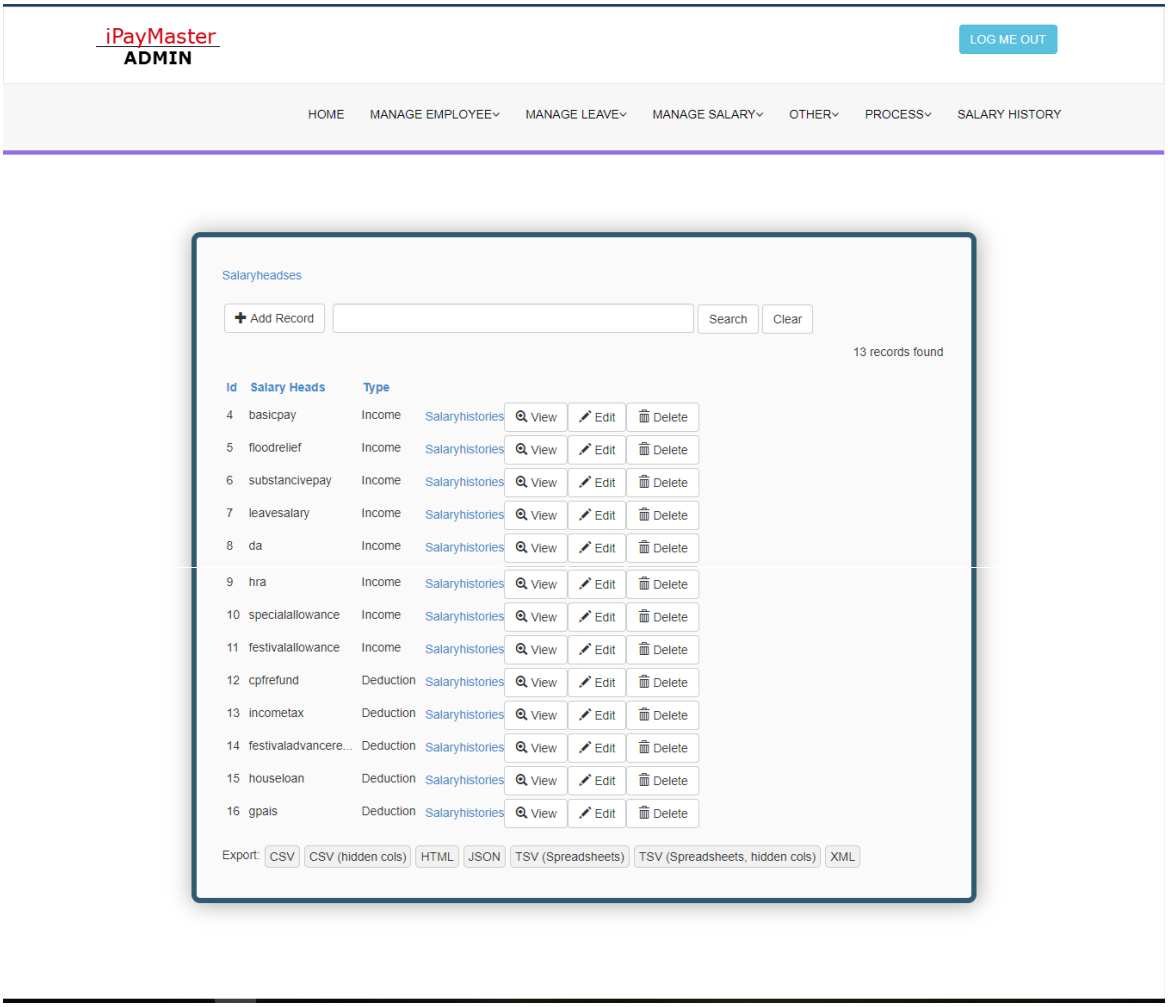
Status management page



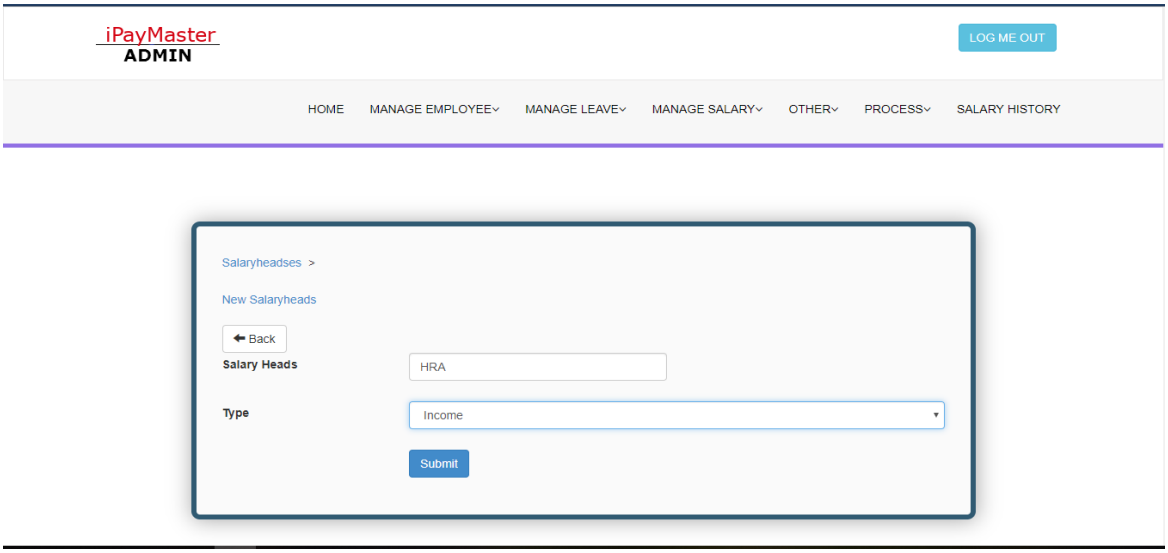
Status adding page



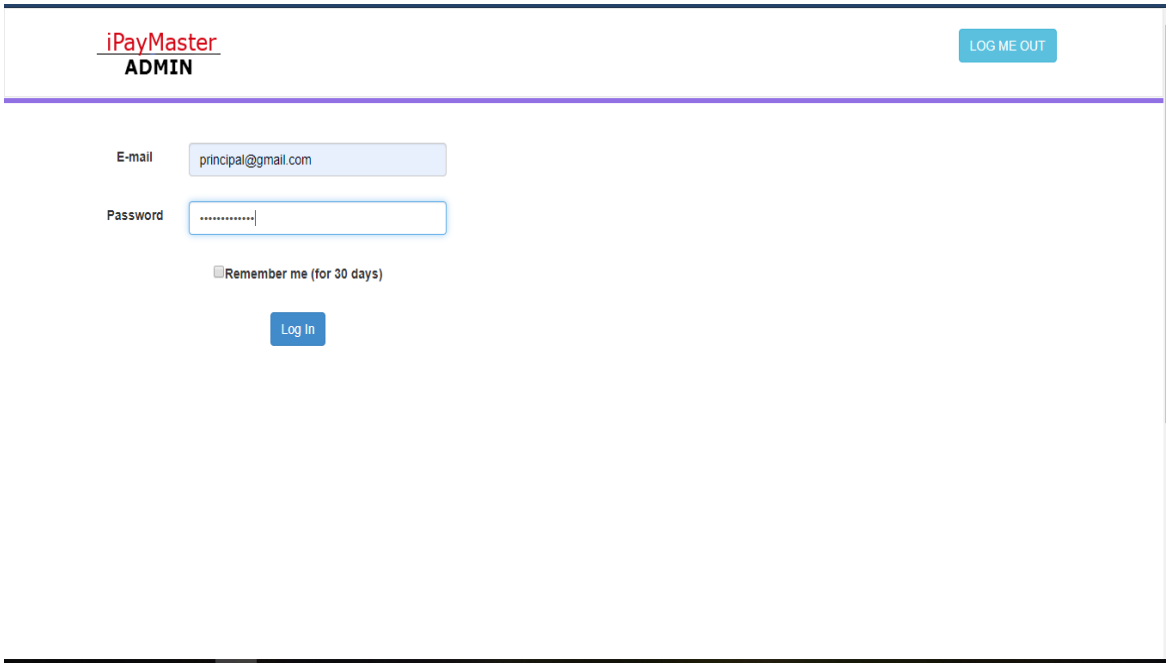
Salary heads management page



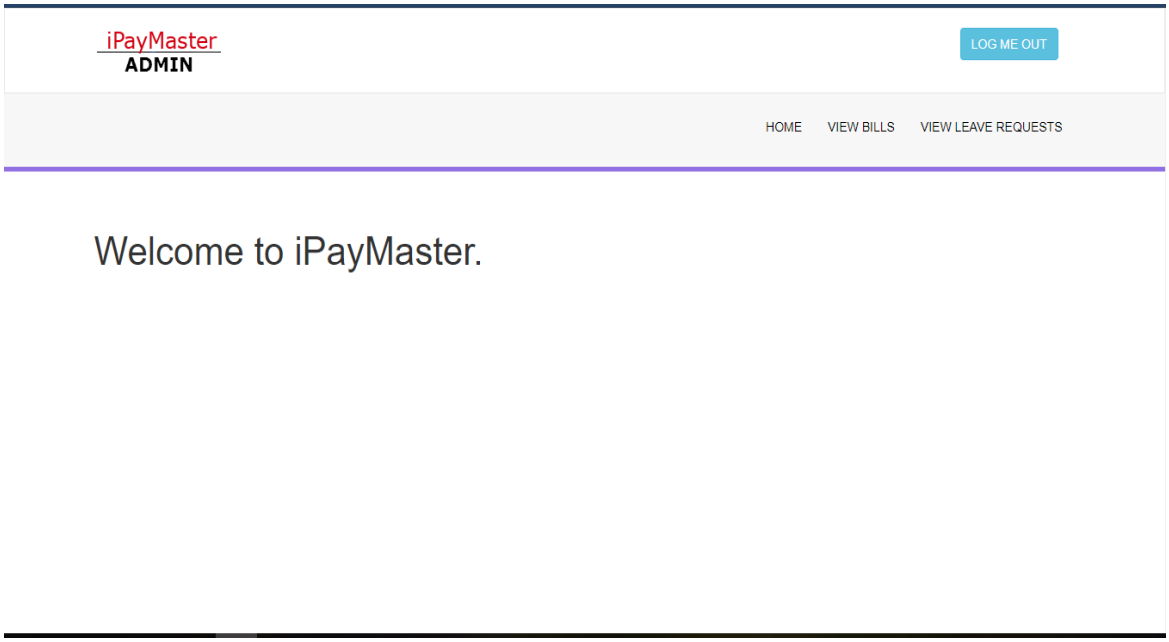
Salary heads adding page



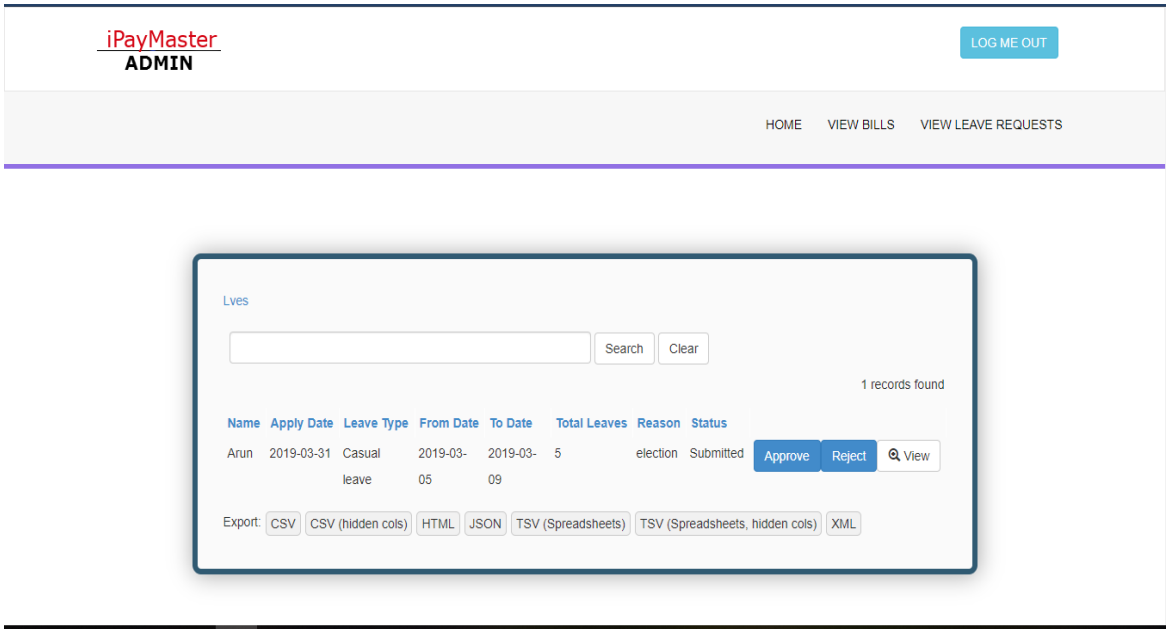
Principal Login page



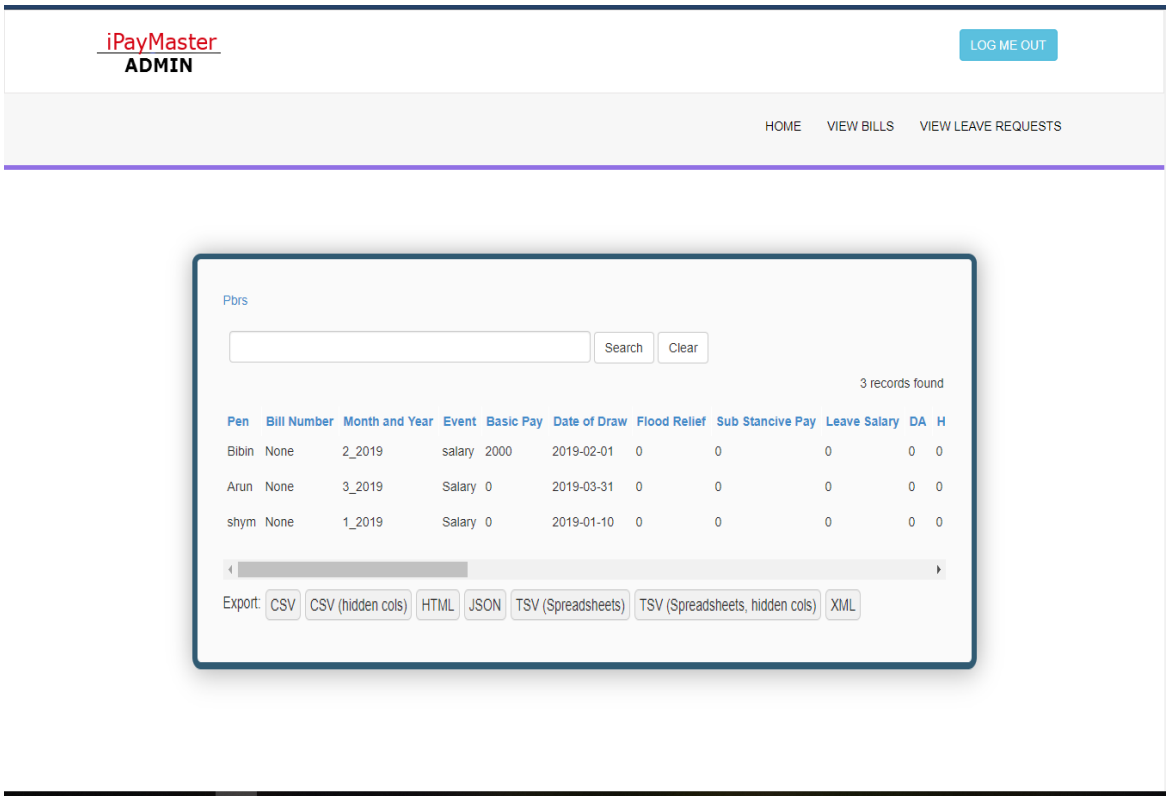
Principal Home Page



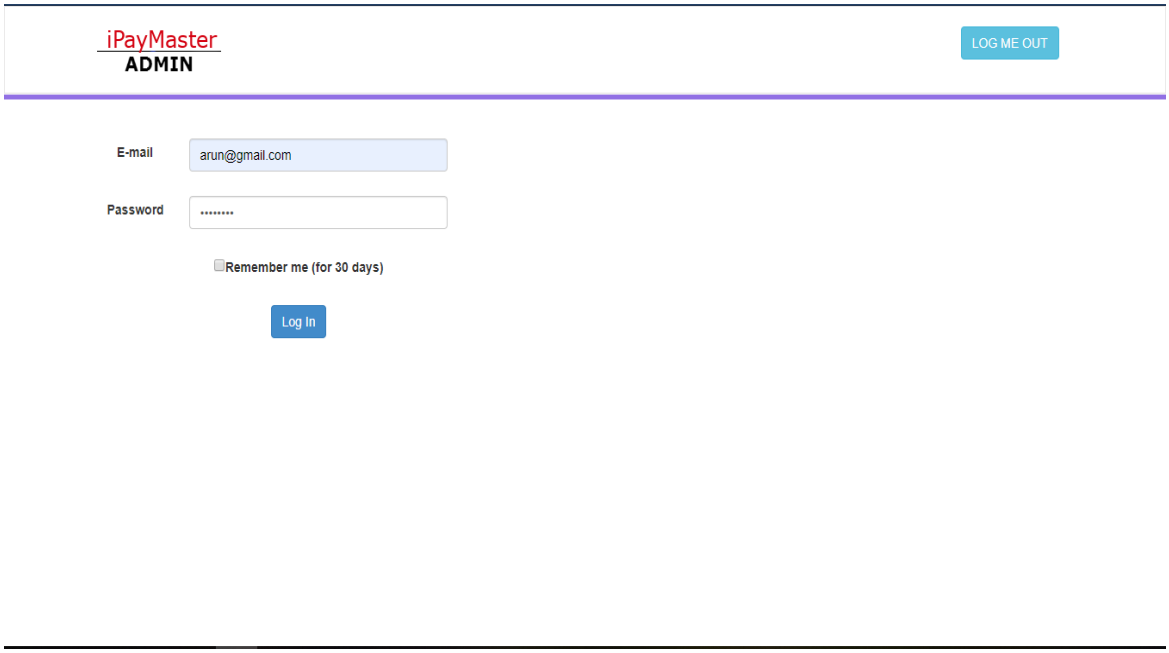
Leave Request Varification page



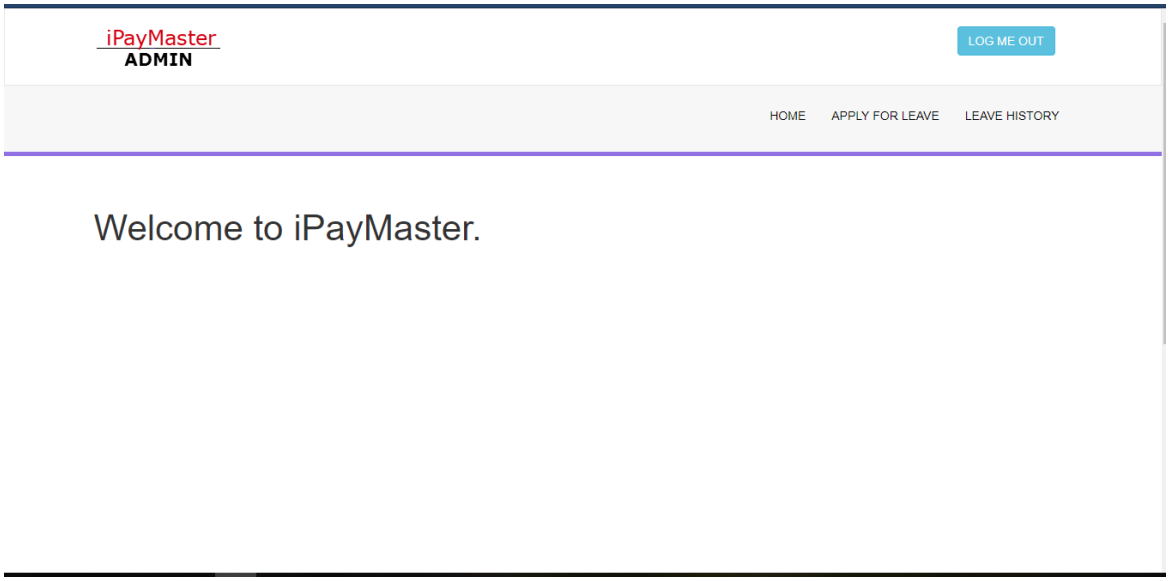
Pay Bill varification page



Employee Login page



Employee Home page



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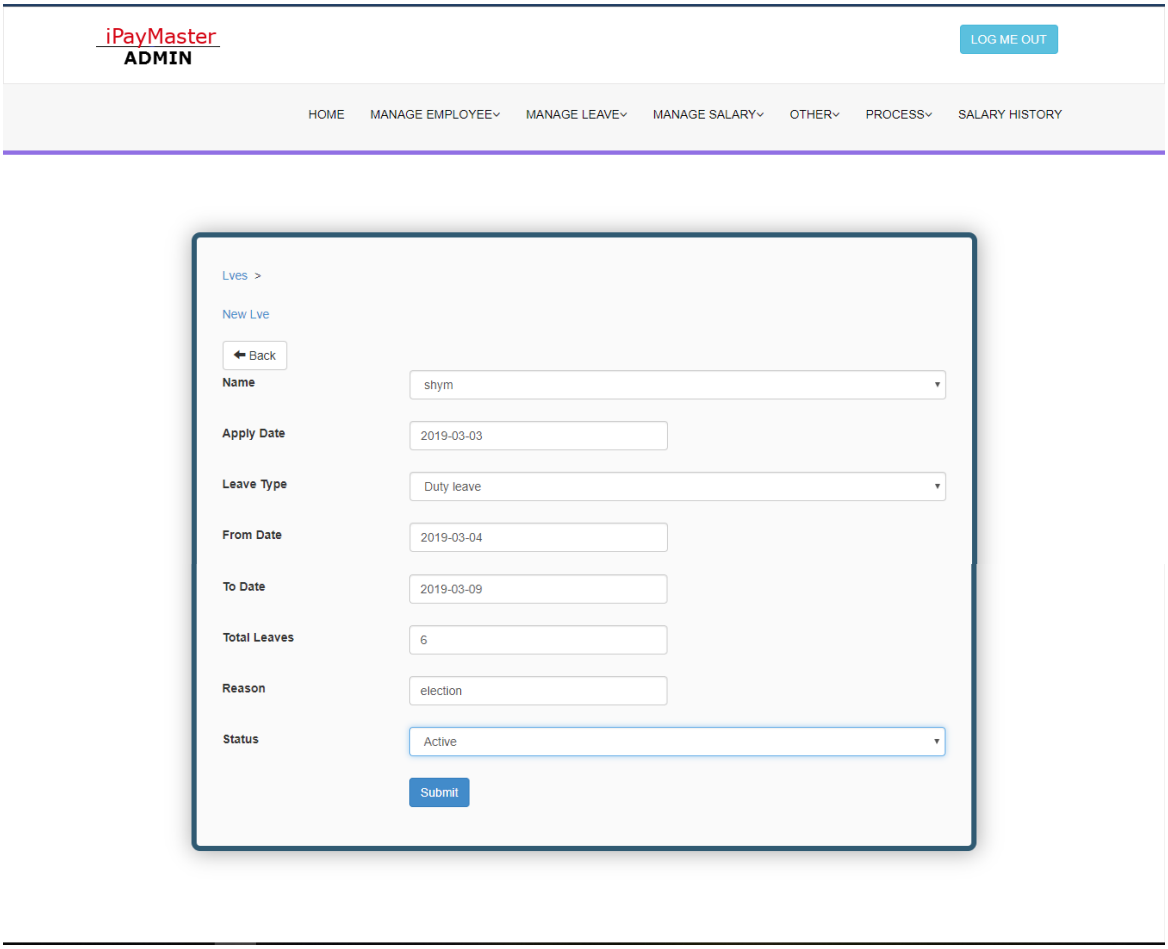

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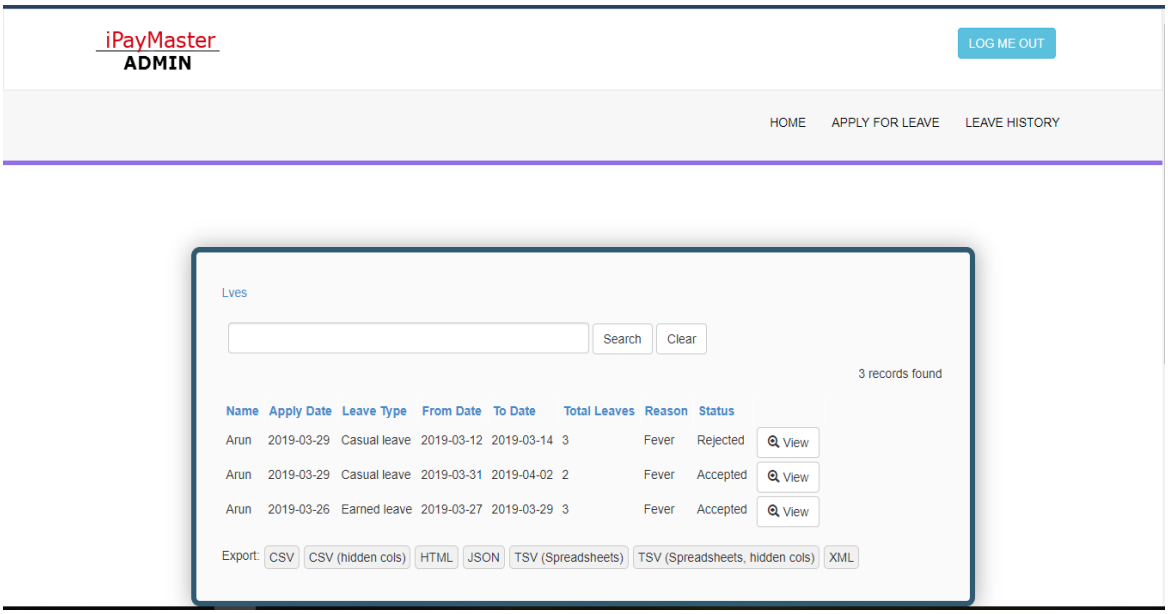

8. CONCLUSION

The objective of this research was to design and development a user friendly 'Payroll Management System'. It is also any other organization who are keen to utilize this kind of software. It can be operated very easily. There is no need to recruit extra dedicated person or equipment to handle this application. It provides very high level user friendly function with high level of security. Though we already added maximum features to this application, we are willing to make the application more flexible and professional.

8.1 Future Scope

- We can give more advance software for payroll management system including more facilities.
- Integrate multiple load balances to describe the load of the system
- Create the master and slave database structure to reduce the overload of the database queries.
- Implement the backup mechanism for taking backup of codebase and database on regular basis on different servers.

The above mentioned points are the enhancements which can be done to increase the applicability and usage of this project. Here we can maintain the record of payroll and employee. Also, as it can be seen that now a days the players are versatile, i.e. so there is a scope for introducing a method to maintain the payroll management. Enhancement can be done to maintain all the payroll, Employee, salary and working point.

We have left all the options open so that if there is any other future requirement in the system by the user for the enhancement of the system then it is possible to implement them. We hope that the project will serve its purpose for which it is develop there by underlining success of process.

REFFERENCES

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