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Payroll Management System

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Payroll Management System

By

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Summer, 2022

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Independent University, Bangladesh

Date: 14/09/2022

Dissertation submitted in partial fulfillment for the degree of Bachelor of Science in Computer Science

Department of Computer Science & Engineering

Independent University, Bangladesh

Attestation

This is to authenticate that I, **Samsun Nahar** have completed the report titled "**Payroll Management System**" and submitted it in partial fulfillment of the requirement for the Degree of Computer Science and Engineering from Independent University, Bangladesh. It has been completed under the guidance of my university supervisor Sabrina Alam and company supervisor Maruf Rahman who is the senior software engineer at Norban Comptex Ltd. This work has not been submitted as a project to this university previously, neither has it been submitted to any other institution. All the sources of information used in this Project Report has been properly acknowledged in it.

Samsunnahar	14/09/2022
Signature	Date

Samsun Nahar

Name

Acknowledgement

First and foremost, I would like to express my heartfelt appreciation to Almighty Allah, who provided me with the drive and strength to work hard during my internship because of His mercy and grace.

I would like to thank the company's CEO for giving me the opportunity to work for Norban Comptex Ltd as an Intern and also I want to show my deepest gratitude to **Maruf Rahman** sir, my external supervisor at Norban Comptex Ltd who gave me guidance, advice and motivation to work hard; for which I will be forever grateful. My internship at NCL gave me the opportunity to work with the software engineers there who trusted me with them to work in such a big project and initially guided me towards how the company deals with others company and the type of engineering knowledge required in this field. To prepare this report and other documentation regarding Internship Report and else I would show appreciation to all the members of Norban Comptex Ltd, who always advised me and helped me through hands and pens. Moreover, I must mention the wonderful working environment and group commitment of this organization that has enabled me to deal with a lot of things.

Last but not the least, I would like to thank my parents, other family members and friends for their constant support and encouragement.

Samsun Nahar
Date
Dhaka, Bangladesh

Letter of Transmittal

September 1,
2022

Sabrina Alam
Lecturer
School of Computer Science and Engineering
Independent University Bangladesh
Subject: Submission of Internship Report

Dear miss,
It is with a great pleasure that I am presenting the internship report on the project ”Payroll Management System” on Norban Comptex Ltd. I was involved in this project for the completion of my bachelor’s Computer Science and Engineering Degree. I am happy to inform you that I have successfully completed my internship for 12 weeks at Norban Comptex Ltd under the supervision of **Maruf Rahman** who is the senior software engineer at Norban Comptex Ltd. This internship has given me both academic and practical exposures. The internship has given me the opportunity to develop a network with the corporate environment. I tried to make this report as much informative as possible with the experience I have gained during my internship period. In order to prepare a well-organized internship report, I have followed the guidelines and described the required fields with sufficient details. I, however, sincerely believe that this report will serve the purpose of my internship program.

I am hoping that this report will be interesting, unique and informative. I also hope that this meets your expectations. I have tried my best to avoid my mistakes and deficiencies and hope that this report will satisfy you. I would like to end by thanking you again for helping me and giving me the chance to submit this report to you.

Sincerely,
Name: Samsun Nahar
ID: 1520740

Evaluation Committee

Sabrina Alam

.....

Signature

SABRINA ALAM

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Name

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Supervisor

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Signature

Mohammad Motiur Rahman

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Name

Mohammad Motiur Rahman

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Internal Examiner

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Signature

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Name

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External Examiner

Bijoy Rahman Arif

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Signature

Engr. Golam September 25, 2022

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Name

.....

Convener

Dr. Mahady Hasan
Head, Department of CSE
School of Engineering & Computer Science
Independent University, Bangladesh (IUB)

Abstract

Internship is defined as obtaining practical experience from various organizations, which helps in the formation of a connection between theoretical and practical knowledge. It is very important because it is the first time for a student to acquire a keen practical knowledge from the different organizations. When I was offered an internship at Norban Comptex Ltd. I got the chance to work and learn with developer team. The project's goal was to create a framework for Norban Comptex Ltd named "Payroll Management System". This report covers the whole project that I learned about throughout my internship period.

I had to finish my learning sessions before working on any project, and in this learning session, I was allocated to Employee management, add new employee, different interface for different parts and their back-end codes. It was almost like a skill test before the actual project was assigned.

I've detailed the information and experiences I've gained and the work I've done as an intern at Norban Comptex Ltd. In this report. I worked on a website application where the most of my tasks included developing the entire site.

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Chapter 1

Introduction

1.1 Overview/Background of the Work

I started my internship program at Norban Comptex Ltd in Web development. Bangladesh's top supplier of IT solutions is Norban Comptex Ltd.

In this program, Maruf Rahman is my supervisor. He is the senior web developer of Norban Comptex Ltd. He helps me to understand my different work and assigns me work daily. I am getting a whole overview how to handle a project professionally.

After starting our internship as software developing intern, we were assigned a task to develop a Payroll Management application for the internal use of Norban Comptex Ltd. The Payroll Management applications will enable user to manage the employee's salary and working time. Later, were divide into two groups. Our group was assigned to develop the features of the Payroll Management application. Features include designing and developing, landing page, login page, dashboard, view employee, add employee, designing database and backend programming. I was working on dashboard page and employee page, cash advance page, overtime page and position page.

1.2 Objectives

- **User friendly-** The website is user friendly.
- **Create-** It was developed primarily for the staff of Norban Comptex Ltd to manage the employee salary and working time.
- **Design-** Its light weight and attractive than other third-party apps.
- **Considering user value and robust security**

1.3 Scopes

The possibilities after the complete construction of Payroll Management system are given below:

- **User friendly:** Admin can easily sign in into the system.
- **View dashboard:** Admin can easily view the whole system form their dashboard.
- **Light weight:** Its lightweight web site.
- **Simple and attractive:** As its weight light and work very simply so it's simpleand attractive.
- **Security:** It's also safe from outside threats.

1.4 Problem statement

Working on this Project presented me with several hurdles throughout my internship period. These are:

- For my pages, I am using html, bootstap, css, js, php and mysql.I had facing many problems regarding this.
- Creating reliable database to store the user information was another challenge. We have made a admin table and put admin login information into this table.
- Admin can see the employee list, the position list etc.

Chapter 2

Literature Review

2.1 Relationship with Undergraduate Studies

The development of the ” Payroll Management System ” project has benefited from the knowledge and abilities learned in undergraduate courses. It would have proven more difficult if these courses were not covered before working on this project. Some of the courses are:

- **Introduction to Programming:** -This course teaches and provides the necessary information related to the introduction to a new programming language and the basics of programming from declaring variables, iteration, conditional statements, switch-case, arrays and functions.
- **Object-Oriented Programming: -** The course goes a step ahead by introducing the concept of classes and objects, variables inside the classes, types of classes. A Graphical User Interface of a real-life problem.
- **Web Application Internet: -** This course provides a comprehensive overview of technologies related to web and their uses. The discussions in the course are held on front-end languages: HTML and Cascading Style Sheet (CSS) and backend languages: PHP and MySQL followed by the responsiveness for devices with different sizes by jQuery.
- **System Analysis and Design: -** The course teaches the tools and techniques to design a system with proper analysis of information systems. Systems and models, project management, tools for identifying system requirements, data flow diagrams, decision tables, and decision trees are some of the subjects covered.
- **Database Management:** -This was the first course which taught how to designand plan a project. It covered popular planning and strategy practices such as System Development Life Cycle, Rich Picture, Requirement Analysis, Relationship Diagram, Business Process Model and Notation Diagram and many more. These techniques helped in the development planning and strategy of this project

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

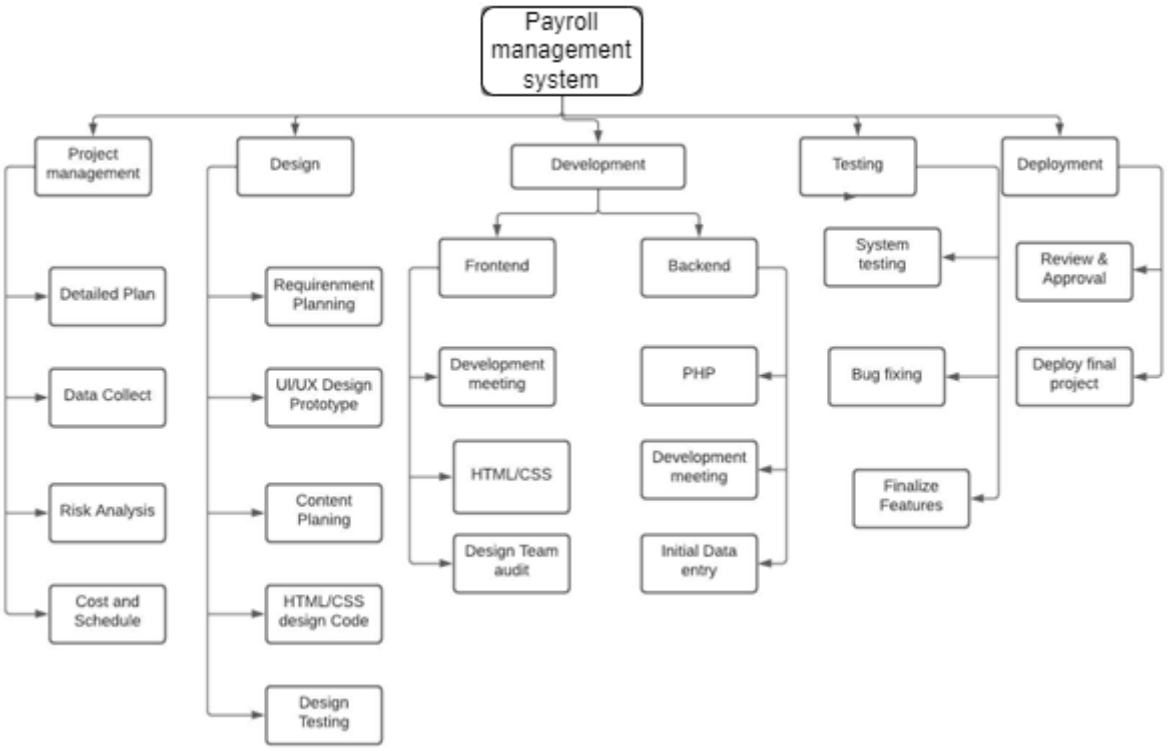


Figure 3.1: Work Breakdown Structure

Work Breakdown Structure (WBS) is a productivity technique that divides work into smaller tasks in order to make it more manageable and approachable. One of the most significant project management documents is this technique.

The above diagram shows us the work breakdown structure (WBS) of Payroll Management system. WBS is a hierarchical structure that demonstrates the breakdown

of a project into smaller segments. For our projects, we produce a WBS so that our work is coordinated. WBS covers a visual of all the scopes, risks, points of communication, responsibilities costs, and guarantees, that do not skip essential deliverables. For brainstorming and collaboration, it is the ideal tool for the team. In our WBS, we have used the top-down approach.

3.2 Process/Activity wise Time Distribution

The entire web development process is proper timely wise distributed. It is very important to breakdown the activity and give a time limit for it. It's increased the client satisfaction and also make trust worthy that we ensure them that we have ability to deliver the process in a proper time management. If a project takes long period of time it's dissatisfy our client and possibility to lose our client. And the time distribution also helps developers to make complete their task in a certain period of time limit. So here given the Time distribution:

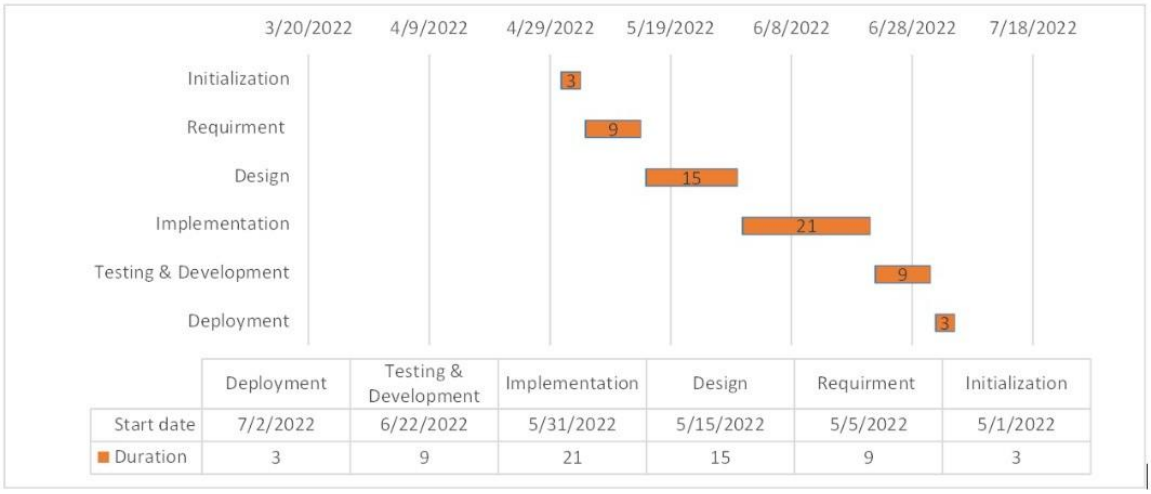
Activity Wise Time Distribution			
Activity	**Divided into 100%**	**Expected Days**	**Considered Days**
Initializing	5%	**3**	**3**
Requirement	15%	9	9
Design	25%	15	15
Implementation	35%	21	21
Testing & Development	15%	9	9
Deployment	5%	3	3
Total	100%	60	60

Figure 3.2: Process/Activity wise Time Distribution for Payroll management system

The project was expected to take 60 working days to complete the major parts. The entire task is separated into six core functions, all of which account for 100 percent of the overall effort. In this above table, we can see that initialization took 3 days,

Requirement Analysis took about 9 working days to finish, it would take 15 working days to finish the designing of the project, for the core part of the project, which is Implementation, it will take around 21 working days to complete. For the testing and development of the project, it might take around 9 working days. And for the deployment, we kept 3 days in hand. In total, we can see that we have 60 working daysto complete the project.

3.3 Gantt Chart



	Deployment	Testing & Development	Implementation	Design	Requirment	Initialization
Start date	7/2/2022	6/22/2022	5/31/2022	5/15/2022	5/5/2022	5/1/2022
Duration	3	9	21	15	9	3

Figure 3.3: Gantt Chart for Professional health care system

A Gantt chart is a useful project management tool for planning and scheduling projects of all sizes, but it's especially useful for simplifying complex projects. Project management timelines and tasks are transformed into bar charts showing start and finish dates, dependencies, schedules, and deadlines. This includes the number of tasks completed per phase and the task owner. This helps track tasks when you have a large team and multiple stakeholders with scope changes. Here below the benefits of using Gantt chart:

- **Visual representation of the entire project.**
- **Timelines and deadlines of all tasks.**
- **Relationships and dependencies between the various activities of project phases.**

3.4 Process/Activity wise Resource Allocation

Activity Wise Resource Distribution					
Activity	Start date	End date	percentage	Expected Days	Resource
Initializing	1-5-2022	4-5-2022	5%	3	Discuss
Requirement	5-5-2022	14-5-2022	15%	9	Chrome,google, websites
Design	15-5-2022	30-5-2022	25%	15	Html,csss,bootstrap, js
Implementation	31-5-2022	21-6-2022	35%	21	Php,mysql
Testing & Development	22-6-2022	1-7-2022	15%	9	Test system,bug fixing
Deployment	2-7-2022	5-7-2022	5%	3	Any
Total			100%	60	

Figure 3.4: Process/Activity wise Resource Allocation

The Resource Distribution by Process/Activity offers us a table with the set of tasks that must be accomplished together with the quantity of effort required to finish each task. The following are:

1. **Requirement Analysis:** The first and most crucial task is to fully comprehend the client's objectives, as well as to reach a viable financial agreement that allows the project to move forward.

2. **Design:** After the previous step we discuss and design our project.it almost took 15 days.

3. **Implementation:** The next objective was to create the backend once the entire frontend was finished. We also created the tables and the data we intended to store in the server, just like the front end. Due to the fact that all necessary fields were predetermined during frontend development, the backend took more time than the frontend.

4. **Testing and development:** We test our project using fake user and developed our project day by day by the help of our supervisor and different resource.
5. **Deployment:** The project is prepared for deployment after successfully clearing the testing process. And the finished item is ready, precisely meeting each deadline.

3.5 Estimated Costing

This is a project of our client and in our project financing we estimated a minimal cost as all the project phase based. For developing website with proper functionality and a clean interface the cost is very minimal. Here below the chart of project Costing and Finance by Work process:

Serial No	Requirements	Amount(Tk)
01	Internet Bill (3 months)	3600
02	Domain/Server/hosting	6000
03	Electricity Bill (3 months)	70,000
04	Hardware Requirements	90,000
05	Salary Payment (3 months)	0.00
06	Total	169,600

Table 3.1: Estimated costing of Professional health care system

Chapter 4

Methodology

Methodology refers to the overarching strategy and rationale of our project. It involves studying the methods used in our field and the theories or principles behind the selection process to develop an approach that matches our objectives. The methodologyis a system of methods that we use in a specific area of study or activity. The methodology is the detailed procedures used to identify, select, process, and analyze information about a subject. The website I have working on is one of the most completeand fully functional websites, and it is developed using modern web technologies.

4.1 Software Development Methodology

The Software Development life cycle (SDLC) is a mental model used in project management that defines the phases involved in an information systems development project, from initial feasibility studies to maintenance of the completed application design, and it runs throughout the development phase. These models are also called" software development process models". Each process model follows a set of phases specific to its type to ensure a successful software development step.

For this project we have chosen the Agile Methodology. Sometimes it works in iterative development as well. Agility is the process by which a team can manage a project by dividing it into phases and including constant collaboration with stakeholders and continuous improvement and iteration in each phase. This approach starts with the client explaining how the final product will be used and what problems it will solve. We don't build an entire scaffold on Double Pack, but we are growing steadily.

Reason for choosing Agile methodology below that:

Heaps of people that choose to go lithe are pretty tired of multi month delivery cycles that frequently convey an inappropriate item to showcase, and our clients simply aren't keen on purchasing. The possibility of two weeks' delivery cycles and quarterly release cadences is quite engaging. Our business sectors and our opposition are simply moving



Figure 4.1: Agile method

excessively quick. So, we must show signs of improvement at getting working items out the door faster. Building items our user can utilize satisfies them. Having the option to frequent add new highlights based on their feedback makes them happy as well. As a product client, I don't know there is anything more terrible than putting resources intoan item that doesn't work, doesn't do what we need it to do, and not being not able tosee any way ahead for improving it. Agile helps us to build good relationships with our customers, one where we are working together to get problems solved. Agile doesn't regard risk as a different area to be overseen. Agile is risk management. By conveying early and getting feedback, we lessen the danger of building an inappropriate product. By ceaselessly incorporating and fabricating imperfection free programming, we decrease the risk that our stuff wasn't constructed right not long before we have to put it up for sale to the market. Agile fixes time, cost, and quality and gives us the tools to change the business and specialized extent of the arrangement. You probably won't getall that you sought after, however you can believe what was delivered. People realize that the large forthcoming plans as a rule turn out pointless over the long run.

Individuals realize that the individuals in their practical silos aren't working very well together. Lithe holds the guarantee of helping us wipe out the stuff we don't require and get down to the matter of building working software

Chapter 5

Body of the Project

The body of the project in the report is a detailed discussion of the work for those readers who want to know in some depth and completeness what was done. The body of the project shows what was done, how it was done, what the results were, and what conclusions and recommendations can be drawn.

5.1 Work Description

After starting our internship as software developing intern, we were assigned a task to develop a Payroll Management application for the internal use of Norban Comptex Ltd. The Payroll applications will enable user to management the employees using internet service. Later, we divide into two groups. Our group was assigned to develop the features of the payroll application. Features include designing and developing landing page, login page, dashboard, view employee, designing database and backend programming. After knowing their need, we start our worked. We started our UI design process and after finishing that we started working on the implementation.

My part in the project is sign in page and employee page, salary deduction page, cash advance page and position page. I worked frontend and backend of this part. Also create a into the database name apsystem. In the frontend I use Html, js, bootctrap, css and backend I used php.

Sign In: The admin would be able to sign in into the system by giving the appropriate email and password which are store into the database. They have to enter the email and password and click sing in button. After clicking the sign in button system will check whether the email and password correct or not. If correct user will enter the system otherwise shows a waring a message.

View Dashboard: To view the admin dashboard admin have to login into the system using the appropriate email and password. After successfully login admin will select the dashboard button then the admin panel will be display including total number of employees, total number of positions, total overtime hour and the information of admin.

5.2 System Analysis

Systems analysis is the process of analyzing an information system, modeling it, and examining it so that logical choices can be made. It is the process of gathering and interpreting facts, identifying problems, and breaking down systems into their constituent parts. A system analysis is performed to examine a system or parts of it to identify its goals. It is a problem-solving technique that improves the system and ensures that all components of the system are working efficiently to achieve their goals.

5.2.1 Six Element Analysis

Process	**System Roles**					
	Human	Non-Computing Hardware	Computing Hardware	Software	Database	Network and Communication
View dashboard	**Admin:** 1.Browse the payroll management system. 2.Click the "Dashboard" option. **System:** 1.Display the admin dashboard with information.	**N/A**.	**Computer/ Mobile:** 1. Use computers to access the system	N/A.	**System Storage:** 1. Stores all the data.	**Internet & Email:** 1. To access the website and for view the dashboard.
Sign In	**Admin:** 1. Browse the system. 2. Click "Sign In" option. 3.Enter email and password. 4.Then click sign in button. **System:**	N/A	**Computer/ Mobile:** 1. Use computers to access the system	N/A	**System Storage:** 1. Stores all the data.	**Internet:** 1. The Internet is used to establish a connection to upload relevant info.

	1. Display the sign in form 2. Display the admin panel					
View employee list	**Admin:** 1. After sign in successfully admin select the "Employee" option from the admin panel. **System:** 1.After clicking "Employee" option the system will be display all the employees including id, name, photo, position, member since etc.	**N/A**	**Computer/ Mobile:** 1. Use computers to access the system	N/A	**System Storage:** 1. Stores all the data.	**Internet/Mail :** 1. To access and login into the system
Add/edit employee	**Admin:** 1. Browse the system. 2. Click "New" button to add new employee into the system or click "Edit" button to edit the existing employee	**N/A**	**Computer/ Mobile:** 1. Use computers to access the system	**N/A**.	N/A	**Internet:** 1. The Internet is used to establish a connection to upload relevant info.

	information. 3. Enter the required field to add/edit the employee from the employee page. **System:** 1.After click new/edit button system will display a input form.					
View job position list of the company	**Admin:** 1. After sign in successfully admin select the "Position" option from the admin panel. **System:** 1.After clicking "Position" option the system will be display all the job position including position title and rate per hour	**N/A**	**Computer/ Mobile:** 1. Use computers to access the system	**N/A**.	N/A	**Internet:** 1. The Internet is used to establish a connection to upload relevant info.
Add/edit position	**Admin:** 1. Browse the system. 2. Click "New" button to add new position into the system	**N/A**	**Computer/ Mobile:** 1. Use computers to access the system	**N/A**		**Internet:** 1. The Internet is used to establish a connection to upload relevant info

	or click "Edit" button to edit the existing position information. 3. Enter the required field to add/edit the position from the position page. **System:** 1.After click new/edit button system will display a input form					
View overtime details	**Admin:** 1. After sign in successfully admin select the "Overtime" option from the admin panel. **System:** 1.After clicking "Overtime" option the system will be display all the overtime details including Date, employee id, overtime duration, rate	**N/A**	**Computer/ Mobile:** 1. Use computers to access the system	**N/A**	**N/A**	**Internet:** 1. The Internet is used to establish a connection to upload relevant info

Add/edit overtime details.	**Admin:** 1. Browse the system. 2. Click "New" button to add new overtime info into the system or click "Edit" button to edit the existing overtime information. 3. Enter the required field to add/edit the overtime from the overtime page. **System:** 1.After click new/edit button system will display a input form	**N/A**	**Computer/ Mobile:** 1. Use computers to access the system	**N/A**	**N/A**	**Internet:** 1. The Internet is used to establish a connection to upload relevant info

Figure 5.1: Six Element Analysis

5.2.2 Feasibility Analysis

A proof of concept is one of the four key phases of the software project management process. As the name suggests, a feasibility study is a feasibility analysis or measure of a software product in terms of the benefits that product development brings to an organization from a practical point of view. A feasibility study is a study that helps you understand certain aspects of a project and how those aspects can help in the development of the project. An analysis of the feasibility criteria helps identify problems that may arise during the project. The feasibility factors that we analyzed for the system are given below:

- **Operational Feasibility:** Operational feasibility relies on human resources and analyses whether the software will operate properly after it is developed or not. The following tasks are performed by the operational feasibility: Determining if an expected issue with user requirements is a high priority.

  Payroll management application has been developed in such a way that it can be conducted very easily. People will accept it without any doubt. It is a well-planned system. People of all ages will be able to use it. Users need not have a lot of technical knowledge to run this system. Every instruction is very clear to the users. We hope this system will be able to fulfill the requirements of the users.

- **Technical Feasibility:** Technical Feasibility analyzes/evaluates current resources for both hardware, software and technology needed to develop the project. This technical feasibility study provides information on whether the appropriate resources and technology required for use in project development are in place. I have developed a payroll management application using PHP, HTML, Bootstrap, CSS and JS. These helps me to build the website which is much more efficient and faster. Moreover, these technologies are very popular in the modern industry and widely used by the growing community.

- **Economic Feasibility:** The economic feasibility of a project is one of the necessary factors of a project as it provides a lot of information about the project such as the location required for the project, the equipment and supplies of the project, raw materials and manpower required Manufacturing. This analysis is performed to determine the costs and benefits project. A detailed cost estimate has been prepared for website development. All cost statements. Next, this effort is based on the system. It is economically beneficial for the company.

- **Scheduling Feasibility:** The timing of the project was examined in this researchto ensure that it would be completed on time. If the project's deadline is met, the project will be a success. The project's proposed completion timetable was 60 working days. The project will complete on time as the given milestones are beingaccomplished on schedule.

5.2.3 Problem Solution Analysis

This section discusses the problems that were recognized, examined, and eventually a solution devised to solve those problems. The issues that have been identified below that:

- **Communication-** Communication is very important for any kind of projects. As it was team based work, I needed to communicate my teammate and supervisor properly.

- **Technology-** In my project I used html, css, bootstrap, js and php. I had basic

knowledge all of this but I am not expert in backend. I learned this and completing my backend using php.

- **Project Management-** Multitasking can sometimes be more of a problem than a price. As a result, a skilled planner is needed to streamline and streamline the work flow. The whole process was difficult for me to follow and above all, we were dealing with an epidemic, so everyone had to adapt to a new method, which took longer than usual for the project.

5.2.4 Effect and Constraints Analysis

- **Effect:** In the pandemic, everything increased their cost. Many web site was being hacked. Our system is secured, and every information is secured. Every package not much costly. Users can easily use this. Admin panel handle all the database, and it's safe to secure. As the data is stored in the database, everything can be queried from the newly built software in a cloud. There will be no more shortages to go through all the documents and keep track of everything the process in software.

- **Constrains:** There are many difficulties while finding a solution for this software. The scope of the project sets its limits. There are requirements that the project and company must meet. Both the output and the process for their production are included in the scope. There was no backtracking in the project because the scope was set early. In the time case, our daily worked checked by our supervisor and in a week he assigned us new task, we didn't delay of any work, On the other had we also submitted our daily work after finishing the day. This software was effective for the company. It saves time.

5.3 System Design

5.3.1 Rich Picture

Rich images are chart shapes used in the early stages of a project. Rich imagery helps us understand relationships and connections that might otherwise be overlooked. This helps participants identify one or more topics they would like to explore and work on further. This allows you to see what happens on your system. This allows teams to develop a shared vision of how the system should be built. A rich diagram of the system is shown below:

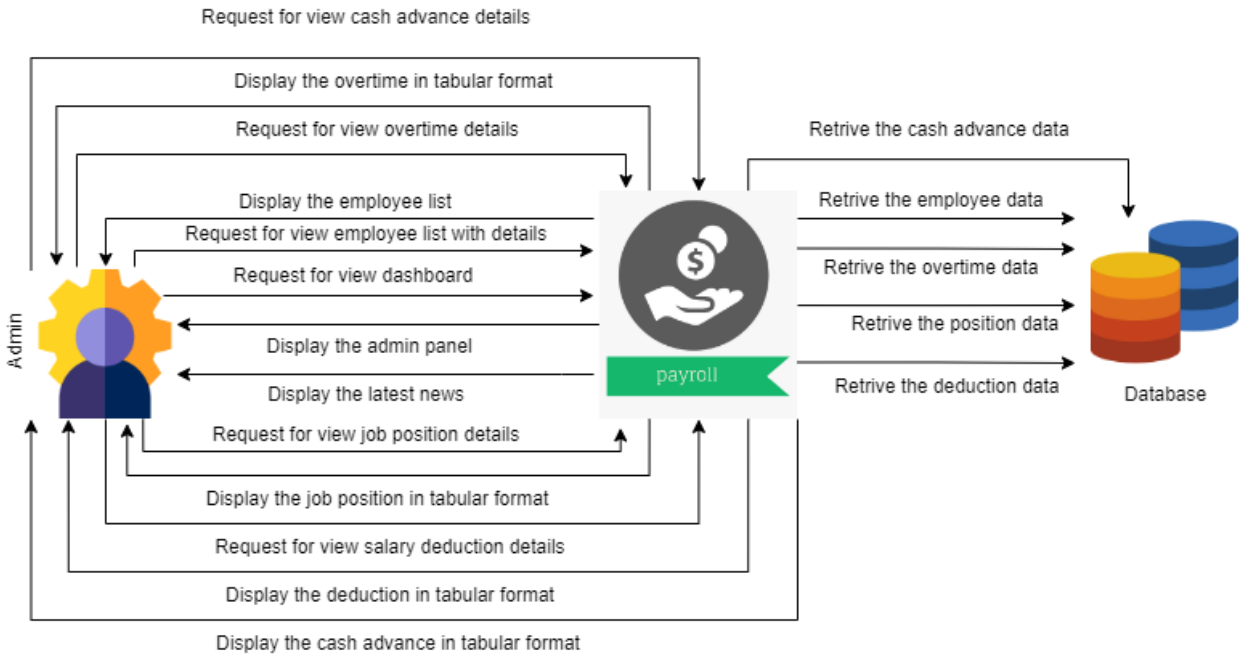


Figure 5.2: Rich Picture

5.3.2 UML Diagrams

UML diagrams are UML (Unified Modeling Language) based diagrams that map a system to its main actors, roles, actions, and outcomes in order to better understand, modify, maintain or document information about the system. It is intended to be visually represented with things or classes. You can use UML diagrams to visualize your project before you start it, or as documentation for your project later. However, the overall goal of UML diagrams is to help teams visualize how a project works or works, and they can be

used in all areas.

1. **Use Case Diagram:** A use case diagram is a way of summarizing the details of a system and the users within that system. It is usually shown as a graphical representation of the interactions between various elements in the system.

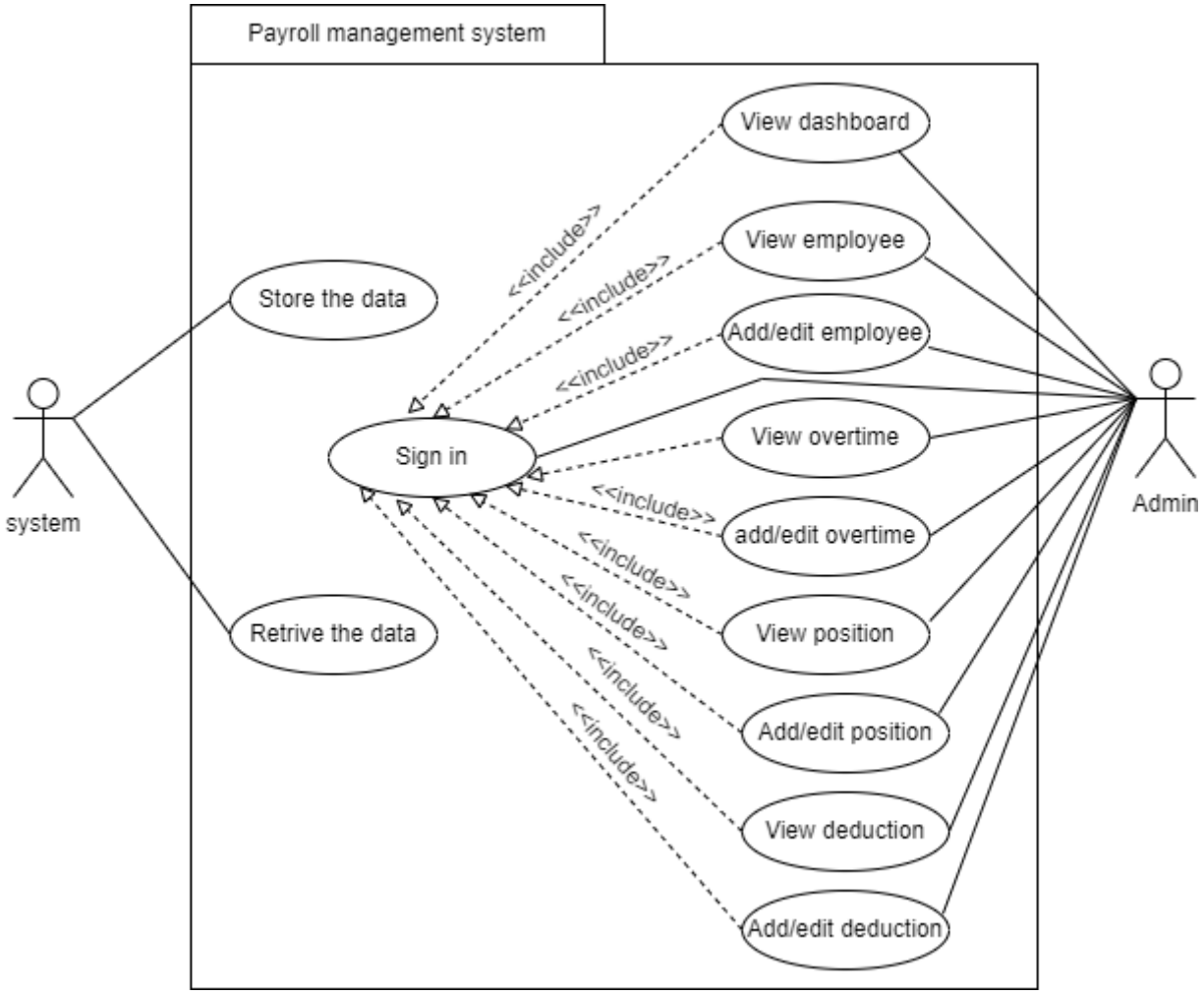


Figure 5.3: Use case diagram

2. **Activity diagram:** Activity diagrams are another important UML diagram that describes the dynamic aspects of a system. An activity diagram is basically a flowchart that shows the flow from one activity to another. Activities can be described as operations on the system. Flow of control is drawn from one operation to another. This flow can be sequential, branched, or parallel. Activity diagrams deal with all kinds of flow control using different elements like forks, joins, etc.

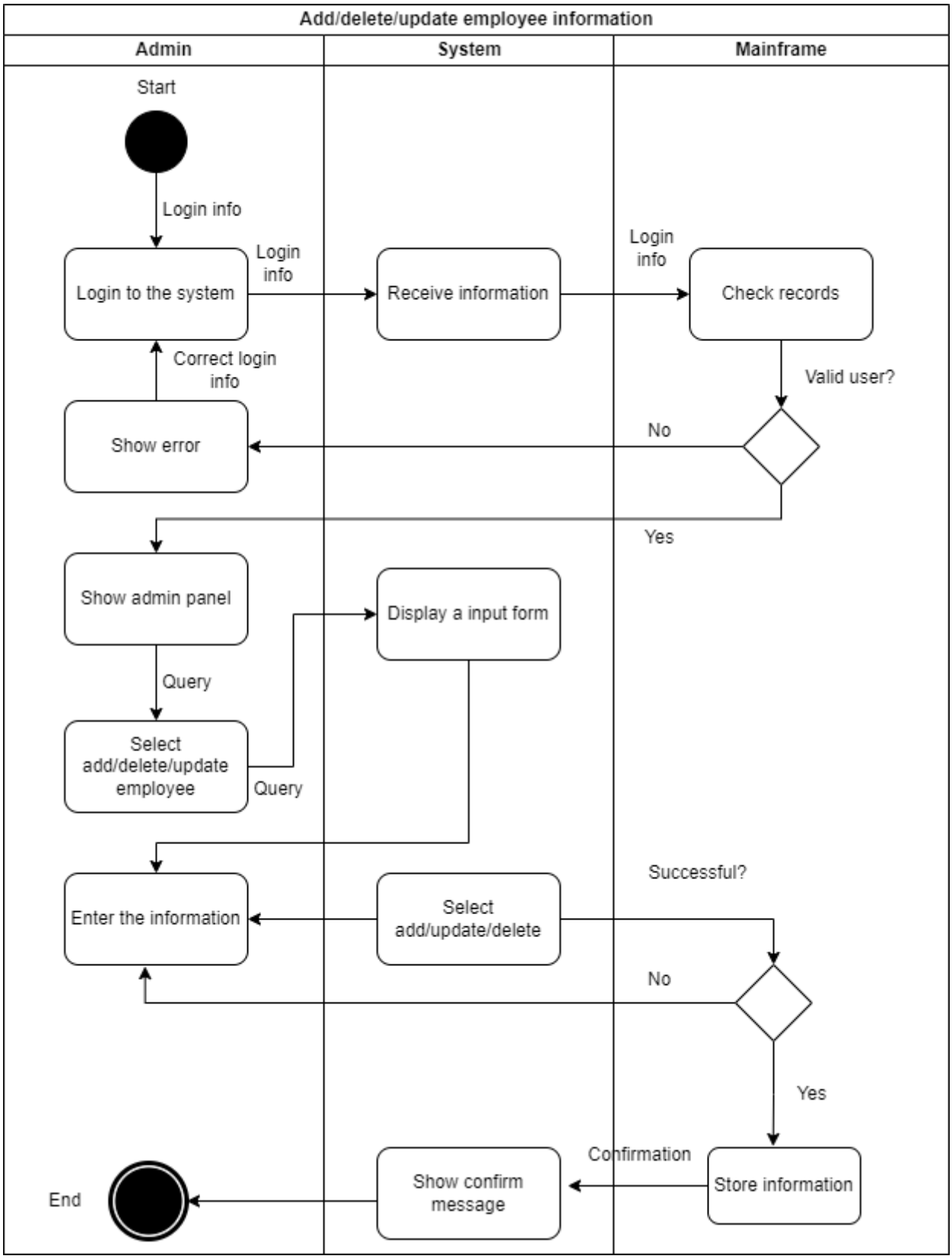


Figure 5.4: Activity diagram

3.. **Entity Relationship Diagram:** Class diagrams are a key component of object-oriented modeling. It is used for general conceptual modeling of the structure of the application and for detailed modeling that translates the model into programming code. Class diagrams can also be used for data modeling. The classes in the class diagram represent the major elements, interactions within the application, and the classes being programmed.

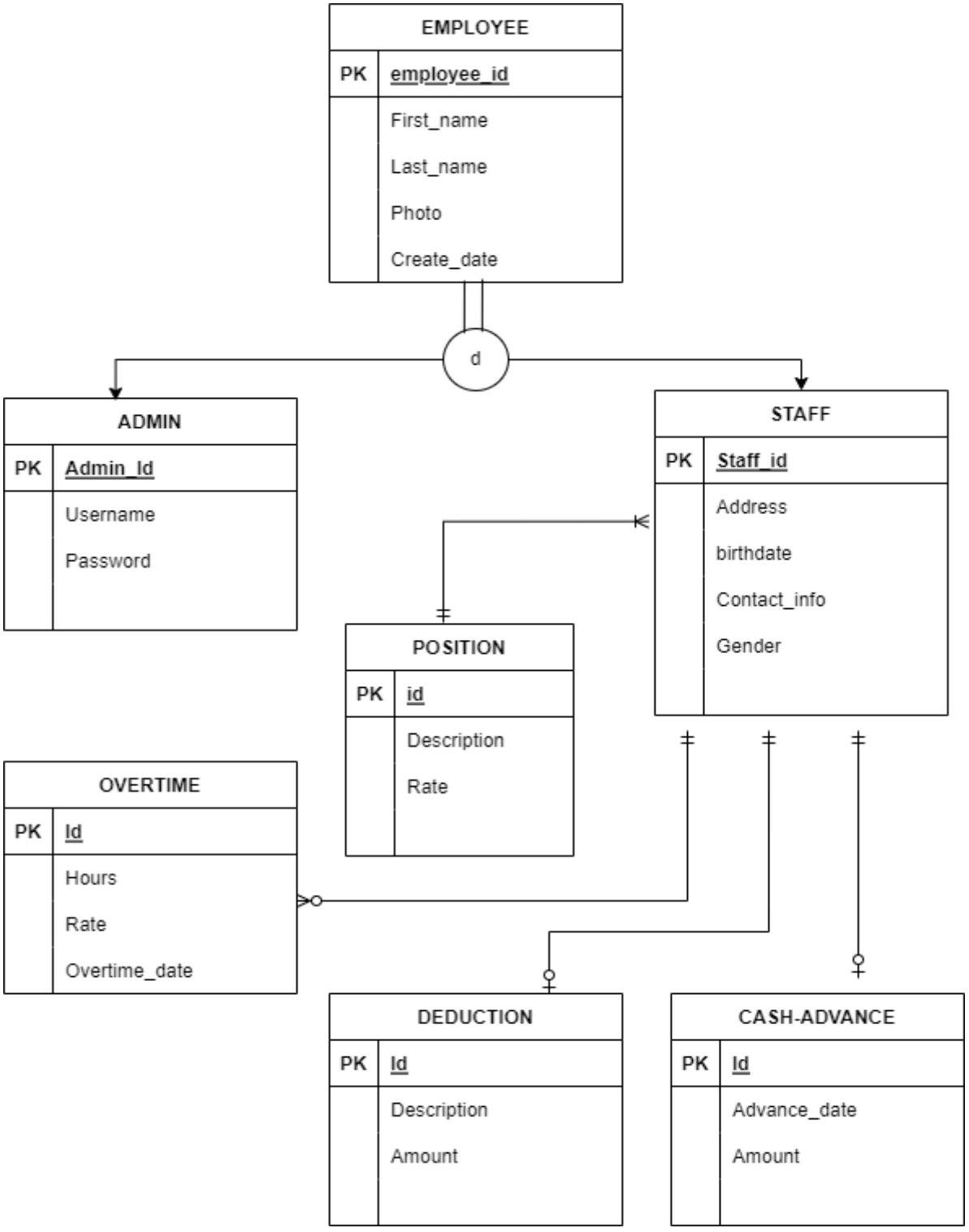


Figure 5.5: ERD for payroll management system

5.3.3 Functional and Non-Functional Requirements

Functional Requirements:

Functional requirements define basic system behavior. This includes what the system can and cannot do and can be viewed as the system's response to:

Function	View dashboard
Input	Admin would be able to click the "Dashboard" button to view the admin panel.
Output	Admin panel will be displayed.
Pre-condition	The admin have to verified email and password.
Post-condition	N/A

Figure 5.6: Functional Requirement-View dashboard

Function	Sign in into the system
Input	Admin have to enter the email and password to enter the admin panel
Output	Display the admin panel.
Pre-condition	1. Admin have to verified email and password.
Post-condition	Admin show the successfully login message.

Figure 5.7: Functional Requirement-sign in

Function	View employee list
Input	Admin would be able to click the "Employee" button to view the employee list with detail information.
Output	Employees list will be display with employee id, name, position, joining date
Pre-condition	1. Admin have to a valid email and password
Post-condition	N/A

Figure 5.8: Functional Requirement-View employee list

Function	Add/Edit employee into the system
Input	To add new employee or edit the existing employee information admin will fill the employee id, name, position, joining date etc.
Output	The data will be store into the database
Pre-condition	1. Admin have to a valid email and password
Post-condition	If add/edit successfully show confirmation message otherwise show a warning message.

Figure 5.8: Functional Requirement-Add/edit new employee

Non-Functional Requirements:

Non-Functional Requirements (NFRs) specify the quality attributes of a software system. They judge software systems on criteria other than responsiveness, usability, security, portability, and other features essential to the success of software systems. Here are some non-functional requirements:

SL No	Category	Nonfunctional Requirement
1.	Usability	• The UI of this chat system is clean and simple. New users can get used to this service system so fast. • Complete user guide, rules and regulation is uploaded for the user. Users can read it anytime.
2.	Performance	• Chat service will be responsive with mobile and any type of device. • It will be capable enough to handle a lot of users without affecting its performance. • It will respond to user requests in less than 0.3 seconds.
3.	Control	• This chat service will maintain user privacy. • This service system will be secure. • User data will safely be backed up for disaster recovery. • If in future, our chat service system is attacked by a hacker, our security team will notify it quickly. And start work immediately.
4.	Service	• This service will deploy on cloud and regularly maintained by system admin and other employees. • Users can use this service from anywhere in the world. • It will be portable, device to device does not create any problem. • Necessary function updates will come from time to time.
5.	Reliability	• System will be reliable and available for any kind of device, computer, mobile. • Because of our safe backup, no data can be lost. • System update or any kind of testing will not affect the running system.
6.	Error finding	• Our system can handle all types of errors. It also solves the problems that the system finds. • Our group is committed to give the speediest arrangements if there should be an occurrence of any system vacation. • Our group works more diligently to determine any system disappointments as quickly as time permits and forestall any deficiency of data and long personal time period.

Figure 5.9: Non-Functional Requirement

5.4 Product Features

Product features defines the functionality of the product and how that will benefit theusers of the product. I have discussed the features of our website below:

5.4.1 Input

Process	Fields Type
1. Sign In	Username: string Email: string Password: string
2. Add/Edit employee	Id: string Name: string Position: string Joining date: date
3. Add/Edit overtime information	Date: string Id: string Name: string No of hours: int Rate: double
4. Add/Edit job position of the company.	Title: string Rate: double
5. Add/Edit cash advance of the employee	Date: string Id: string Name: string Amount: double
6. Add/Edit deduction amount of the employee.	Description: string Amount: double

Figure 5.10: Input

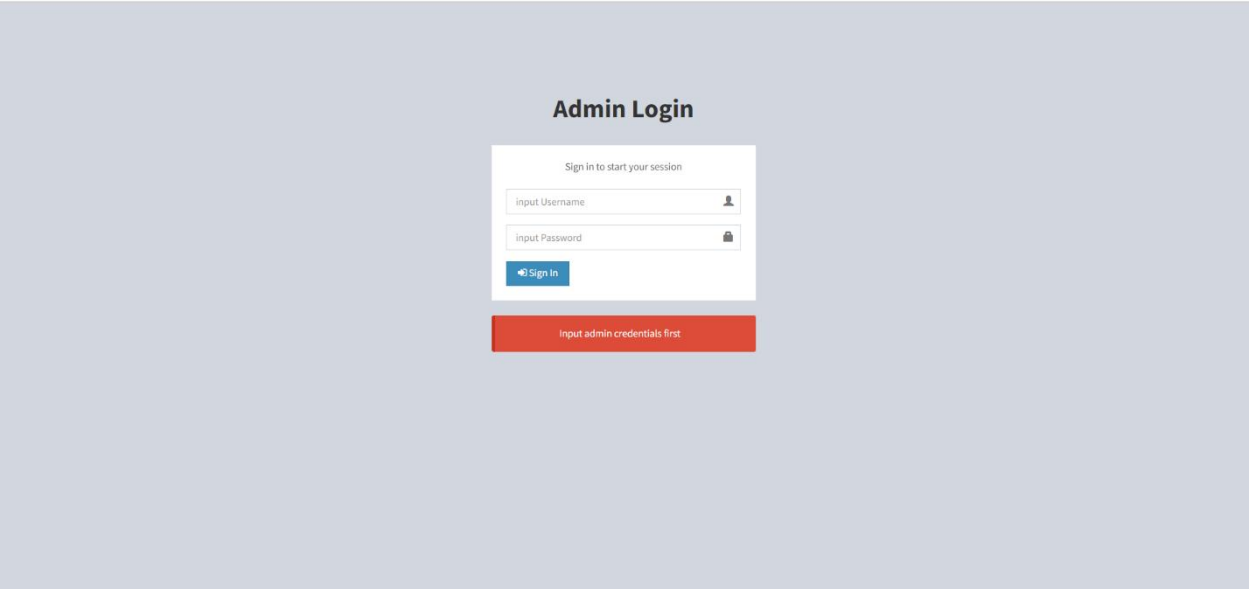


Figure 5.11: Sign in form

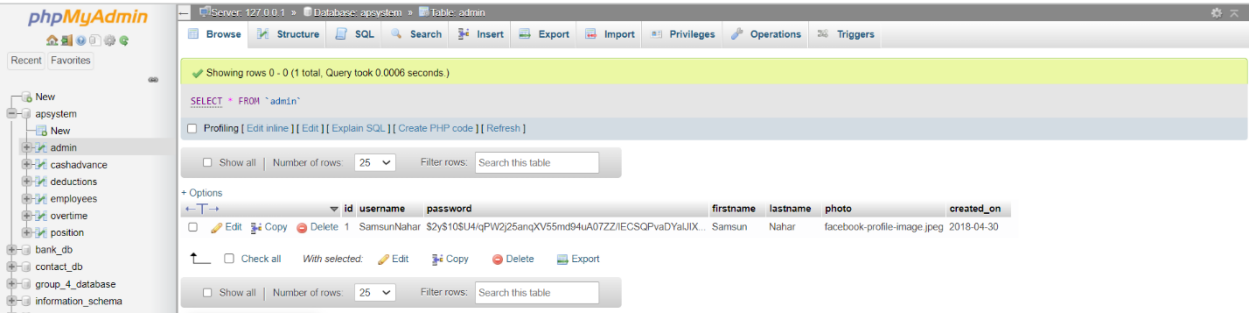


Figure 5.12: Database – admin table

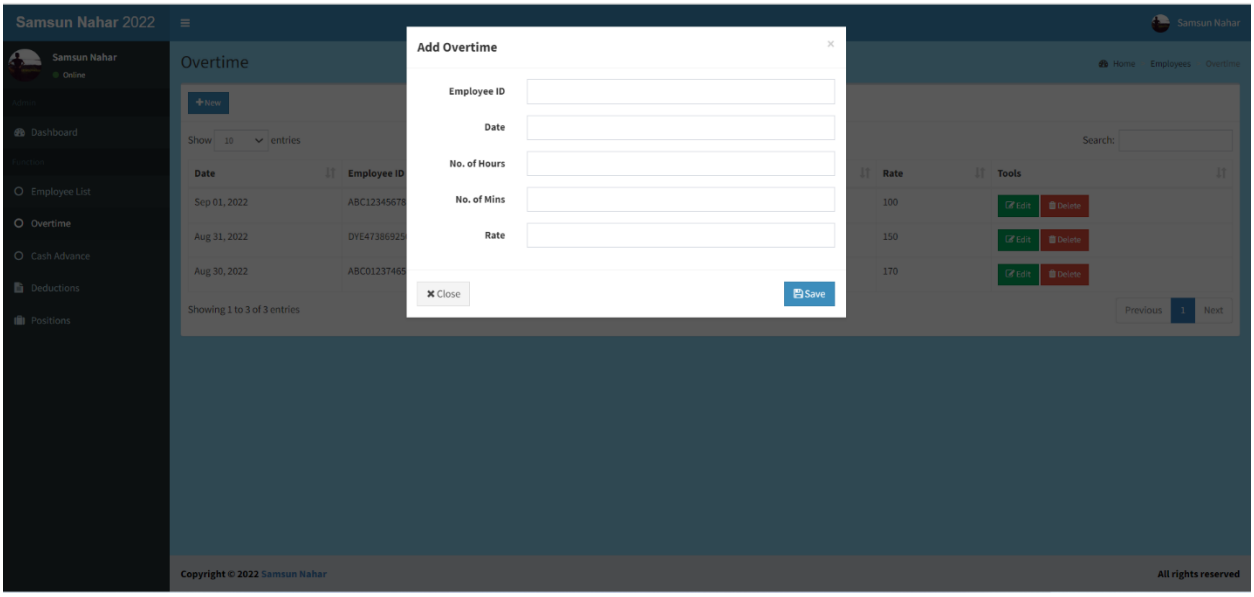


Figure 5.12: Add overtime form

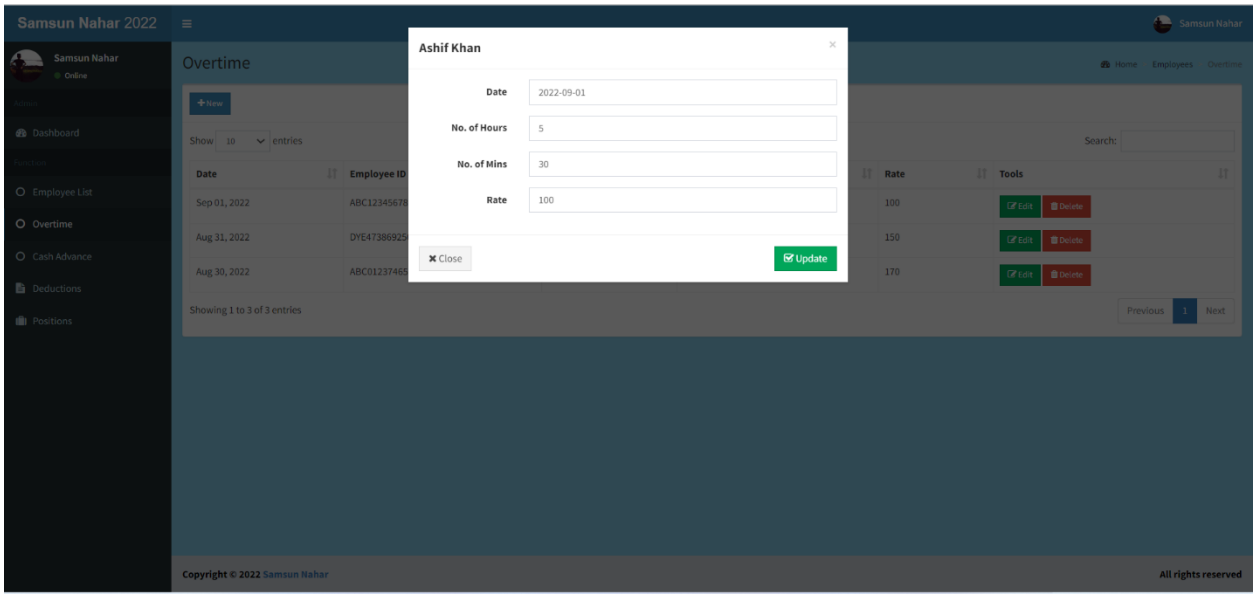


Figure 5.13: Edit overtime form

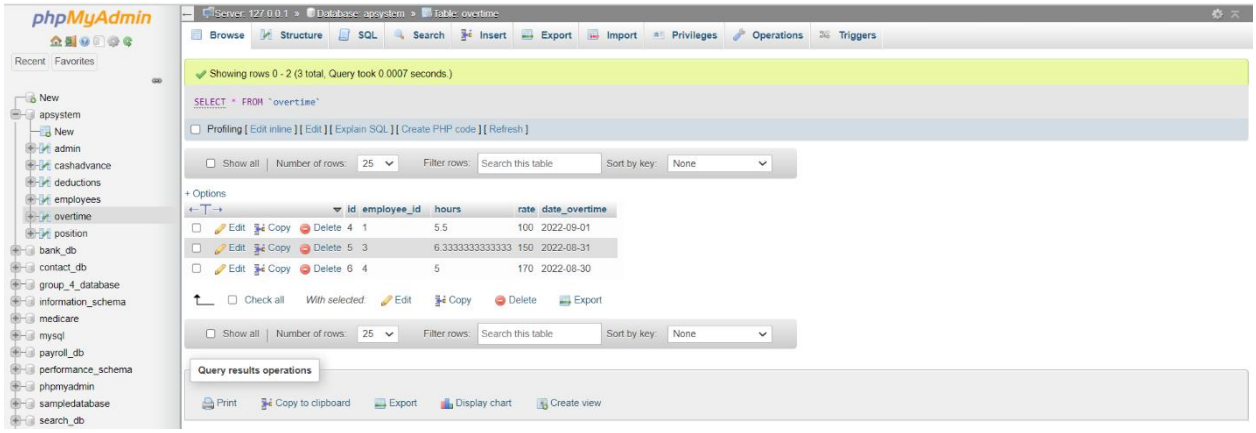


Figure 5.14: Database – overtime table

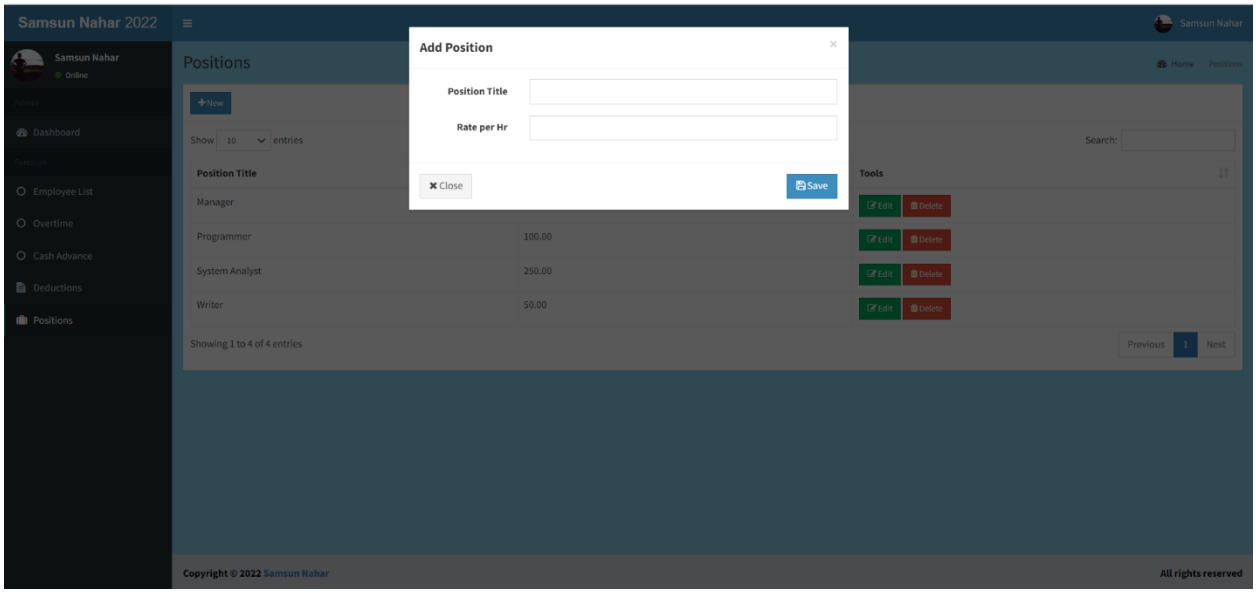


Figure 5.15: add Position form

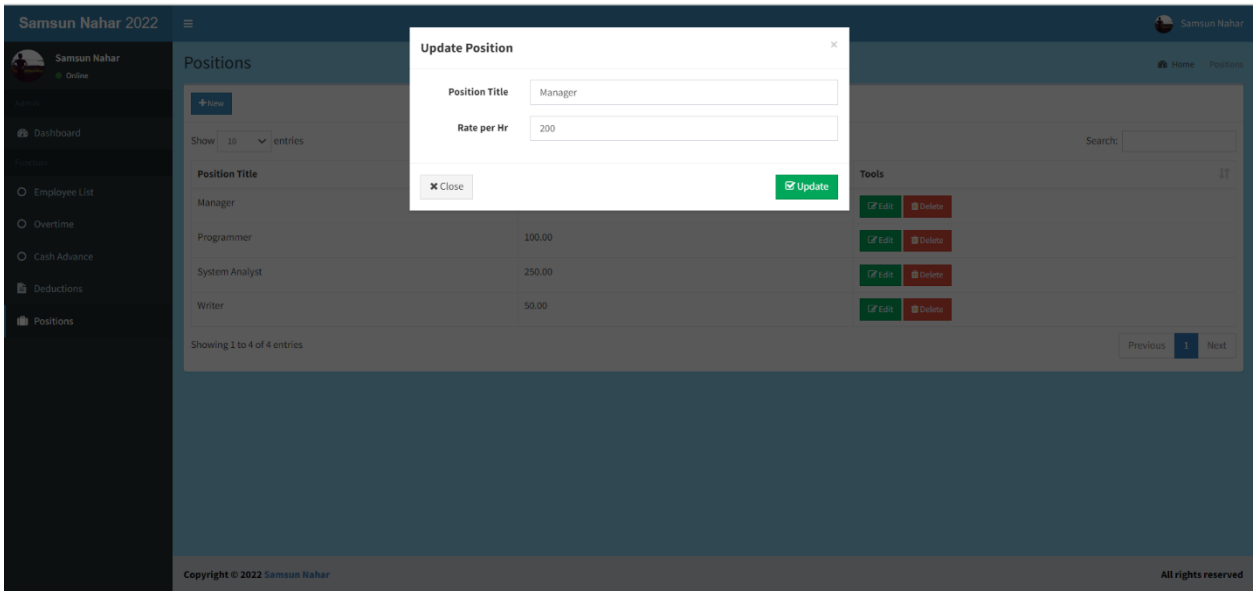


Figure 5.16: Edit Position form

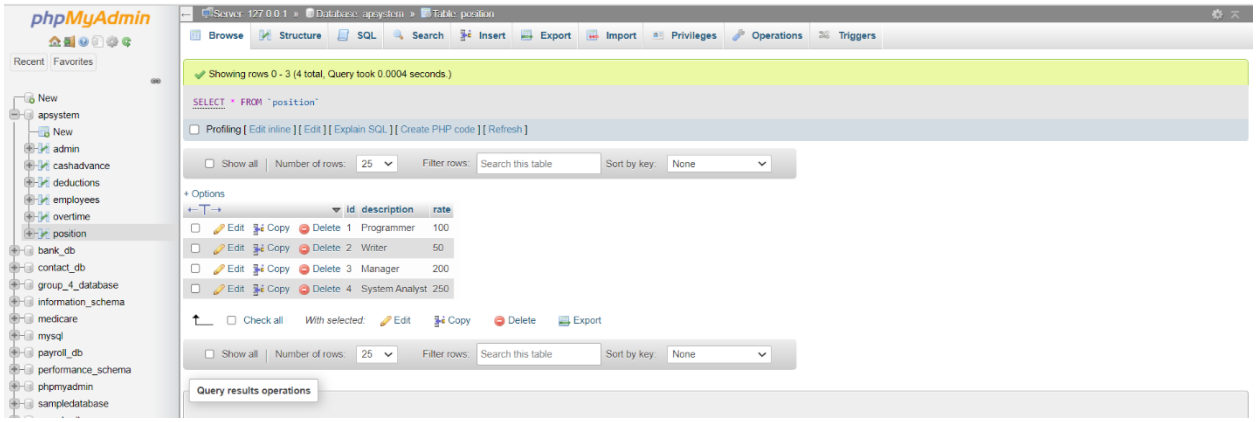


Figure 5.17: Database – position table

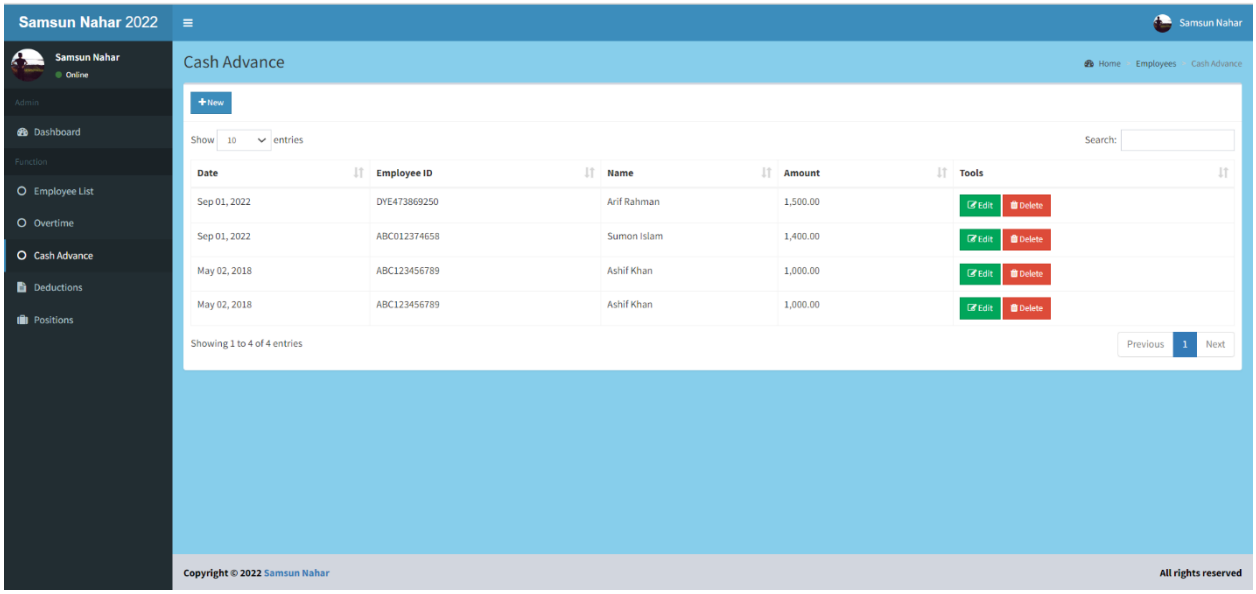


Figure 5.18: Add cash advance form

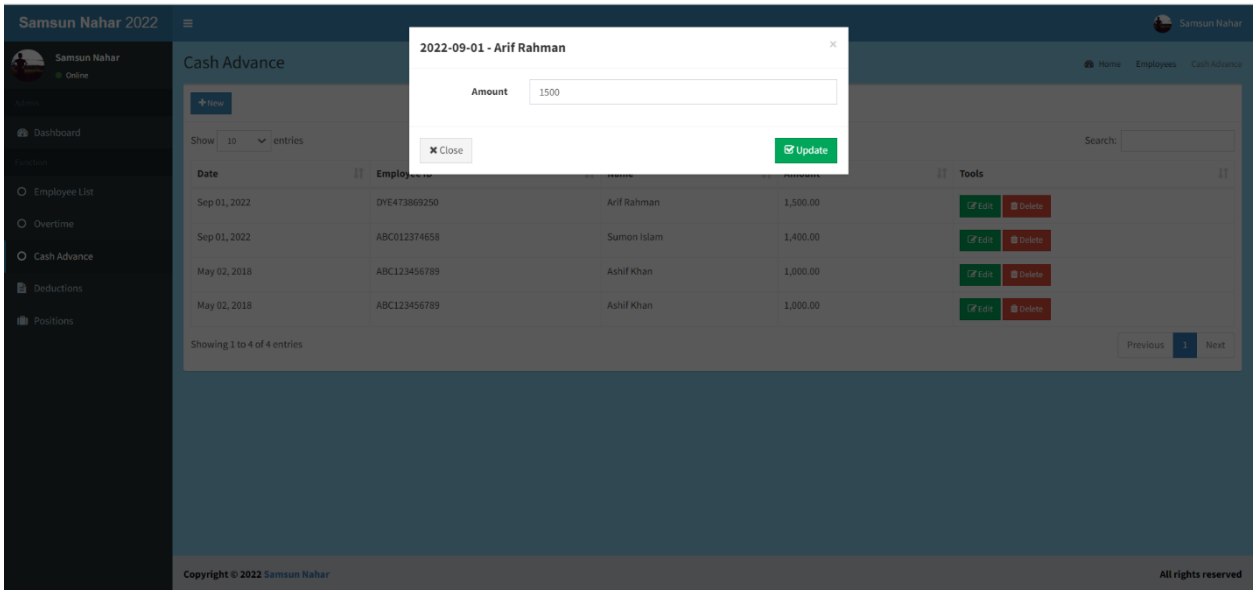


Figure 5.19: Edit cash advance form

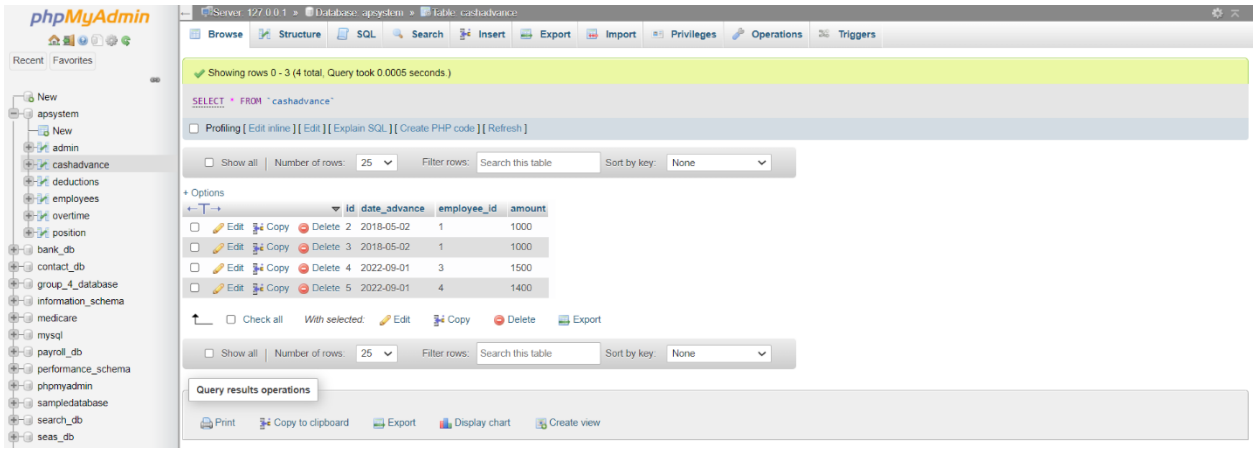


Figure 5.20: Database – cash advance table

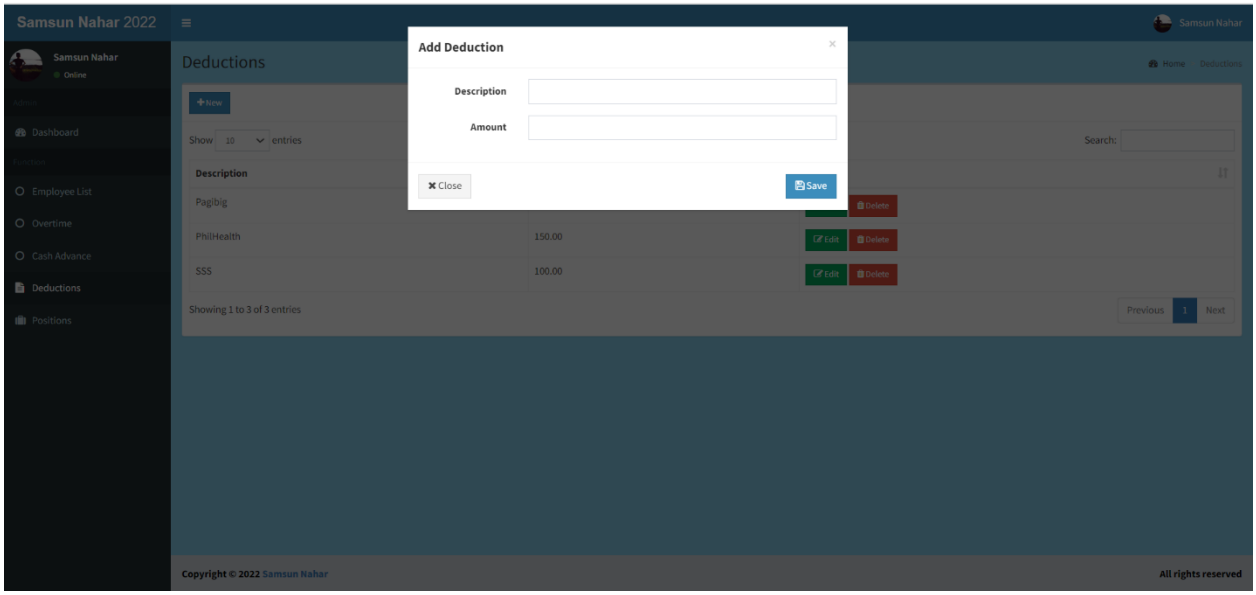


Figure 5.21: Add deduction form

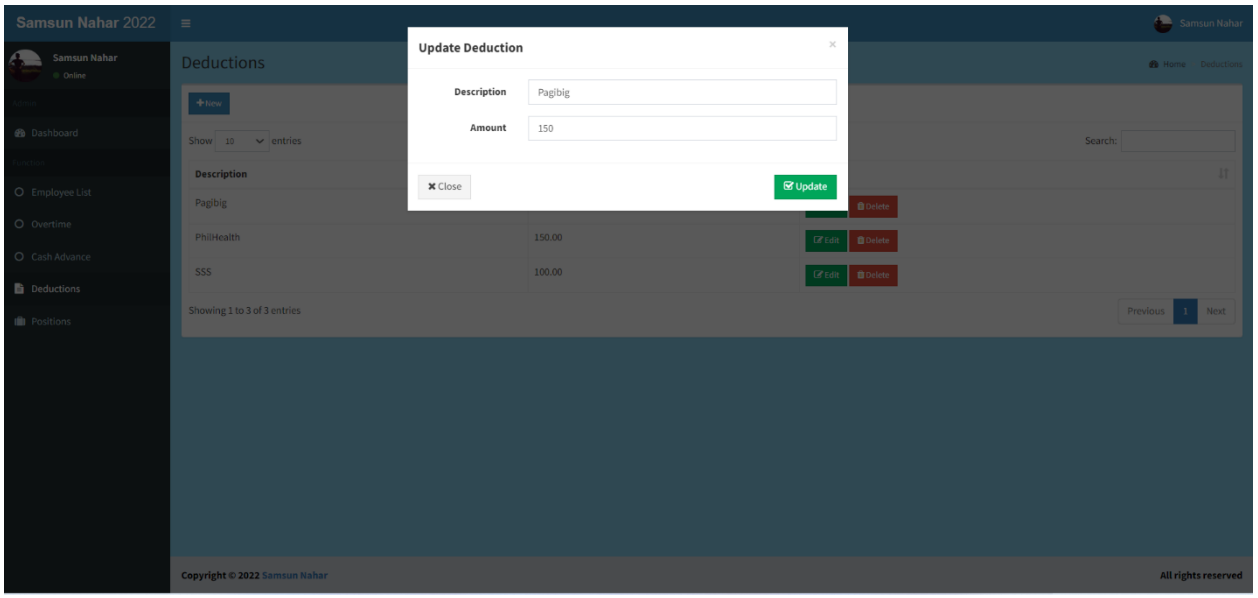


Figure 5.22: Edit deduction form

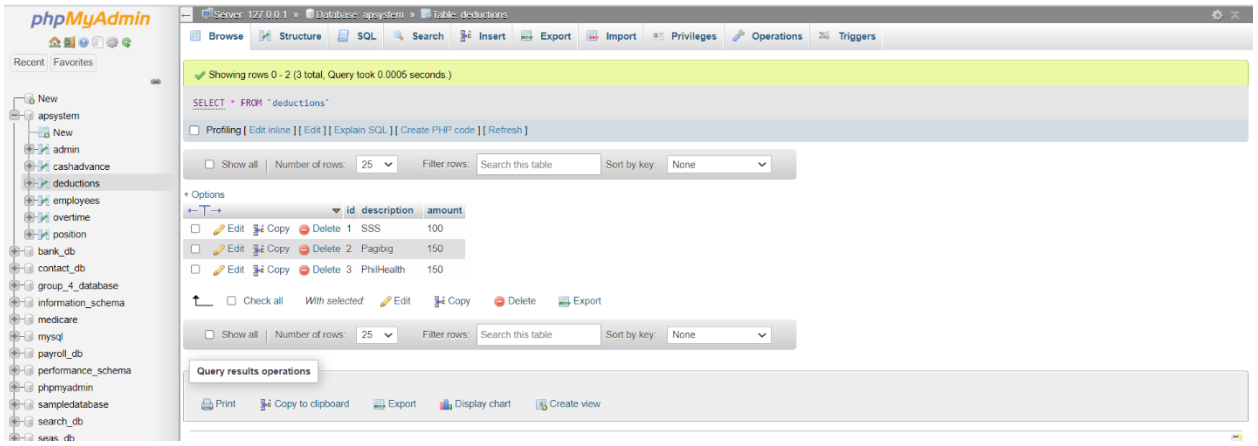


Figure 5.23: Database – Deduction table

5.4.2 Output

Process	Fields Type
View Dashboard	**#Success-After click dashboard option, the admin panel will be displayed Infront of the admin. #Failure-If there are any issues happening regrading fetching data from database then it shows an error message.**
View Employee list with details information	**#Success-After click employee option, a list of employees will be displayed Infront of the admin. #Failure-If there are any issues happening regrading fetching data from**

	database then it shows an error message.
View Overtime details information	**#Success-After click overtime option, the overtime details will be displayed Infront of the admin. #Failure-If there are any issues happening regrading fetching data from database then it shows an error message**
View job position details information	**#Success-After click position option, the position details will be displayed Infront of the admin. #Failure-If there are any issues happening regrading fetching data from database then it shows an error message**
View cash advance details information	**#Success-After click cash advance option, the cash advance of the employees will be displayed Infront of the admin. #Failure-If there are any issues happening regrading fetching data from database then it shows an error message**
View deduction details information	**#Success-After click deduction option, the deduction of the employees will be displayed Infront of the admin. #Failure-If there are any issues happening regrading fetching data from database then it shows an error message**

Figure 5.24: Output

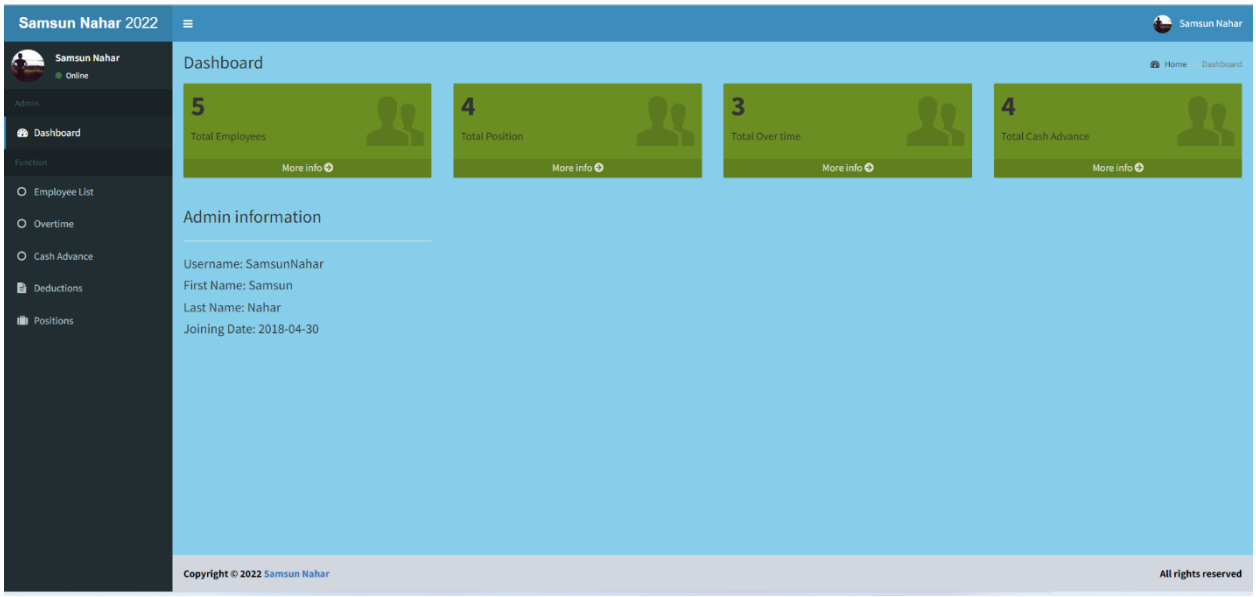


Figure 5.25: View admin dashboard

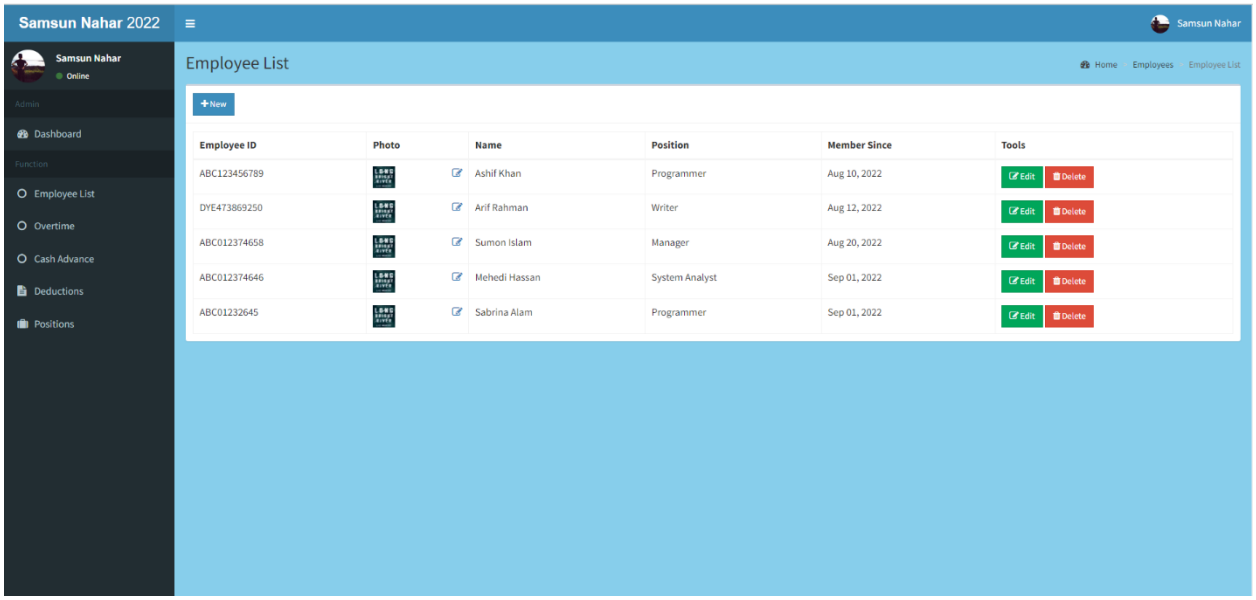


Figure 5.25: View Employee list

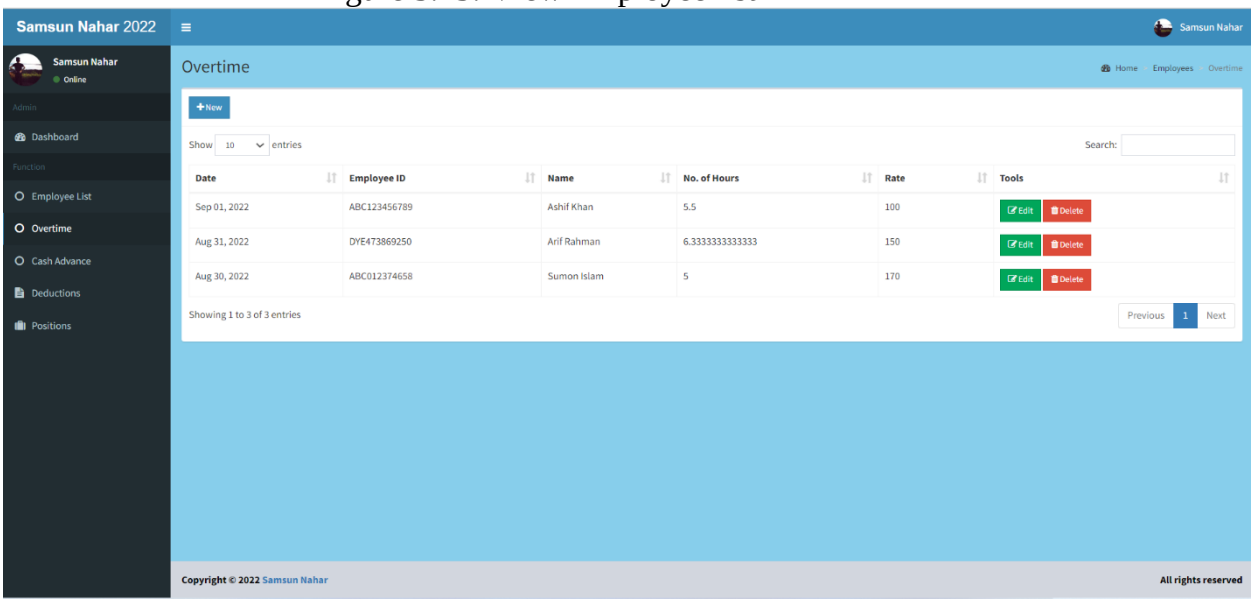


Figure 5.26: View overtime details

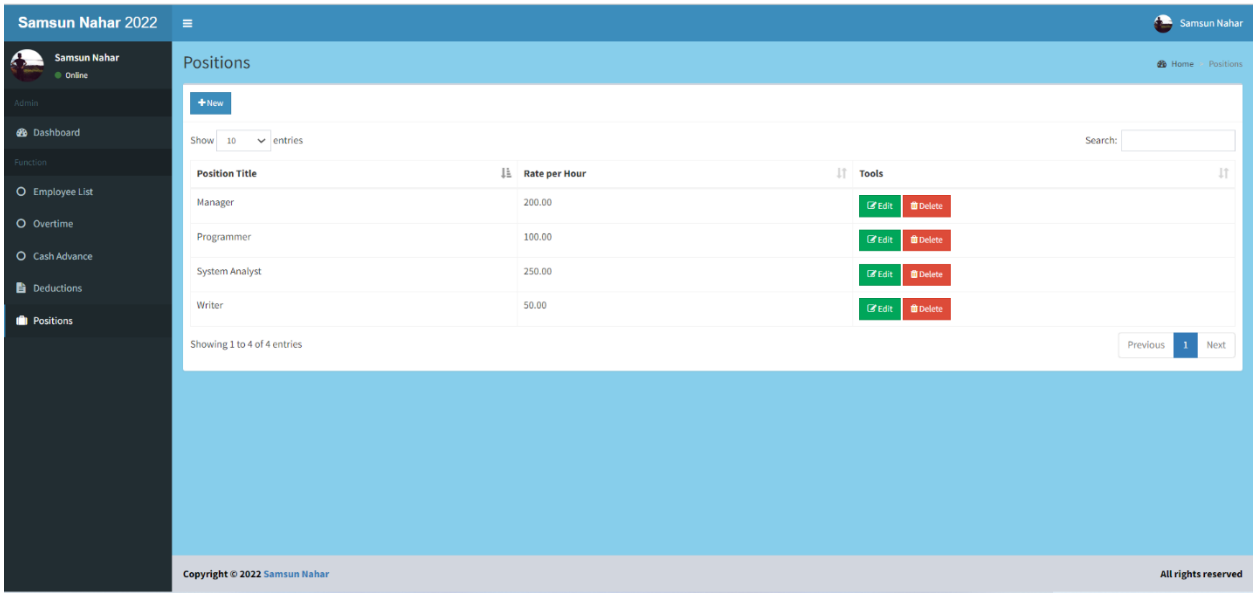


Figure 5.26: View position details

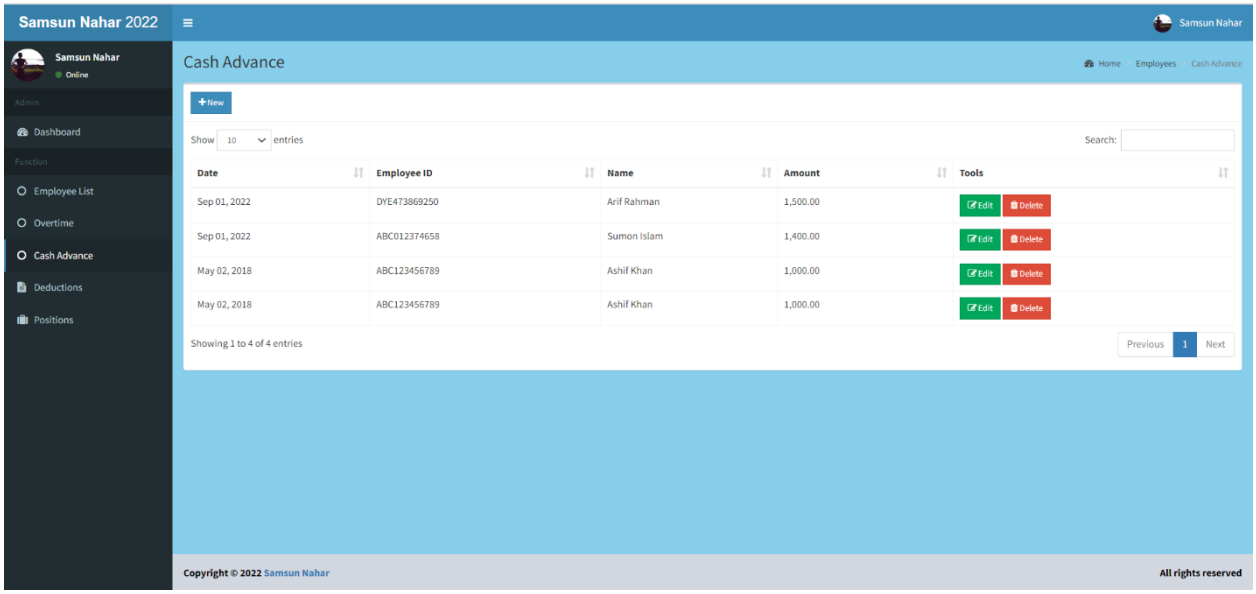


Figure 5.27: View cash advance details

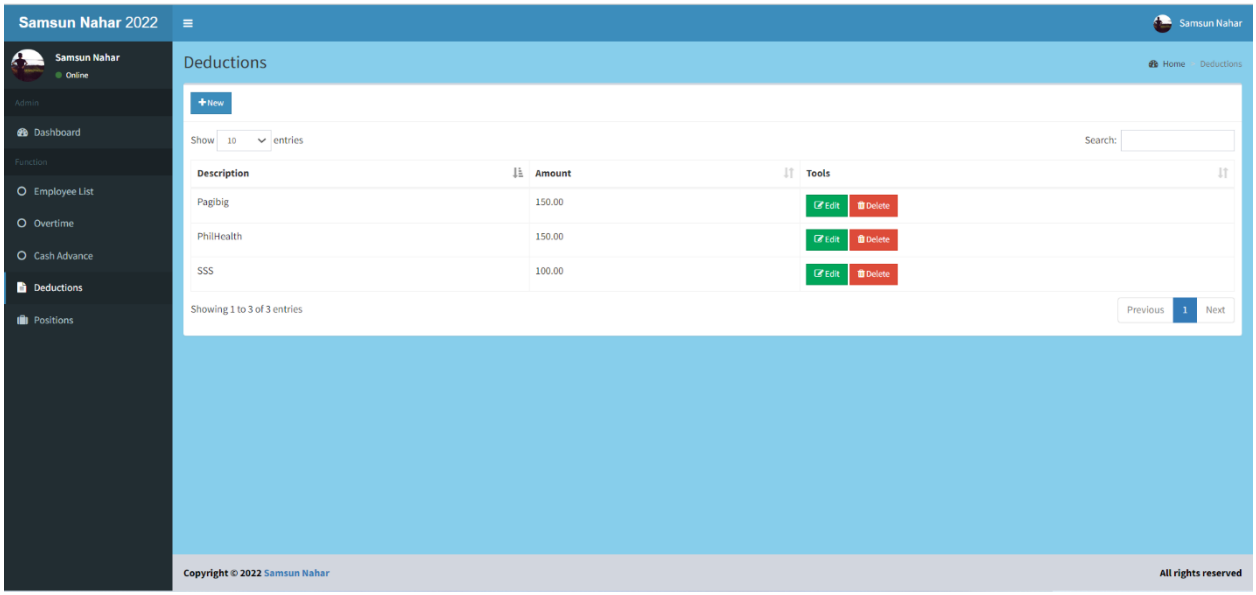


Figure 5.28: View deduction details

5.4.3 Architecture

An architecture defines the backbone of any structure. It is mapped to show how a structure will stand. For a website a website architecture defines the structure of the website, that is how the website will work, how the data will be transferred and where they will be stored.

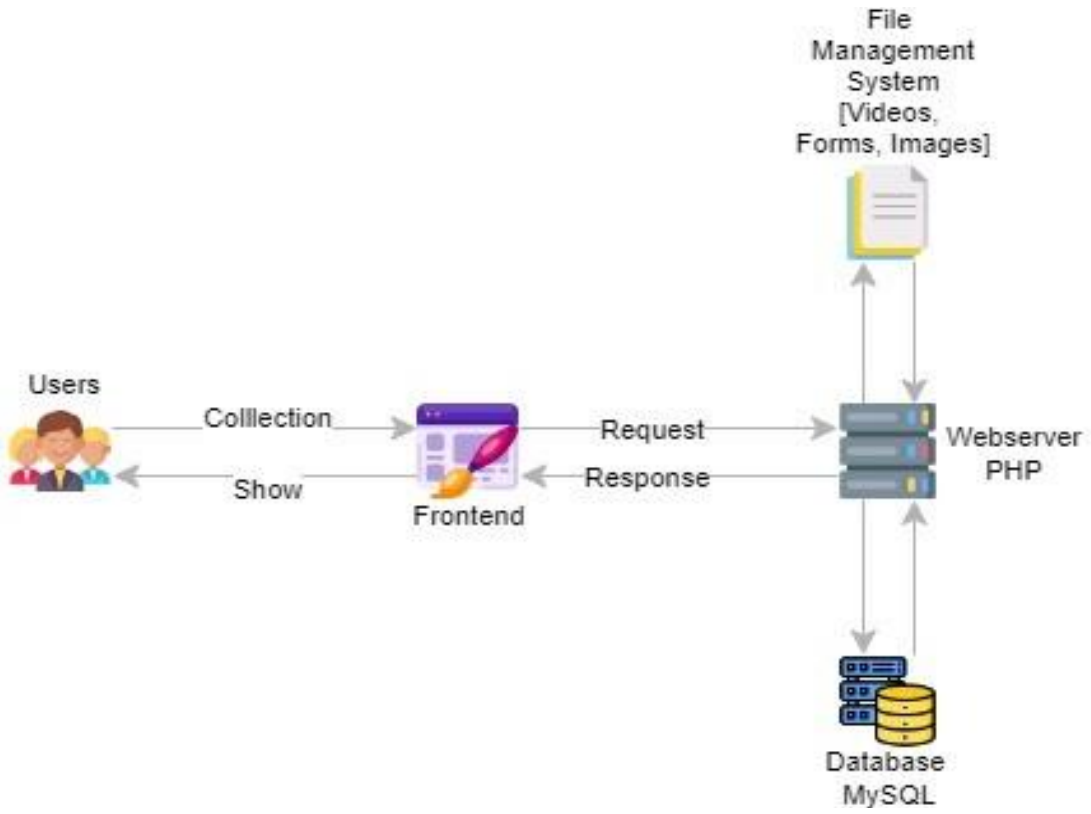


Figure 5.18: Architecture of Professional health care application

Chapter 6

Results & Analysis

By surveying all the reference websites and analyzing all the data has been collected and analyzed. The data collection process was cumbersome since there was a number of amounts of product names from different websites. A web scraper is proposed to be built just to remove the hassle of data collection, insertion and formatting the data. The front-end of the web application has been tested with the local server xampp.
Front-end of the website is not fully functional. The images of the products are inserted. Design is created to attract users.

6.1 Software Testing

Software testing is a method that the actual software product meets the expected requirements. This involves running software/system components manually or using automated tools to evaluate one or more properties of interest. The purpose of software testing is to identify bugs, gaps, or missing requirements, not actual requirements.
Software testing determines the safety, accuracy, and quality of new software. Approval refers to the process of verifying that the generated computer software fits the NCL requirements. The main goal of software testing is to find bugs in the program.
Our supervisor Maruf Rahman sir check our project and he test our system with software tester and found many bugs. Then he suggested us how to fix them. We all fixed our bugs by the help of him.

6.2 Graphical User Interface Result

The graphical user interface is a form of user interface that allows users to interact with devices through graphical icons and audio indicator such as primary notation, instead of text-based user interfaces, typed command labels or text navigation.

This is the system of interactive visual components for computer software. A GUI displays objects that convey information and represent actions that a user can perform. Objects change color, size, or visibility as the user interacts with them.

Chapter 7

Project as Engineering Problem Analysis

Engineering problem analysis is the internal guidance of a project. It can be described as the breaking down of sustainability, social and environmental effects and analysis,ethics and ethical issues into its basic elements to get at its essential features and their relationships to each other and to external elements.

7.1 Sustainability of the Project/Work

When it comes to the product/long-term work's viability, a number of factors come into play. The ability of a product to be maintained and upgraded is referred to as its sustainability. It is critical to comprehend the ideas of sustainability and develop a suitable sustainability plan in order to avoid project failure.
The sustainability of the product can be categorized into 3 parts:

a. Community Sustainability: The term "community sustainability" relates to how much the community, or the users who will use the system, will support the project's long-term viability. As our project work for NCL, but after released it will used by any user. User contact with other users very smoothly, it has no risk to spread the conversation. So that's way the community in reached. It will also grow a community and hence it can be said that it is Sustainable in terms of Community.

b. Financial Sustainability: This refers to how the application's running cost will be maintained after it has been released and whether it will generate enough revenue as acceptable profit. An application's running cost includes-server cost, database storage cost, third party API cost, etc. The initial release of the system won't have any fees to use but as the user base grows there are plans to introduce new premium services which will eventually be used to generate revenue.

c. Organizational Sustainability: It relates to how the organization will continue to operate after the release of the application. After the release of an application, usually the organization maintains the application via its current team, an extended team or by a fresh new team. Also, organizations update their project by adding newer features to it and organization may pivot to other projects, expand the teams, create new teams, etc. Payroll system has many more features planned for the future to be worked on and released. Since the application has further plans, the project will be maintained and updated after its release . In conclusion, it can be said that the project is organizationally sustainable.

7.2 Social and Environmental Effects and Analysis

In our daily lives, everything has social and environmental effect. Payroll management system has also social and environmental effects.

7.3 Addressing Ethics and Ethical Issues

In this era of technology trying to be someone became very easy, without knowing someone can try to impersonate you and use your credential to do illegal or commit any crime. It became vital to keep user data securely otherwise someone can easily attack the system and take user information.

1. Fraud and Identity Theft: The website does not allow any other third-party software to the database. Data are from what user provides no other information are stored.

2. Data Security: Only the head developer will have access to the server and the database system. Database is secured with user name and password, without this logging information no one else can have access to the data collection.

Chapter 8

Lesson

Learned

8.1 Problems Faced During this Period

Internship is completely a new experience for me. I faced some challenges and problems during my internship period and I have to find out the solutions for those problems. I have learned so many things from my internship. This experience is completely a new learning for me, and I have enjoyed it.

Adjusting to Corporate Culture: In each corporate office environment, the culture is not defined; rather, it must be learned and adapted to the employees' cumulative behavior. It was challenging for me to adjust to the company's learning and working phases after being exposed to such an environment. My internship's learning phase was not solely focused on software; it also included hardware, network, self-education in dealing with various types of individuals from various departments.

Adapting to New Technologies: Since this was the first time, I have ever worked on a web application in an office environment I had to learn and adapt to new technologies of the company. Although acquiring the skill set was possible it became hard to apply them in real life situations. First time I learned HTML,CSS and PHP frame work at the starting of our internship.

Keeping up to Speed: After learning new technologies and putting them to use wasa slow process for me initially as it was the first time, I have ever used it with an office environment. Hence, it was quite difficult to meet weekly deadlines, and this slowed down the overall pace at which the application was developing.

Identifying and Fixing Bugs: Often there were bugs which were very hard to find, and even after they have been found it became a big problem to fix it. There were bugs that were so difficult to deal with that it would take a whole week to fix it.

Time management: As my home is far away from Norban Comptex Ltd, so I had faced many problems to go my office.

8.2 Solution of those Problems

I addressed the challenges that arose during my internship with the support of my supervisor and engineers working in the NCL project overcame the problems that were faced. My internship experience was a mix of learning and working at the same time. My supervisor first introduced and educated me on the fundamentals of technologies that I need to be used in real life project, as well as the kind of commercial work that was being done in this area of the business, to ensure that I was familiar with field of work. This aided me in overcoming the challenges and problems I encountered while building the system.

Adjusting to Corporate Culture: At NCL, my seniors and coworkers, particularly my supervisor, were genuinely helpful, which gave me the courage to open up and contribute more to the project's operations. Seniors at the organization assisted me inbetter understanding of projects fundamentals and how it works, allowing me to comprehend the project more clearly and put more effort into it. Their enthusiasm inspired me to ask questions, step beyond of my comfort zone, and gradually adjust to the firm's corporate culture.

Adapting to New Technologies: In the beginning it was a difficult situation for me to adopt with new technologies. But after some days I habituate with the entire process by the help of my supervisor and support of web developer team.

Keeping up to Speed: Initially it was a slow process for me as it was the first time, I have never used it with an office environment. After some days, it became easier to maintaining work load and speed.

Identifying and Fixing Bugs: We have project boards linked to the shared file on google drive where we keep updating a list of bugs/features we are working on. This makes understanding the state of the code-base and fixing bugs easier for me and also for the web developer team.

Time management: First 30 days I faced many difficulties then I adjusted with it. I went office at the given time.

Chapter 9

Future Work & Conclusion

Working as an intern at Norban Comptex Ltd has encouraged me to pursue a careeras a software engineer. Working in a software-based organization was a key learning aspect about the functions of work in the website sector, which has a large field of commercial work.

The future of work describes how work will change over the next decade, influenced by technological, generational and social change.

9.1 Future Works

- **Add payment gateway:** Users will be able to make seamless transaction through payment gateway.
- **Add rating system for each service:** User can rate each of the system whatever they like or not.
- **Improve existing features:** The existing features will receive regular updates.
- **Offline services:** Clients can access the system even when offline:

9.2 Conclusion

Firstly I thanked to our Dean sir to give me the opportunity to work with such a great platform like Norban Comptex Ltd. He helped me by taking brainstorming session.

Norban Comptex Ltd provided me with an excellent learning opportunity during my internship. Because I live so far away from the workplace, it was difficult to stay committed to visiting office hours. This internship gave me the opportunity to get a taste of what people act in the commercial. I had also adjusted to the office culture. Everyday I learned different things from office, my supervisor and my teammates.

The internship has been a very fruitful and worthy experience for me. I was able to work, hands-on, in an industry that I had no prior knowledge about. The process of transforming the rich theoretical knowledge with the practical knowledge of the industry has dawned on me.

Interns do not usually get to work on live projects and contribute to the workflow of an ongoing project in the office. I was worth giving a chance to and tasked me with such projects that would help me grow in every aspect of my career. Being the youngest there and the least experienced of the bunch, I got a lot of advice from the people of the company. I also learned the uses of tools and techniques for develop a project.

Finally, I'd like to express my gratitude to my university supervisor (Sabrina Alam), who assisted me in writing my internship report, as well as my supervisor from Norban Comptex Ltd (Maruf Rahman), who introduced me to the practical work of software engineering by assisting me with Payroll Management system and showing me the way to achieve the best results. Their suggestions helped me get through the internship. Their encouragement and motivation have given me the confidence to work such a platform.

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An Undergraduate Internship on Payroll ManagementSystem

By

Samsun

Nahar

Student ID:

1520740

Summer, 2022

Consent Form

The student modified the internship final report as per the recommendations made by her academic supervisor during final viva and the department can use this version for archiving.

Sabrina Alam

(Signature of the Supervisor)

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