An Undergraduate Internship/Project on "Personal Information Management System"

By

Amit Mahmud

Student ID: **1820013**

Spring, 2022

Supervisor:

Ajmiri Sabrina Khan

Lecturer

Department of Computer Science & Engineering

Independent University, Bangladesh

May 10, 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 certify that the report is completed by me, Amit Mahmud (ID:1820013), submitted in partial fulfillment of the requirement for the Degree of Computer Science and Engineering from Independent University, Bangladesh (IUB). It has been completed under the guidance of Ms. Ajmiri Sabrina Khan. I also certify that all my work is genuine which I have learned during my Internship. All the sources of information used in this project and report has been duly acknowledged in it.

Signature

Date 02/03/2022

Amit Mahmud

Name

Acknowledgement

First of all I would like to thank The Almighty Allah for giving me the endurance and the ability to work hard, for giving me the ability to write this report to and for giving me the chance to be able to do my internship at OS IT Solutions LTD. Also, my parents for their unconditional love and support that have sustained, nurtured, and got me ready for this challenge.

I would like to thank my honorable faculty and supervisor Ms. Ajmiri Sabrina Khan, Lecturer, Department of Computer Science & Engineering, Independent University, Bangladesh, for her invaluable guidance, patience, time, constructive criticism and thoughtful advice regarding various aspects of my internship and preparation of this report.

I would like to thank my senior coworkers who made me feel at home from day one in the company and helped me navigate throughout the project. And I would like to thank Mr. Kazi Noman for the sincere guidance in the project. I am thankful for the continuous guidance and support along with the vast pool of knowledge which was key for the completion of the project.

Lastly, I would like to acknowledge my external supervisor and my mentor Md. Muniruzzaman for appointing me as an Intern for OS IT Solutions LTD and included me to be a part of this company. Without his extreme energetic support and guidance, I could not finish the project successfully.

Letter of Transmittal

02 March 2022
Ajmiri Sabrina Khan
Lecturer,
Department of Computer Science and Engineering,
Independent University, Bangladesh

Subject: Letter of Submission for Internship Report, Spring 2022

With due honor and respect, I, Amit Mahmud, from Spring 2022, Section 12, would like to submit my Internship report. This report is written to kindly inform you that I have completed my internship program and its report. My internship was conducted from 1st February to 30th April 2022. I completed my internship at OS IT Solutions Ltd.

This report is based on my experience and the work I did at OS IT Solutions Ltd. during my internship. The primary goal for my internship was to gain experience in all the different technology related fields of the company, including research and development, documentation, software development, and to get acquainted with software development processes and practices with emphasis and priority on understanding how a software is being built rather than what is being built.

Over the period of my internship at OS IT Solutions Ltd, I found out that I learned and applied a lot of new skills and technologies. The company comprises of a small team of software craftsmen who learn, collaborate, and innovate together.

I hope the following report can achieve your approval and is up to the mark.

Sincerely,

Amit Mahmud, 1820013
Email: amitmahmud23@gmail.com

Evaluation Committee

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Signature

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Name

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Supervisor

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Internal Examiner

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External Examiner

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Convener

Abstract

Personal Information Management System is a Web based application that works within a centralized network. The system is built for managing all the personal and career information of a Govt. employee and computerizing the traditional database. This web application can connect to respective servers for accessing data which will help users to get information of employees and their career record. Hence the implemented web system having all the features that will make it more user friendly and accessible. This report is broadly categorized in 9 chapter. In first chapter there is an introduction about the project, background of the project, objectives, scope of the project and about the organization where I worked. Chapter two describes the literature review where I discussed about similar works and how my undergraduate studies help me to do this project. Chapter three describes the project management and financing of the project where I describe work breakdown structure, time distribution show in critical map diagram, Gantt chart, activity wise resource allocation and about the budget. Chapter four describes about methodology where I describes about waterfall methodology which I used here; I also describe why use waterfall methodology.. Chapter five describes body projects, where I describe in detail about work description, six element analysis, feasibility analysis, problem, effects and constraints analysis. I also give here rich picture, ERD diagram, activity diagram, use case diagram and class diagram. Functional, nonfunctional requirements, input, output and architecture of the project are also described in this section. Chapter six describes about survey results and analysis. Chapter seven describes project as engineering problem analysis which includes sustainability of the project, social and environmental effects of the project, addressing ethics and ethical issues. In chapter eight I have included the problems I have faced during the project period and how I solved those. Chapter nine describes about the future work for this project and finally the conclusion. This software will save a lot of time and money for company.

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Chapter 1

Introduction

1.1 Background of the Work

In our country Bangladesh, a Government employee spends most of his/her life in different positions and different sectors in his/her career. This report highlights the study of the employee's whole career information along with the personal information stored in one place so that in future all of his/ her information can be found in a single place. Our system fulfills the required analysis of its processes, and proposes a new and better improved version of the system that reduces error, makes analysis of data and report generation easier by all vested quarters and produce/show valuable information needed for the higher authorities in making necessary steps to select better candidates for a particular position. This first part of this report focuses on the existing system and its shortcomings and an introduction of the proposed system that we plan to replace the existing system with. The second part will be heavily technical and focus on how we plan to bring the proposed system into being.
According to our research on the existing system of personal information management system we have come across areas where some essential changes are required to make the system more efficient so there's an ease of communication between the stakeholders. Moreover, the changes will take away chances for error, data duplication, and most importantly stakeholders can have access to a large data set and view meaningful information from our system instead of manually going through documents.

1.2 Objectives

Our project is completely concerned about making a system which surely stores all the detailed information of a government employee. The employee can register as a user and submit application. And the higher authorities can manage the registration application, verify it and then approve or disapprove. This automated software along

with easy-to-use interfaces will reduce the manual processes drastically and give ideas about the detailed personal career information of the employee.

1.3 Scopes

Scope of the project is a necessity to ensure the accomplishment of a project. As we are modifying an existing system, we have to ensure that the proposed system will be more effective than the existing one. Because it is very inefficient to maintain detailed records of the employees, therefore there is a need for an upgraded and automated personal information management system (PIMS). Here we basically focused on maintain all the detailed records of the government employees.
So, the purpose of this project is to develop the current system with our proposed solution where we are looking forward to:
i. Create a system which takes input with an easy to go interface.
ii. Make the system accessible by authorized holders.
iii. Data assembling and sorting
iv. Instantly insert, update, and delete necessary data from the database
v. Generating reports

Chapter 2

Literature Review

2.1 Relationship with Undergraduate Studies

List of courses that helped in the development process:

Independent University, Bangladesh offers a plenty of courses that helped me in the development process of my project. The courses are as follows, in no particular order: -

i. CSE 203, **Data Structures:** This is the course that helped me with the ideas of several data structures and their applications.
ii. CSE 213, **Object Oriented Programming:** This course taught me how to write modular programs which made codes less repetitive and more reusable. It helped me to design "Personal Information Management" project code in a modular format easily.
iii. CSE 303, **Database Management:** This was the first course which taught me how to design and plan a project properly. This course covered popular planning and strategy practices such as System Development Life Cycle, Rich Picture, Requirement Analysis, Entity Relationship Diagram, Business Process Model and Notation Diagram and many more things.
iv. CSE 307, **System Analysis and Design:** This is the course that gave an overview of different System Development Life Cycles and how to adopt each one of them to implement the project.
v. CSE 309, **Web Application and Internet:** This is the course where the development of web applications was taught such as HTML, CSS, JavaScript, Bootstrap, Node.js, Laravel and MySQL. The tools and technologies learned from this course rapidly contributed to the development of my project as it is an web application built with web technologies and it has a back-end server which had to be deployed to the cloud server as well.

2.2 Related works

The project's goal is to automate manual tasks and existing structures in order to boost the program's overall efficiency. The incorporation of the newly offered features has the potential to improve the overall system's capability. The goal of the project is to improve the system as much as possible while maintaining a reasonable level of efficiency. Upgraded features may create new avenues for improving systems to a higher degree, or institutions may be able to think from a fresh perspective, which may lead to new prospects in our system. But as this in an information management system project, this types of projects have been done before.

i. In Health Sector: In the hospitals Patient Information Management System is being used a lot. Patient's personal information, date of admission/ release, health condition, disease information, bills information are stored in this system.
ii. In Education Sector: To store student's personal information, educational background information these type of information system are being used.
iii. In Human Resource Management Sector: Information management systems are being used to store people's personal information, unique voter id, passport number and many more information.
iv. In Covid-19 Situation: We all know how Covid-19 infected us recently. To store vaccine information, doses information these types of information management system is used.

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

WBS is a hierarchical structure which demonstrates a project's breakdown into smaller segments. [1] For our project, we have produced 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 it does not skip essential deliverable. For brain storming and collaboration, it is the ideal tool for the team. In our WBS, we have used the top-down approach.

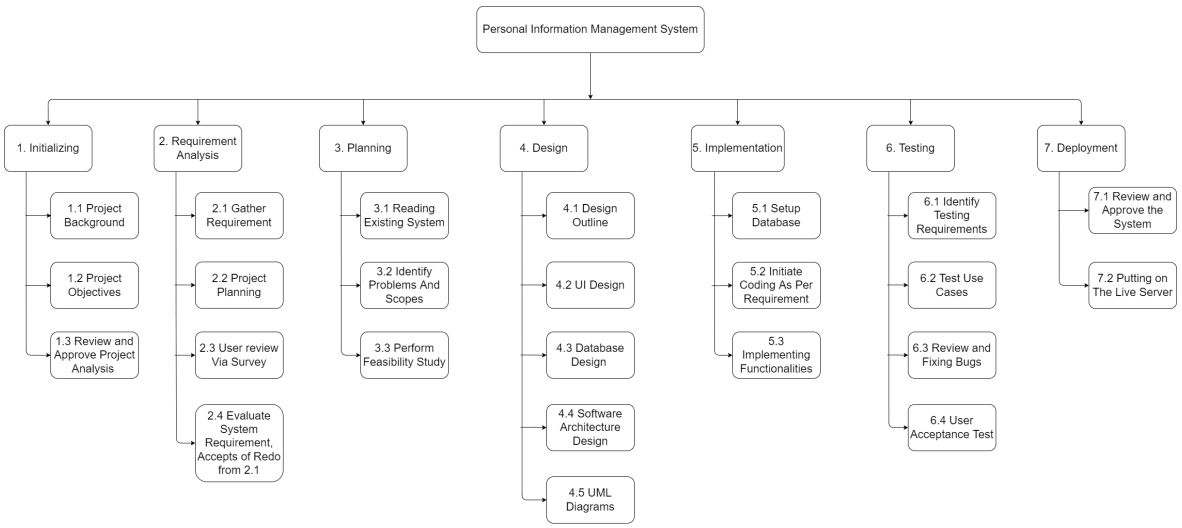

Figure 3.1: Work Breakdown Structure

3.2 Process wise Time Distribution

For Each Section we have described in the WBS Diagram for ERP we made a time allocation as following:

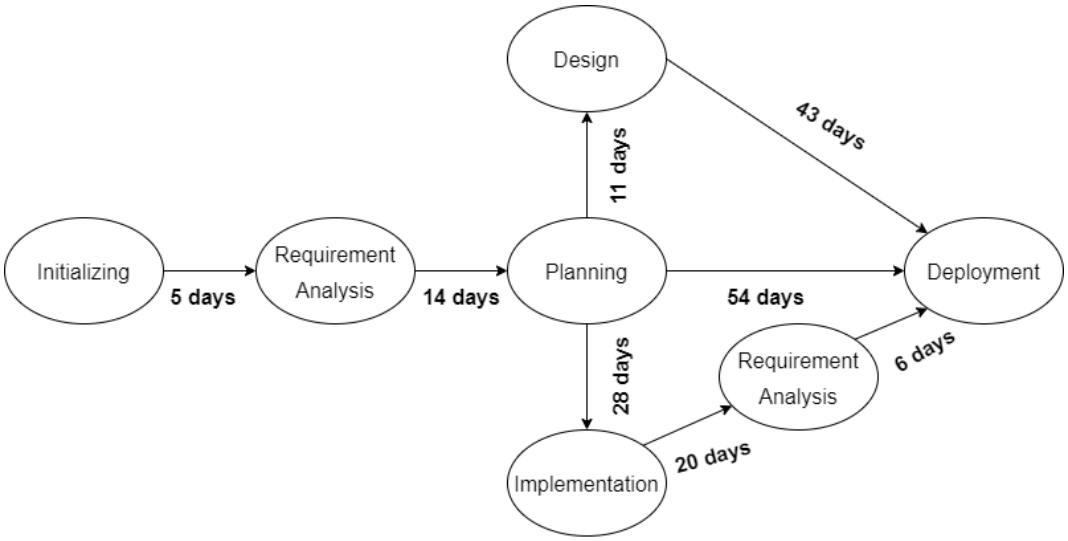

Figure 3.2: Activity Wise Time Distribution

3.3 Gantt Chart

We have used the Gantt chart to plan and schedule all the activities that were needed to be done to complete the project successfully.

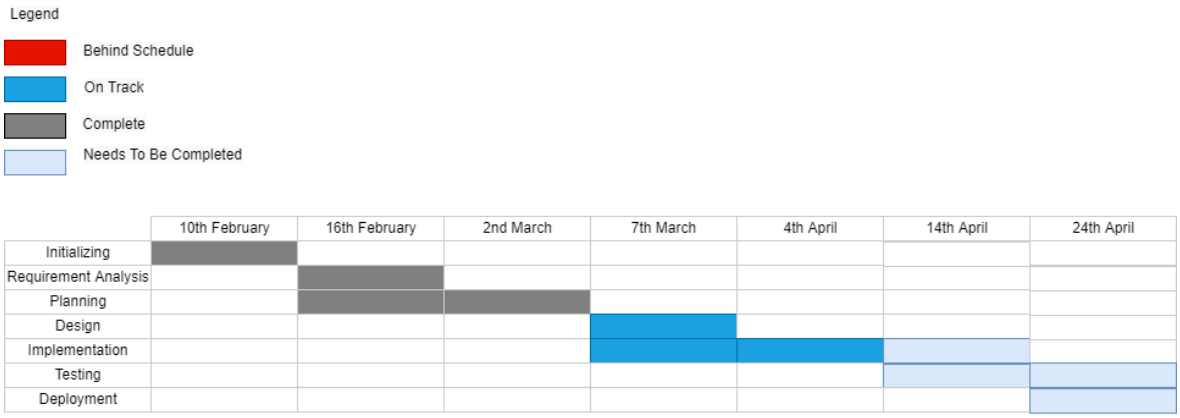

Figure 3.3: Gantt Chart

3.4 Process wise Resource Allocation

Initiating: This is the first step of the Development for our project, where the need of the information system is realised.
Requirement Analysis: In this step we need to work on the predictions of what the requirement is needed for this Web application will be.
Planning: This phase is perform when the full team involved and brainstormed on how we are going to set goals and the approaches we are going to take to develop this Web Application.
Design: This is the phase is where we designed the features, users and functionality of the system to a few mainstream diagrams so that they show us the bigger picture of the whole scenario.
Implementation: This is where the development started according to the requirements.
Testing: Testing need to be done simultaneously as we proceeded to develop the Application and the errors are needed to be fixed as we are also developing new features in the Application.
Deployment: The software deployment was pretty good as we aimed for the development in good quality software.

3.5 Estimated Costing

Requirements	Quantity	Amount (in Taka)
Salary Payments (3 months)	3	70000
Printer	2	13500
Electricity bill (3 months)	3	3500
Domain/Server/Hosting (1 year)	1	4500
Internet Bill (3 months)	3	3000
Subtotal	**-**	**31500**

Table 3.1: Estimated Costing

Chapter 4

Methodology

We know to complete a project, we must go through some stages which are called System Development Life Cycles. The SDLC which is the System Development Life Cycle is the process of understanding how an Information System (IS) can support business needs, designing the system and building it then deliver it to users. The SDLC composes mainly of four phases such as: Planning, Analysis, Design and Implementation.
As we know there are few methodologies that the developers choose according to the project needs are shown in the following

i. Waterfall
ii. Prototyping
iii. Iterative and Incremental Development
iv. Spiral Development
v. Rapid Application Development
vi. Extreme Programming

4.1 Waterfall Methodology

The Waterfall model is an ideal example of a Sequential model. In this model, the software development activity is basically divided into different phases and most importantly each phase consists of a series of tasks which has different objectives.

Waterfall model is the initiation of the main SDLC processes. In fact, this model was the very first model which was widely used in the software industry in the past. It is divided into some phases and output of one phase becomes the input of the next phase. Which is simply means it is mandatory for a phase to be completed before the next

phase starts. In short, there is no overlapping of phases in the Waterfall model. [2]

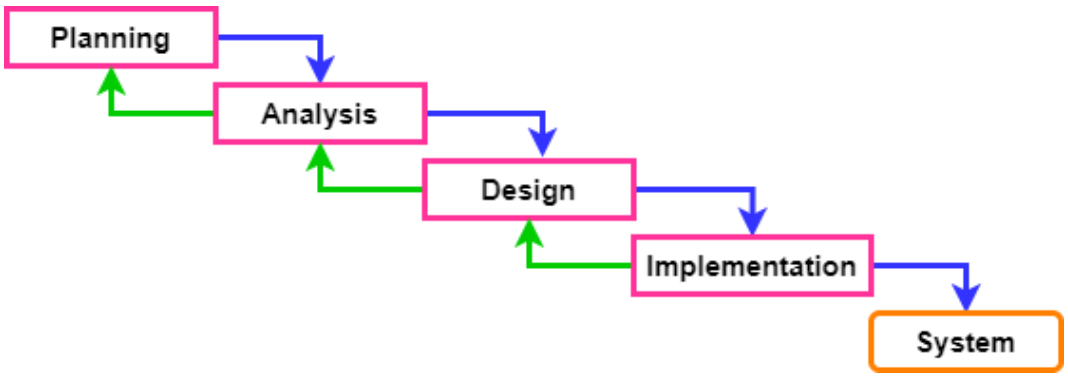

Figure 4.1: Waterfall Development Methodology

4.2 Why Waterfall Methodology for this project?

As discussed before that we are developing this project as an web-based application, so to develop this project, the methodology that we will be used in this project is the System Structured Analysis and Design Methodology. The System Structured Analysis is classified as a Waterfall Development. With Waterfall Development, both analyst and users proceed sequentially from one phase to the next and each phase can be mapped out and evaluated (Hevner, 2004) [3]. Also, we know that waterfall methodology is applicable when Requirements are stable and not changed frequently and there is no requirement which is not understood or not very clear. Moreover our resources were well trained and are available. Since the phases are rigid and precise, one phase is done one at a time, it is easy to maintain.

4.3 Waterfall Implementation

From the requirement analysis, we started the project working initially. Then we designed the User Interface for the application and as well as the database. Then the main development part was began started with coding and simultaneously testing as required.

Chapter 5

Body of the Project

5.1 Work Description

In the development process of the project, I have contributed on both the front-end and the back-end side of this web application system. The front-end is developed with HTML5, CSS3, JavaScript and BOOTSTRAP 4.0. And Laravel framework including NodeJs has been used for the back-end side. MySQL queries has been used in the database. So day to day tasks were needed to be completed so we could develop this whole project.

5.2 Requirement Analysis

The Rich Picture Analysis shows us that we have the following types of stakeholders:
1. Employees: User
2. Higher Authority: Manager
3. Admin: Super User

We can also identify two separate storage systems or facilities, namely:
1. Temporary Database
2. PIMS Database

From the Rich Picture we have drawn out the processes that are keys to maintain personal information management system. The processes are as follows:
1. Registration/ Additional Information Form Collection.
2. Submission of forms for verification.
3. Update information if required.
4. Information Verification, approve and store manually as files.

Rich Picture of Existing System

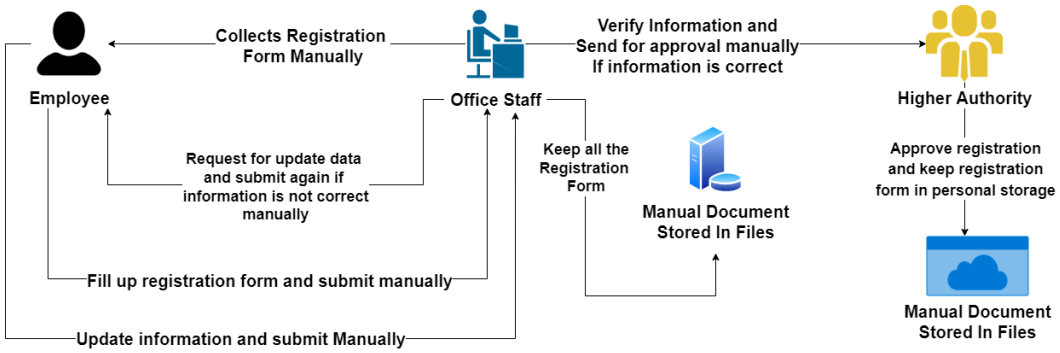

Figure 5.1: Rich Picture Of Existing System

5.2.1 Problem Statements

Some traditional problems of Personal Information Management System while doing it manually are identified as following,

1. May miss of documents.
2. It takes time to verify different documents from various Users/offices due to manual interventions.
3. Concern Persons don't have facility to provide data/Report instantly through online.
4. Different tasks depend on manual system which is time consuming.

Rich Picture of Proposed System

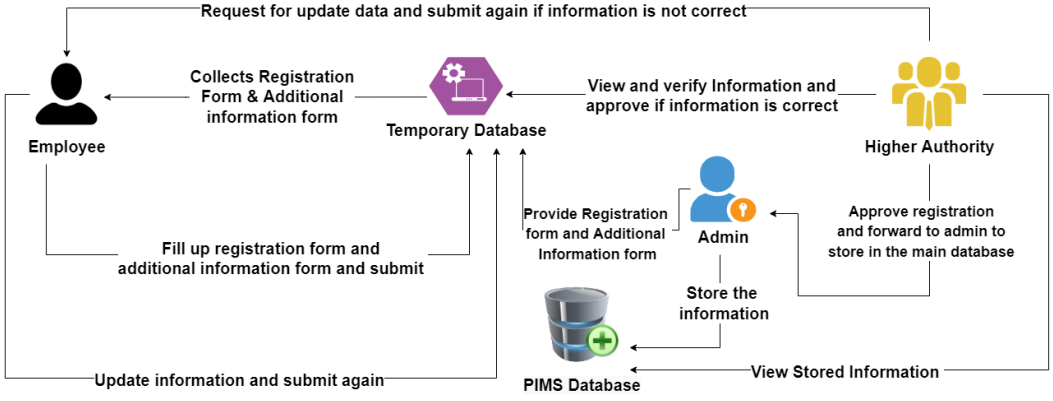

Figure 5.2: Rich Picture Of Proposed System

5.2.2 Overall Description

PIMS is a replacement for the existing semi-manual personal information management system which depends on two separate storage systems and paperwork for recording necessary information of the employee. The existing system is dependent on manual processing where PIMS will be a one-stop web-based portal for all the stakeholders involved in personal information management, that will enable automatic and centralized data processing and storage, on-demand and real-time report generation and a centralized point of instruction modification based on any required change.

Functional and Non-Functional Requirements

PIMS will have primarily three user types - Employee, Manager and Admin.
Given below are the system functions for each user.

Employee:
i. Sign up by filling the new user form and request for approval.
ii. Can Add/ Delete/ Modify Additional Information after having approval.

Manager:
i. Approve/ Disapprove pending registration request.
ii. View all approved user list.
iii. Request the Employee to update information if needed.
iv. Use the employee information in future for promotion or demotion.

Admin:
i. Add/ Modify Registration/ Additional information form.
ii. Approve/ Disapprove pending registration request.
iii. View all approved user list.
iv.Generate report on approved user list.

User Characteristics

Users of the software system include employees, manager and admin. All users are assumed to have a basic understanding of computers and internet browsing.

Operating Environment

The server-side components of the software system must operate within a Unix-based operating system environment. The client-side components of the software system must operate in all widely used browsers environments using HTML5 / Secure Sockets Layer (SSL) / Transport Layer Security (TLS) /JavaScript.
The minimum set of browsers that must be supported is:

i. Apple Safari 7+
ii. Google Chrome 44+
iii. Microsoft Internet Explorer 10+
iv. Mozilla Firefox 40+

Design and Implementation Constraints
i. The information of all users, must be stored in a database that is accessible by the website.
ii. MS SQL Server will be used as SQL engine and database.
iii. The PIMS will be running 24 hours a day.
iv. Users may access PIMS from any computer that has Internet browsing capabilities and an Internet connection.
v. Users must have their correct usernames and passwords to enter into their online accounts and do actions.
vi. Language requirements: PIMS will only support US and UK English.
vii. Users' browser must be compatible with HTML5 content and have JavaScript enabled.
viii. Setup and maintenance of the PIMS application are the responsibility of the customer. Setup and maintenance include installation, hosting, host-security configuration, and administration.

5.3 System Analysis

5.3.1 Stakeholder Analysis

Stakeholder	Responsibilities
Employee	1. Resister by submitting application 2. Add additional information 3. Update information.
Manager	1. Verify Information 2. Approve/ Disapprove request.
Admin	1. Create User Account 2. Verify User Identity 3. Store Data in the PIMS database 4. Update registration application 5. Generate reports

Table 5.1: Stakeholder Analysis

5.3.2 Feasibility Analysis

Technical Feasibility

Operating Environment: Software Laravel and ReactJs.

Hardware Platform: Mobile, computer, laptops or any other browser supported medium.

OS Browser: Chrome, Microsoft Explorer, Mozilla Firefox etc.

Software Components And Application

Dependencies:
i. ReactJS
ii. Laravel

Environment:
i. Visual Studio Code
ii. Sublime Text
iii. Xampp
iii. Notepad++

Database
i. SQL Database

Operational Feasibility

Our system will support each system requirement done by the stakeholders and they do not need to modify their business processes to take advantage of our system. Most portions of our system are offered as an alternative to help their processes complete faster in terms of unwanted situations that delay their current procedure.

Economic Feasibility

Our system will support each system requirement done by the stakeholders and they do not need to modify their business processes to take advantage of our system. So in this sector our system will be economically feasible.

5.3.3 Problem Solution Analysis

As we know problem solution analysis is the process of understanding and defining the problem that to be solved. Basically problem solving identifies solutions that is conform to the needs and constrains of the problem. Our system will support each system requirement done by the stakeholders, so our system will be feasible.

Problem 1: Defined requirements were few numbered.

Definition: In the beginning of this project, when the requirements for this project was set, the survey was not well resourced.

Solution: To get a proper understanding of the requirement analysis there need to be surveys and personal interviews from the user end.

Problem 2: Choosing the server to use in this project.

Definition: In the time of developing this project, we had a confusion about choosing a dedicated hosting server or localhost server to work in the user device.

Solution: Both server could be set to run this project. But as it is the beginning of the development process of this application, so we tested our project only on localhost server.

5.3.4 Effect and Constraints Analysis

A constraint is basically a restriction on the degree of freedom that a company can have in providing the solution. Mainly the constraints are effectively global requirements, such as limited development resources or a decision by senior management that restricts the way the development team develop a system. Constraints can be economic, political, technical, or environmental and pertain to project resources, schedule, target environment, or to the system itself. Some of the constraints and its effects that occured during our project are described below:

Constraint 1: Budget

Effect: This type of constraint has a critical effect on for how long the project can continued to be developed completely before reaching the conclusion to deadlines and due to COVID-19 situations as some of us were infected and been replaced with higher rate which is an issue.

Constraint 2: Time

Effect: Budget and time both constraints are interrelated to each other. Time strictly depends on the budget of the company for this project. This project was given a time of 4 months but due to COVID-19 pandemic and Ramadan, the development process was delayed.

5.4 System Design

5.4.1 UML Diagrams

An UML diagram is the diagram which is basically based on the UML (Unified Modeling Language) with the purpose of visually representing a system along with its main actors, roles, actions, artifacts or classes, in order to better understand, alter and maintain, or document information about the system. [4]
Software development is actually a very complex process. It is more complicated than writing a usual program. Therefore, it is not possible to directly develop the code. First of all, it is essential to design the system. Where UML helps to model the system. Later, the developers can write the code according to the designed UML diagrams.

5.5 Functional and Non-Functional Requirements

PIMS will have primarily three user types - Employee, Manager and Admin.
Given below are the product functions for each user.

Employee:
i. Sign up by filling the new user form and request for approval.
ii. Can Add/ Delete/ Modify Additional Information after having approval.

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Users of the software system include employees, manager and admin. All users are assumed to have a basic understanding of computers and internet browsing.

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The server-side components of the software system must operate within a Unix-based operating system environment. The client-side components of the software system must operate in all widely used browsers environments using HTML5 / Secure Sockets Layer (SSL) / Transport Layer Security (TLS) /JavaScript.

The minimum set of browsers that must be supported is:
i. Apple Safari 7+
ii. Google Chrome 44+
iii. Microsoft Internet Explorer 10+
iv. Mozilla Firefox 40+

5.6 PIMS System Features

Login and Registration: In the web application user systems, the login and registration are the most common features of any application. After a valid registration the user is prompted a message that the registration is successful and then user can login to the system.

Manage Profile: An User can edit any kind of information in the system related to his/her account at any time and stay updated with the system. Besides Admin can manage every user accounts and modify or delete them.

Storing Information: The internal database of the system stores all kinds of data ever inserted into the system regarding user profile, personal information.

5.6.1 Architecture

In the sector of software engineering, an web-based application is sometimes known as web app. An web application is basically an application that is accessed with an web browser over a network such as the internet. The ability to update and maintain web applications without distributing and installing software on potentially thousands of client computers is a key reason for their popularity. Though many variations are possible, an web application is commonly structured as a three-tiered application. In

it's most common form, an web browser is the first tier, an engine using some dynamic web content technology is the middle tier, and a database is the third tier. The web browser sends requests to the middle tier, which services them by making queries and updates against the database and generating a user interface. Therefore, the web-based application is chosen in the development of this system. In this personal information management system, JavaScript and Bootstrap is used for the front-end design. MySQL database is used here for storing the data. Functionalities were done in backend with Laravel Framework.

Front-end:
Basic HTML, CSS, Bootstrap and few JavaScript are used for the front-end design in this system.
JS is used because JavaScript runs interactive web pages effectively. The User Interface is simple and user friendly. An User can easily understand what he/she has to do in the system. In the future, we will try to improve the interface more widely as much as possible.

Back-end: Laravel framework including NodeJs is used in full back-end to run the system smoothly as it is very much reliable. Laravel is especially suited for web development and can be embedded into HTML. Laravel is very much popular in web development due to it's smooth understanding and reliability. Though some functionalities are not yet done due to the short time of during the COVID-19 outburst. We will complete the whole project in the future work.

Database: Simple database have been created in this primary phase. And MySQL queries has been used for database. The Database was accessed using localhost server.

5.7 Testing

5.7.1 Introduction

Software testing is a process, to evaluate the functionality of a software application with an intent to find whether the developed software meet the specified requirements or not. Also to identify the defects to ensure that the product is defect-free in order to produce a quality product. This involves the various ways required to verify whether the system is workable. Different specifications were used in testing the program. The test data were analyzed and fed into the computer. During testing, bugs found were debugged and the system was subjected to further testing. It is an art to evaluate the functionality of a software application with an intent to find whether the developed

software meets the specified requirements or not and to identify the defects to ensure that the product is defect-free in order to produce a quality product.

5.7.2 Testing Strategy

There are various ways of testing a system to check whether it works accordingly. Hence, designing the test is important to verify whether the system is running as it was meant to and finding any types of errors properly in time for the development of the system accordingly. So, we had to come up with following tests-

• The initial and updated requirements were gathered, understood and planned to work accordingly.
• Technical reviews were taken to evaluate the quality and nature of the test strategy and test cases as well as.
• User groups of the web application and their functionalities are identified.

5.7.3 Testing Synopsis

The functionalities of the application system that we discussed earlier needs to be tested to verify they work properly.
• Registration
• Login
• Users Edit their profile
• Admin viewing data on admin panel/ dashboard
• Admin managing users
• Manager viewing users on manager panel/ dashboard
• Manager generating report on user

5.7.4 Input

The following table shows the processes and the fields required for the inputs of the corresponding process.

5.7.5 Output

The outputs of the process are listed in the table below.

Process	Fields (Type)
Registration	Name – varchar Email – varchar Username – varchar Password – varchar
Login	Email – varchar Username – varchar Password – varchar
Edit Profile	Name – varchar Email – varchar Phone – int Username – varchar Password – varchar

Table 5.2: Input table with their fields Process Fields

Process	Fields (Type)
Registration	On Success – Message shown "Registration Successful" On Failure – Error shown under the field's input
Login	On Success – Direct redirect to user dashboard On Failure – Error shown under the field'sinput
Edit Profile	On Success – Message shown "Profile successfully edited" and redirect to user dashboard On Failure – Error shown under the field's input

Table 5.3: Output table with process

5.7.6 Designing Test Cases

Sr No	Test Case	Purpose	Precondition	Test Steps	Expected Results	Actual Results	Status	Remark
1	Registration	Check if a user can successfully register	i) Users need to have stable internet connection ii) Users must enter credentials	i) Enter credentials in the fields provided ii) Enter the Register button	Success- Message shown "Registration Successful" or Failure – Error shown under the field's input	Message shown "Registration Successful"	Pass	none
2	Login	Check if user login is working	i) Users need to have stable internet connection ii) Users must enter credentials	i) Enter credentials in the fields provided ii) Enter the login button	After Successful login, redirect to user dashboard	After Successful login, redirect to user dashboard	Pass	none
3	Editing user Profile	Check if a user can successfully edit/modify profile information	i) Users must be logged in ii) Must enter/change information in Profile section.	i) Click on Edit option in Profile section. ii) Enter/ modify credentials in the fields provided. iii) Click on "Update"	Message shown "Profile updated Successfully"	Message shown "Profile updated Successfully"	Pass	none
4	Admin viewing all information of users	Check if Admin can view all information about all users	Must be logged in as Admin	i) Click on Manage Users from Admin dashboard	Success— Views all the data about all users in the system	Views all the data about all users in the system	Pass	none
5	Admin manages users	Check if admin can change role of users	Must be logged in as Admin	i) Click on Manage User from Admin dashboard ii) Select Remove User / Make Admin from any user statistics	Success— Manage any user role in the system/ add new admin	Manage any user role in the system/ add new admin	Pass	none
6	Logout	Check if user can logout successfully	i) Must be logged in as user ii) Must Click on logout	i) Click on logout button in navbar	Success— User logs out of his account or Failure— No activity on logout click	User logs out of his account	Pass	none

Figure 5.3: Test Cases

5.7.7 Test Results

As our web application is not completely developed yet. Many functionalities are being added new to the requirements. So, many more test cases may be included later. After completing all the test case and debugging, a demo version would be released.
From the test case table above most of the cases passed. After the testing phase complete, we will make an user manual for the system to make it more user-friendly.

5.7.8 Screen View of the PIMS System

This part contains screenshots of the application so it can be seen about how the actual application looks like.
Homepage: This is the landing page that all users will have access to upon opening the system.

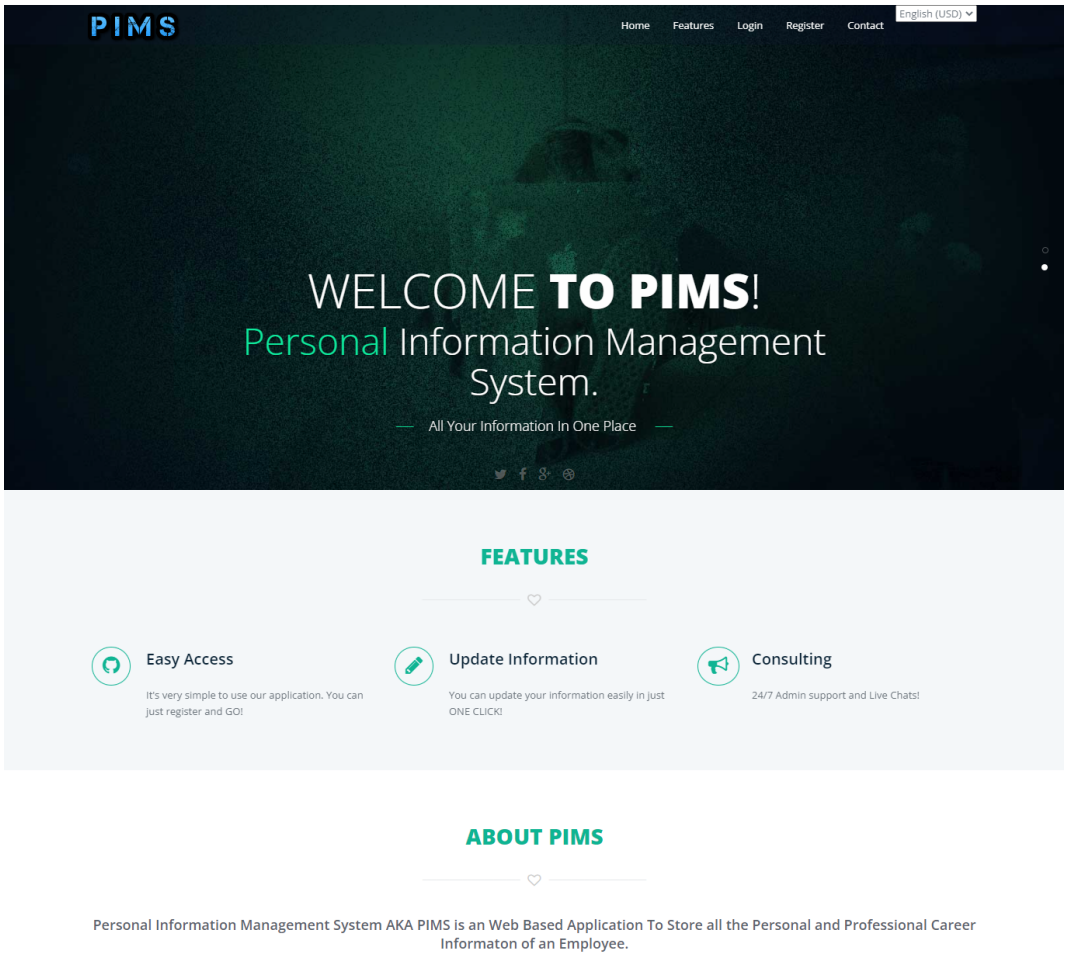

Figure 5.4: Home Page First Portion

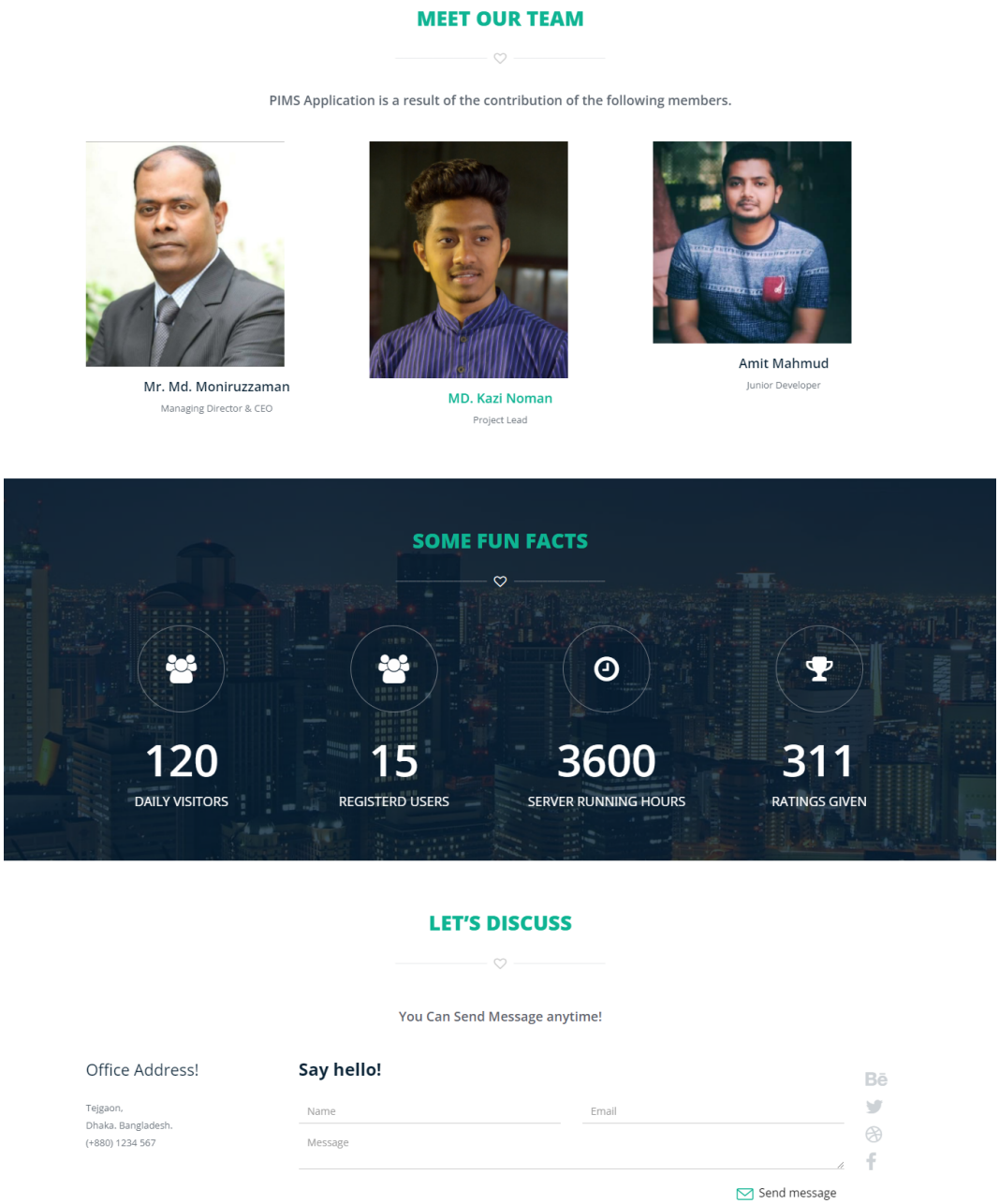

Figure 5.5: Home Page Middle Portion

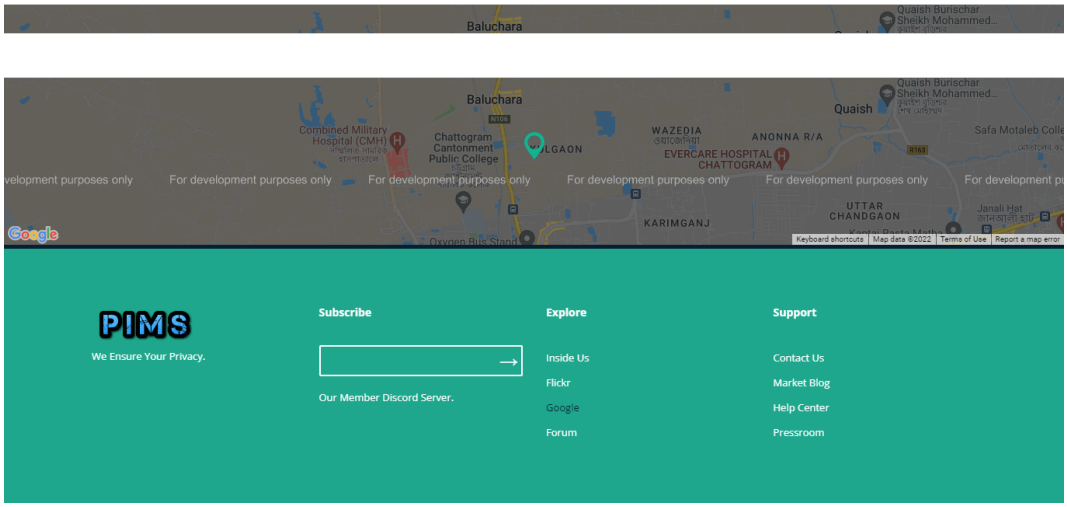

Figure 5.6: Home Page End Portion

Login Page: This is the login page where user have to enter unique email id and password to login the system.

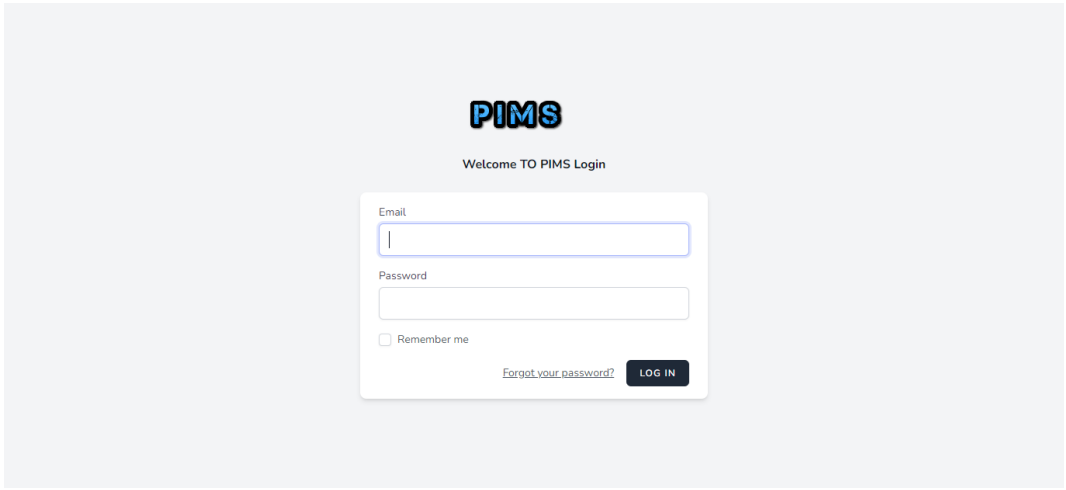

Figure 5.7: Login Page

Registration Page: This is the Registration page where user have to enter basic

information to register into the system.

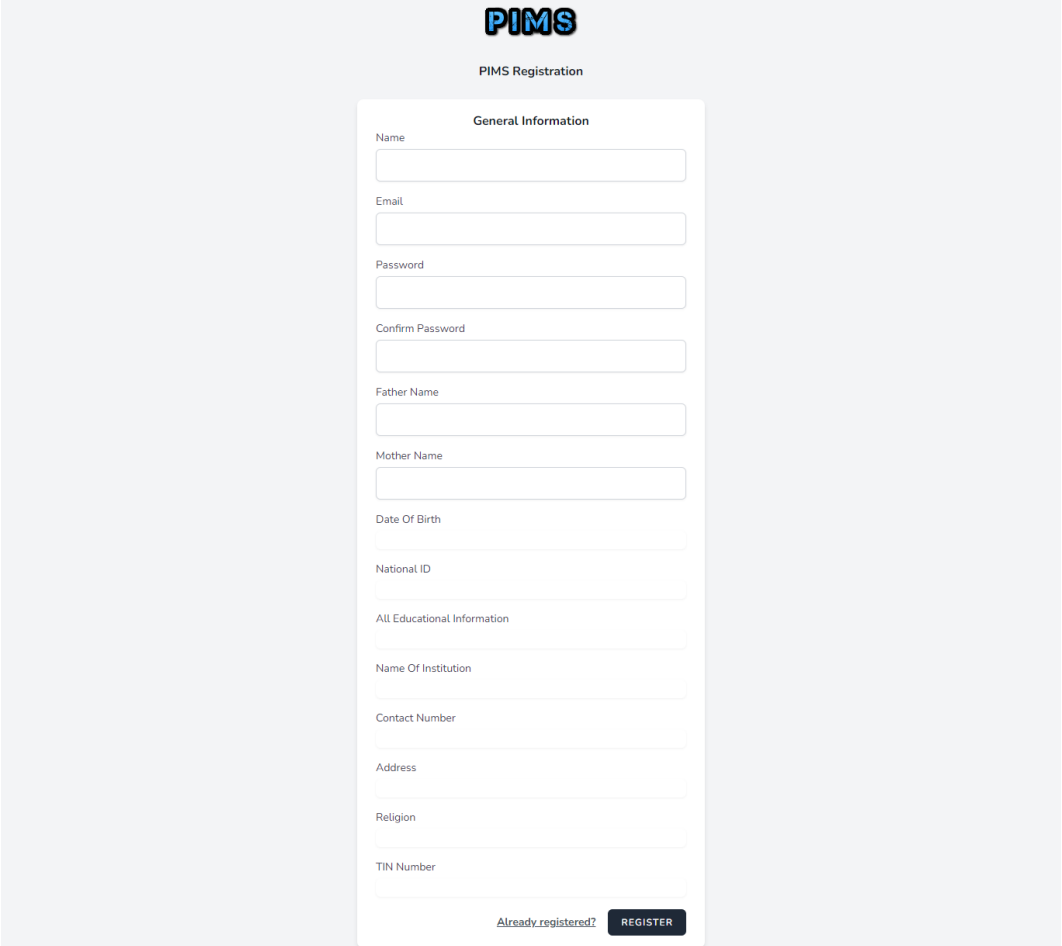

Figure 5.8: Registration Page

User Dashboard: This is the User Dashboard page.

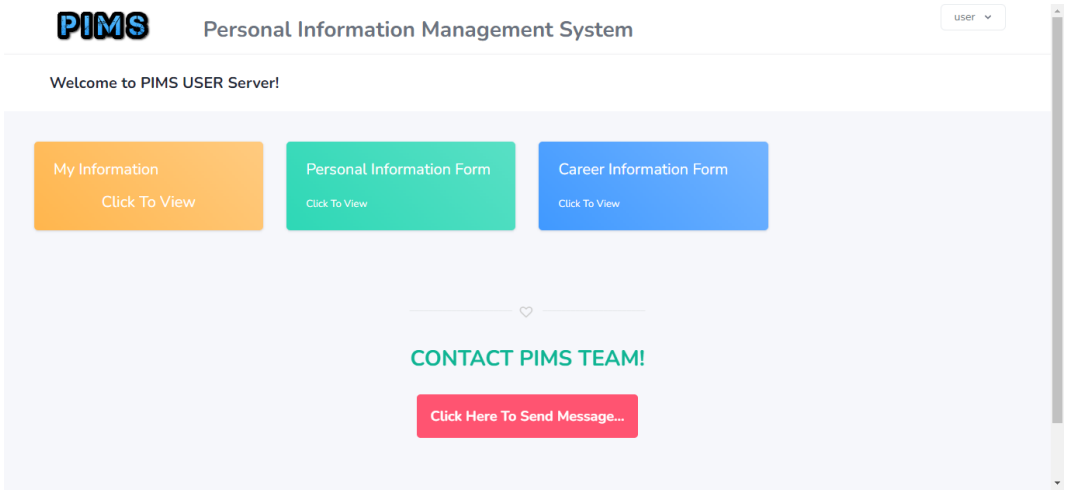

Figure 5.9: User Dashboard

User About Update Info: This is the About Update Info Page where users can

modify their information.

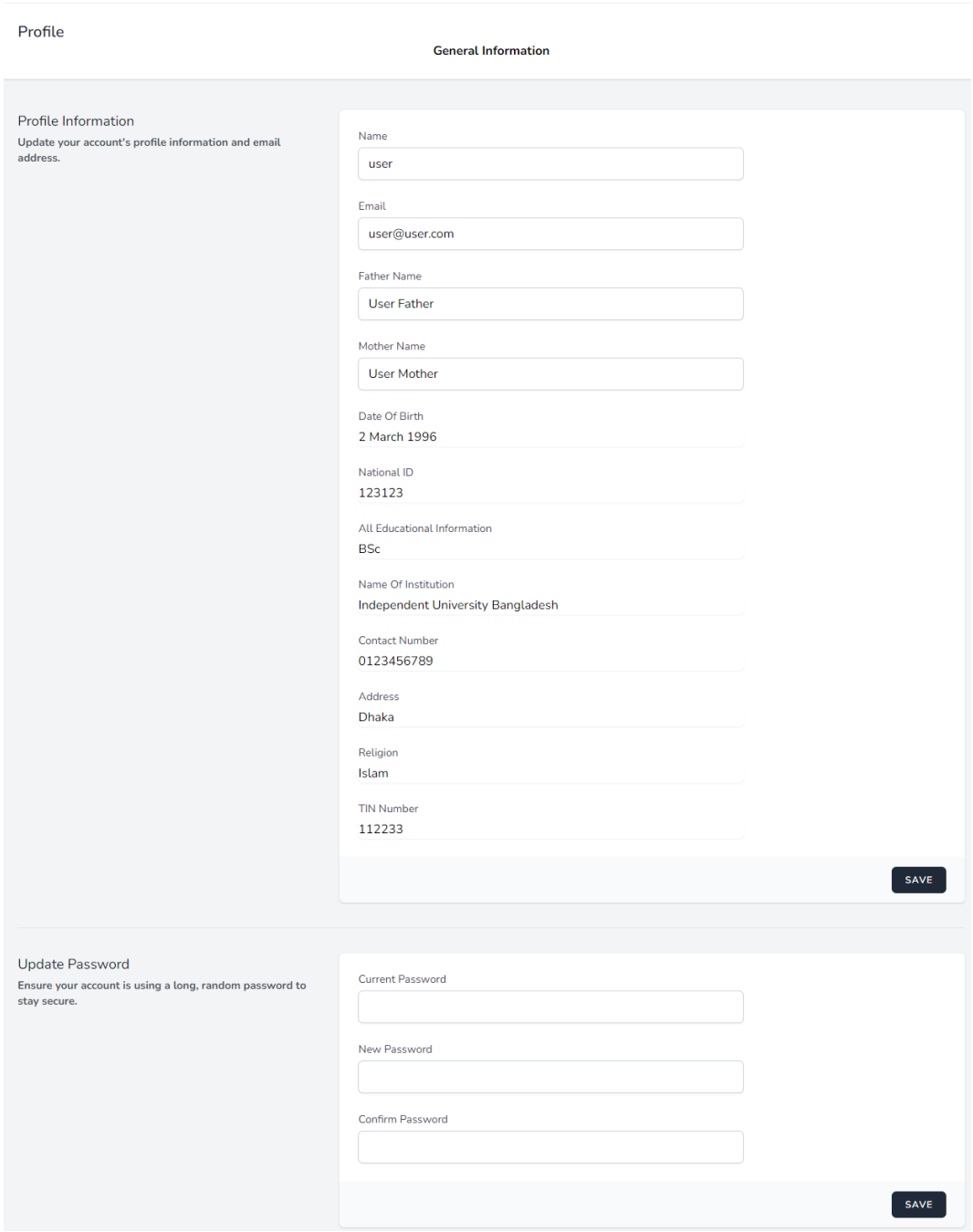

Figure 5.10: About Info Update Page

Contact Page: This is the Contact Page Page where users can contact with the

system admin.

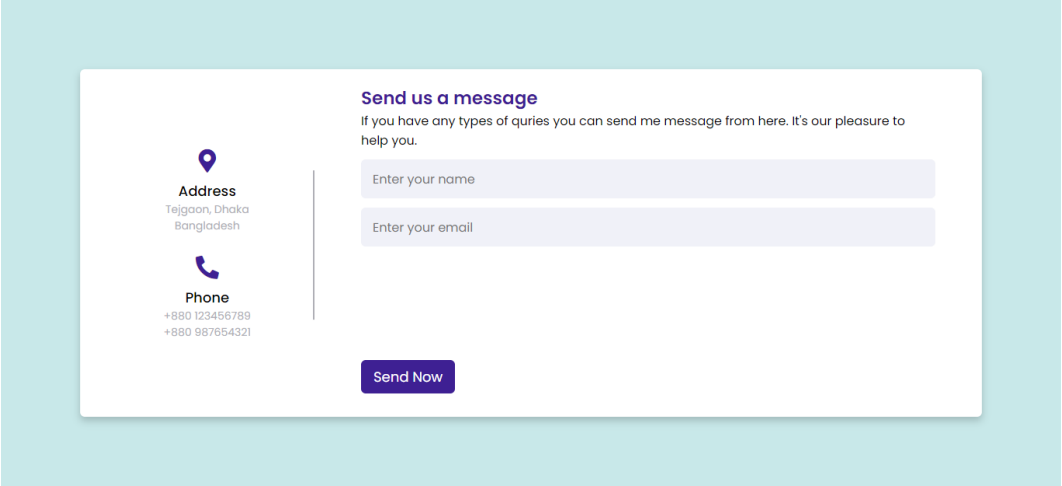

Figure 5.11: Contact Page

Admin Dashboard: This is the Admin Dashboard page.

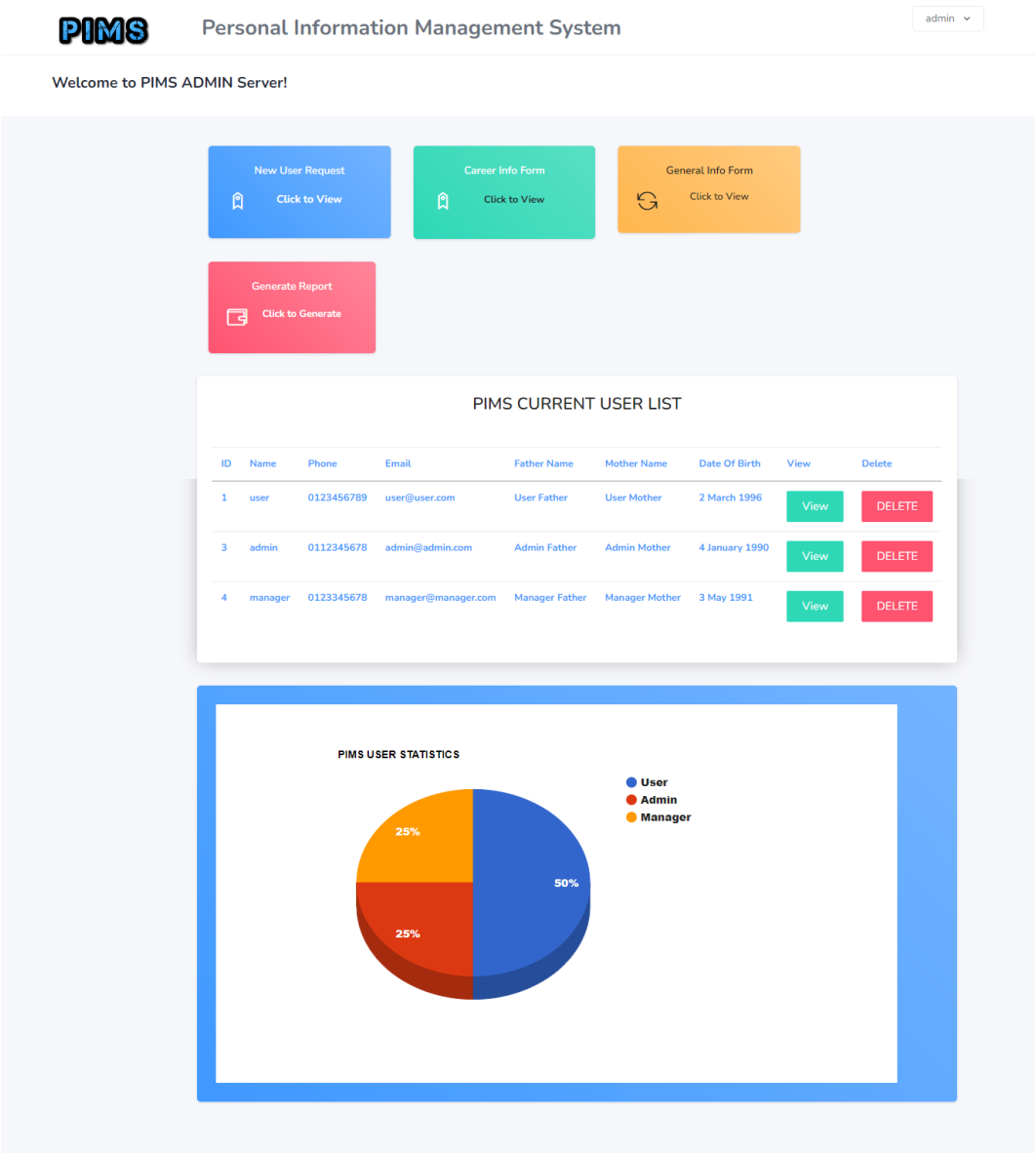

Figure 5.12: Admin Dashboard

Manager Dashboard: This is the Manager Dashboard page.

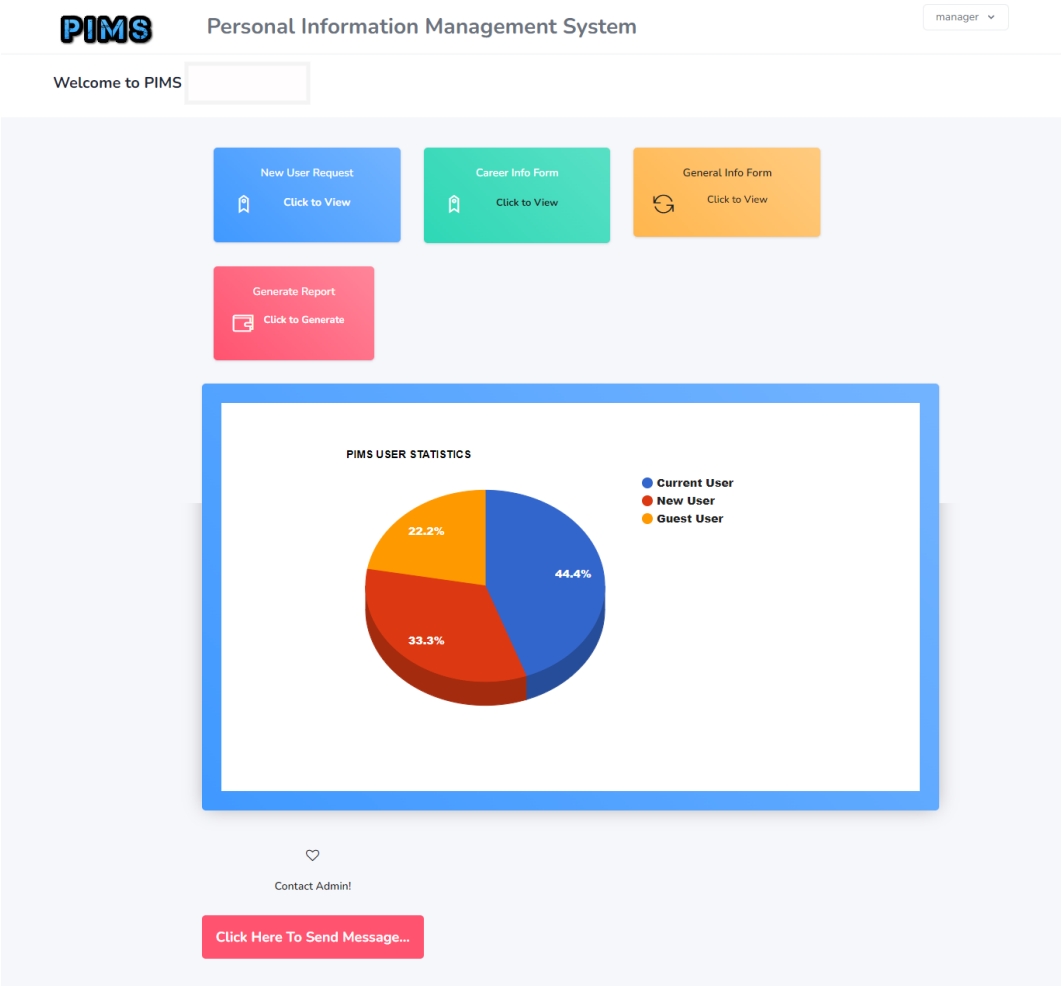

Figure 5.13: Manager Dashboard

Chapter 6

Results & Analysis

6.1 Overview

The beginning of the project work started after acquiring the requirements. We had meeting with our CEO about understanding the system that we were trying to build. Also, we discussed about the User Interface (UI) of the system according to needs.

6.2 Results from surveys and interviews

From the meeting that we had with our CEO, it was made clear about how the system is going to be designed. And the functionalities of the system were being identified very clearly. Simple basic questions about what the user could expect from such a system was asked. Without knowing those from the users perspective of the system, requirements gathering could be incomplete and the system might have flaws.

6.3 Testing Result

As our web application is not completely developed yet. Many functionalities are being added new to the requirements. So, many more test cases may be included later. After completing all the test case and debugging, a demo version would be released.
From the test case table above most of the cases passed. After the testing phase complete, we will make an user manual for the system to make it more user-friendly.

Chapter 7

Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work

As the project I am working on is a client project, my company is going to make revenue from this PIMS project. After the completion of this project, the sustainability of this project will be standard as estimated. The primary outcome is estimated that The personal Information Management System is to provide a storage of all personal and professional career information of an employee without any physical involvement. New technologies will be implemented in future.

7.2 Social and Environmental Effects and Analysis

Our project's main goal is to automate manual tasks and existing structures in order to boost the program's overall efficiency. The incorporation of the newly offered features has the potential to improve the overall system's capability. The goal of the project is to improve the system as much as possible while maintaining a reasonable level of efficiency. The processes of this project will be error-free and easy to use for the user. So the users will not face any kind of trouble.
Considering the matter of the environment, the automation of our system has no harm into it. All the processes is made online so the users do not need any kind of paper work which causes pollution. So, the environment will remain neat and clean.

7.3 Addressing Ethics and Ethical Issues

The misuse of the system or leak of any data of personal information of a user may cause collateral damage to someone personal. Therefore, we have used minimum

security from hacking the data. In the upcoming future more layer of encryption technology will be developed to ensure anti hacking and no leakage of any information throughout the system.

Chapter 8

Lesson Learned

8.1 Problems Faced During this Period

In real life there is nothing that comes out successfully without any problems. During the time of my project period, I have also faced several problems while developing it. As I have mentioned before I have developed this project in Laravel, which was completely new for me. So I had to take continuous help from the internet tutorials, several online courses before developing the project. Which took a huge amount of time of my internship period. Also I was developing both front-end and the back-end of this project and in the mean time I was also working two another project simultaneously. So I couldn't give my hundred percent in this project in a short period of time which is the reason my project is still incomplete. Also communicating with other member of my team was very much problematic during the outbreak of COVID-19 pandemic. As some of the employee left work so the pressure of finishing their work was at me which is also a reason that my project still is incomplete.

8.2 Solution of those Problems

I have faced above problems and tried to find solutions. After discussing with my team and project supervisor we have come to a solutions that is to add some functionalities later in the future work of this project and finish our project completely as we couldn't do during the pandemic period. Our Office had not that privilege to work remotely during the lockdown, so we could not work as planned. So we lost huge amount of time and finished as we could do at most.

Chapter 9

Future Work & Conclusion

9.1 Future Works

In the future, more additional functionalities will be implemented in the system according to the need. New technologies will be introduced later. Many new modern features will be embedded into the system About info update admin approval, Live Server Chats, Dynamic Menu. In the future, Mobile application of this personal information management system will be developed separately.

9.2 Conclusion

9.2.1 Advantages Of PIMS

The advantages of Personal Information Management System (PIMS) software cannot be explained but could be summarized. The world has seen an extraordinary growth in technology in the past few decades than in centuries; with necessity in cloud computing and data management, many organizations have opened their gates to simplify procedures by reducing human effort. Mishandling of data is the biggest concern in many organizations; hence, to bypass misuses Management System applications are designed under regulated guidelines and directives. Collaborative coordination between faculty and students could be attained and announcements can be published with a single click via these simple programs.
In our system the advantages are:
i. Paperwork can be avoided: For maintaining information, there are no paperwork requirements on our system. All work will be done through PIMS software.
ii. Efficient control over employee data: Our system is very efficient to manage employee data.
iii. Cost-efficient and user friendly: In our system we use much efficient development cost and easier objective environment for user friendly. This is the most important

advantage of our system.
iv. Easy access: Our system stores those things forever so that it makes no error or wrong information. For storing all things, higher authority can view employees information in a second.
v. Staff workload is reduced: All staff can use our system easily to reduce their workload. Because our system stores all previous things, and it works within a short time. Staffs do not need any meetings to do their work. So, it reduces workload and saves our expensive time.

9.2.2 Conclusion

The project's goal is to automate manual tasks and existing structures in order to boost the program's overall efficiency. The incorporation of the newly offered features has the potential to improve the overall system's capability. The goal of the project is to improve the system as much as possible while maintaining a reasonable level of efficiency. Upgraded features may create new avenues for improving systems to a higher degree, or institutions may be able to think from a fresh perspective, which may lead to new prospects in our system.

Chapter 10

Appendix - A (Code Snippets)

Routes to create paths

Route::get('/', function ()
return view('welcome');
);
Route::get('/additional-info', function ()
return view('additional$_i nfo'$);
)-¿name('additional-info');
Route::get('/user-register', function ()
return view('user$_r egister'$);
)-¿name('user-register');
Route::get('/contact-pims', function ()
return view('contactUs');
)-¿name('contactUs');
Route::get('/redirects', [HomeController::class, "index"]);
Route::middleware(['auth:sanctum', 'verified'])-¿get('/dashboard',
function ()
return view('dashboard');
)-¿name('dashboard');

Controller Function

class HomeController extends Controller
// create index function
public function index()
$role = Auth :: user() - > role;$
if $(role ==' 1')$
$users = User :: all();$

return view('admin')-¿with('users', $users$);
/*$result = DB :: select(DB :: raw("SELECTCOUNT(*)idFROM$
users GROUP BY role;"));
$data =$ "";
foreach($resultas$val)
$data. =$ "['".val-¿role."', "'.$val- > total_role.$"'],";
$chartData$ =data;
return view('admin', compact('chartData'));*/
if ($role ==' 2'$)
return view('manager');
else
return view('dashboard');

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