

A
Mini Project Report

on

NotifyMe!

Submitted in partial fulfillment of the requirements for the degree
Second Year Engineering – Computer Science Engineering (Data Science)

by

SIDDHESH SURVE 24207004

RUGVED SAPKAL 24207011

HARSH LAD 24207002

SAMEER SAIYED 24207014

Under the guidance of

Ms. Harsha Zope



DEPARTMENT OF COMPUTER SCIENCE ENGINEERING (DATA SCIENCE)

A.P. SHAH INSTITUTE OF TECHNOLOGY
G.B. Road, Kasarvadavali, Thane (W)-400615
UNIVERSITY OF MUMBAI

Academic year: 2024-25

CERTIFICATE

This to certify that the Mini Project report on Customer Relationship Management system(**Notify Me!**) has been submitted by **Siddhesh Surve (24207004), Rugved Sapkal (24207011), Harsh Lad (24207002), and Saiyed Sameer(24207014)** who are bonafide students of A. P. Shah Institute of Technology, Thane as a partial fulfillment of the requirement for the degree in **Computer Science Engineering (Data Science)**, during the academic year **2024-2025** in the satisfactory manner as per the curriculum laid down by University of Mumbai.

Ms. Harsha Zope
Guide

Ms. Anagha Aher
HOD, CSE(Data Science)

Dr. Uttam D. Kolekar
Principal

External Examiner:

1.

Internal Examiner:

1.

Place: A. P. Shah Institute of Technology, Thane

Date:

ACKNOWLEDGEMENT

This project would not have come to fruition without the invaluable help of our guide **Ms. Harsha Zope**. Expressing gratitude towards our HoD, **Ms. Anagha Aher**, and the Department of Computer Science Engineering (Data Science) for providing us with the opportunity as well as the support required to pursue this project. We would also like to thank our project coordinator **Ms. Richa Singh** who gave us his/her valuable suggestions and ideas when we were in need of them. We would also like to thank our peers for their helpful suggestions.

TABLE OF CONTENTS

1. Introduction.....	1
1.1.Purpose.....	1
1.2.Problem Statement.....	2
1.3.Objectives.....	2
1.4.Scope.....	3
2. Proposed System.....	4
2.1.Features and Functionality.....	4
3. Project Outcomes.....	6
4. Software Requirements.....	8
5. Project Design.....	10
5.1 System Architecture.....	11
5.2. Database Design.....	14
5.3 Flow of Operations.....	16
6. Project Scheduling.....	19
7. Results.....	22
8. Conclusion.....	29

References

Chapter 1

Introduction

The **Notify Me!** is a **Customer Relationship Management (CRM)** system that addresses a critical problem that many businesses face: the challenge of managing and optimizing interactions with a growing customer base. Without a structured approach, businesses struggle to track customer interactions, manage sales leads, and provide timely support, leading to decreased customer satisfaction and lost opportunities. CRM systems are designed to solve this problem by centralizing customer data, automating routine tasks, and enabling personalized engagement across multiple channels.

The aim of this report is to outline the development of a CRM system that enhances customer relationships by streamlining and automating communication, and providing actionable insights through data analysis. The scope of this project includes the design, implementation, and testing of a CRM platform capable of managing customer interactions, automating follow-ups, and supporting sales and support teams.

1.1 Purpose:

The purpose of this project is to develop an advanced Customer Relationship Management (CRM) system, **NotifyMe!**, that enhances communication, data management, and workflow automation for businesses. This system provides a centralized platform to efficiently manage customer interactions, schedule meetings, and facilitate seamless communication via email and WhatsApp integration. Additionally, it ensures real-time access to customer data through a MySQL-backed database, and optimizes customer engagement by streamlining communication. By leveraging these capabilities, NotifyMe! aims to improve operational efficiency, customer satisfaction, and business productivity through a modern, user-friendly interface.

1.2 Problem Statement:

Businesses often face challenges in maintaining effective communication with clients due to fragmented customer data and a lack of streamlined interaction channels. Without a centralized system, managing customer relationships, tracking meetings, and ensuring timely follow-ups become inefficient, leading to miscommunication and decreased customer satisfaction. Additionally, the absence of an automated messaging system results in delayed responses, missed opportunities, and inconsistent communication across different departments.

A solution is needed to bridge the gap between businesses and clients by integrating a system that automates customer interactions via WhatsApp, SMS, and Email while ensuring secure and organized data management. This will enable businesses to enhance communication, improve task efficiency, and deliver a seamless customer experience.

1.3 Objectives:

- **Enhance Customer Interaction Management:** To provide an efficient platform for handling customer interactions, automating communication via WhatsApp, SMS, and Email while keeping all client details organized
- **Improve Business Insights with Data Analytics:** To integrate a dashboard displaying business metrics and statistics using pie charts, enabling the admin to analyze customer engagement and performance trends.
- **Streamline Employee & Company Management:** To establish a structured database where businesses can track employees and companies they collaborate with, ensuring seamless access to relevant information.
- **Facilitate Professional Networking & Accessibility:** To provide direct access to employee LinkedIn profiles and company websites through dedicated buttons, allowing businesses to strengthen professional connections.

1.4 Scope:

The scope of the NotifyMe! CRM system extends beyond traditional customer management by integrating multiple functionalities that enhance communication, data tracking, and business insights.

- **Comprehensive Customer & Employee Data Management:** The system enables businesses to efficiently store, update, and manage customer and employee information, ensuring seamless tracking of interactions and fostering strong business relationships.
- **Automated Multi-Channel Communication:** NotifyMe! integrates WhatsApp, SMS, and Email to automate client communication based on stored contact details, reducing manual work while maintaining streamlined interactions.
- **Advanced Business Insights & Analytics:** The Admin Dashboard provides statistical reports and visual insights through pie charts, allowing businesses to analyze customer engagement, employee performance, and operational efficiency.
- **Seamless Professional Networking & Accessibility:** The system facilitates quick access to LinkedIn profiles of employees and official company websites, enhancing collaboration and verification for professional networking.

Chapter 2

Proposed System

The proposed system is designed to simplify and automate business processes by centralizing customer, employee, and company data. It enhances communication, improves data management, and offers valuable insights through analytics. With built-in support for multi-channel communication and professional networking, the system aims to boost efficiency and streamline business operations.

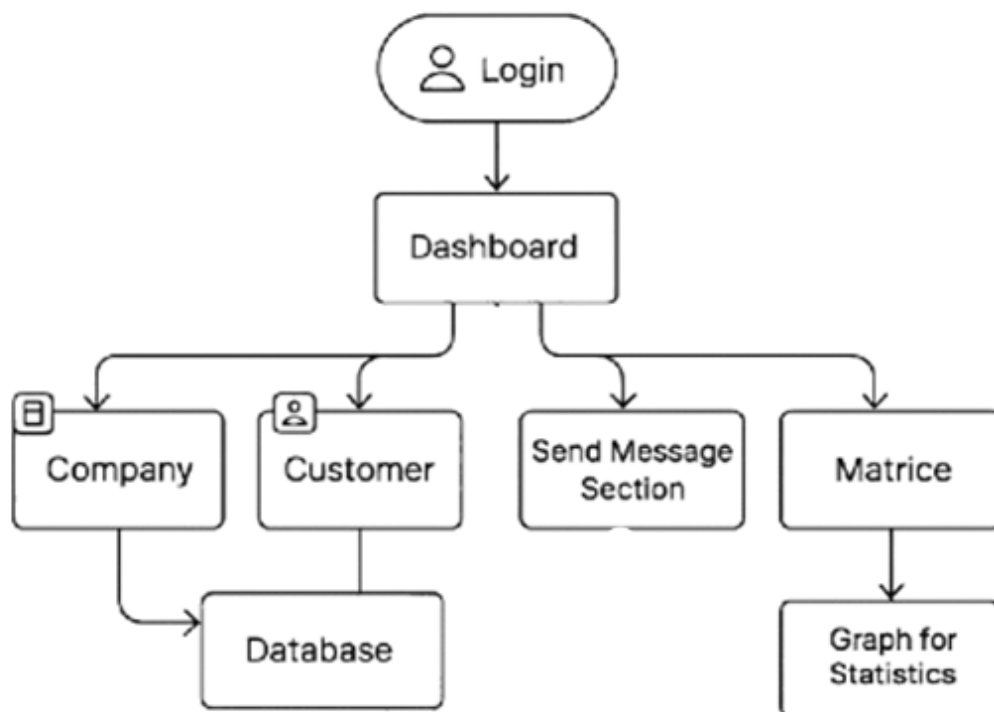


Fig 2.1 Block Diagram

This block diagram outlines the structure and flow of a web or software application, starting from user login and leading to various functional sections. Here's a brief description:

- Login: User authentication point.
- Dashboard: Main hub after login.

- **Company & Customer Modules:** Manage company and customer data, both linked to a Database.
- **Send Message Section:** For user communication.
- **Matrice:** Leads to Graph for Statistics for data visualization

2.1 Features and Functionality

- **Customer & Employee Data Management:** The system allows businesses to store, update, and manage customer and employee details efficiently, ensuring easy tracking of interactions and fostering strong business relationships.
- **Automated Multi-Channel Communication:** Integrated support for WhatsApp, SMS, and Email enables businesses to automate client communication based on stored contact details, reducing manual effort while maintaining personalized interactions.
- **Business Analytics & Insights:** A dedicated Admin Dashboard provides statistical reports through pie charts, offering insights into customer engagement, employee performance, and business metrics for data-driven decision-making.
- **Professional Networking & Accessibility:** Direct access to LinkedIn profiles of employees and official company websites of partnered businesses, allowing seamless verification and professional collaboration.
- **Company & Employee Management:** A structured system to keep track of associated companies and their employees, with categorized data for easy reference and streamlined operations.
- **Database Management with MySQL:** The entire system relies on MySQL for secure storage and efficient retrieval of customer, employee, and company-related data, ensuring structured and organized information handling.

Chapter 3

Project Outcomes:

The implementation of the NotifyMe! system delivers multiple benefits that enhance overall business efficiency and communication. By integrating advanced features like automated messaging, centralized data management, and analytical tools, the system supports better decision-making and strengthens professional relationships.

1. Enhanced Customer and Business Relationship Management

The system successfully improves customer and business relationship management by providing a centralized platform for tracking interactions with clients, employees, and associated companies. By storing client contact details, automating communication through WhatsApp, SMS, and Email, and integrating direct access to LinkedIn and company websites, businesses can maintain efficient and well-organized professional relationships. This streamlined approach ensures better follow-ups, enhances networking opportunities, and fosters long-term partnerships.

2. Streamlined and Automated Communication

NotifyMe! significantly reduces manual effort by integrating automated messaging via WhatsApp, SMS, and Email based on stored client data. Employees no longer have to send individual messages manually, as the system automatically generates and dispatches messages, ensuring timely communication. This automation enhances efficiency, eliminates delays in reaching out to clients, and ensures no important communication is overlooked.

3. Data Analysis and Business Insights for Decision-Making

The system includes an Admin Dashboard with statistical insights, allowing businesses to visualize key performance indicators (KPIs) through pie charts and other metrics. This feature helps businesses track customer engagement, employee activity, and overall operational performance. The ability to analyze data trends ensures that companies can make informed decisions about their communication strategies, employee engagement, and client outreach efforts.

4. Effective Employee and Company System

NotifyMe! provides a structured way to manage and track employees and associated companies, ensuring all business relationships are properly maintained. With dedicated sections for employees and companies, businesses can quickly access relevant details and navigate to their LinkedIn profiles or official websites. This feature enhances professional networking, allows for efficient collaboration, and ensures companies have a well-maintained record of their business connections.

5. Secure and Scalable Data Management with MySQL

The system utilizes a robust MySQL database to store customer details, employee records, company data, and communication logs. This ensures secure storage, quick data retrieval, and efficient handling of large datasets. The scalable architecture allows businesses to expand their operations without performance issues, making the system future-proof and adaptable to growing data needs.

Chapter 4

Software Requirements:

The development of the NotifyMe! (CRM) system involved a set of essential software tools and libraries to ensure efficient development, integration, and performance. This chapter outlines the core software components used in the application, ranging from development environments to database systems and communication APIs that support the system's automation and data handling capabilities.

Development Environment:

Visual Studio Code: A lightweight and powerful source code editor used for developing the Notify me! (CRM) application, supporting various programming languages and extensions for enhanced functionality.

Database Management:

MySQL: An open-source relational database management system used to store customer data, lead information, and interaction history. MySQL provides robust data handling and querying capabilities, ensuring efficient data management.

Email Integration:

Email API (): Mail.meme was used for sending automated emails and managing email communications directly through the CRM system. The same Library was used for providing bulk Email Messaging.

WhatsApp Integration:

WhatsApp API(): pywhatkit() For Single and Bulk WhatsApp Messaging, Pyautogui() for Automation of Bulk Messaging on WhatsApp.

Data Analysis:

Matplotlib: Matplotlib is a powerful, low-level graph plotting library in Python that provides a wide range of tools for creating static, animated, and interactive visualizations. It allows users to generate various types of plots, including line graphs, bar charts, scatter plots, and histograms, making data representation more intuitive. As a flexible and widely used library, Matplotlib serves as the foundation for many advanced visualization libraries, enabling effective data analysis and interpretation.

Chapter 5

Project Design

In today's fast-paced business world, maintaining strong customer relationships is the key to success. **NotifyMe** was designed with a clear purpose—to **streamline end-to-end customer interactions** while keeping all critical data **organized, accessible, and actionable** in one centralized platform.

Why NotifyMe?

Managing interactions across multiple companies, employees, and communication channels can be complex and time-consuming. **NotifyMe simplifies this process** by offering a **comprehensive CRM solution** that:

- **Tracks every customer interaction**, including emails, calls, meetings, and follow-ups.
- **Maintains detailed records** of companies and their employees.
- **Automates repetitive tasks**, improving efficiency and reducing errors.
- **Enhances engagement** with seamless email and WhatsApp integration.
- **Provides data-driven insights** through advanced analytics.

Technology Behind NotifyMe

Built with robust and scalable technologies, **NotifyMe** ensures **performance, security, and ease of use**:

- **Frontend: Tkinter** (User-friendly graphical interface)
- **Database: MySQL** (Reliable and secure data storage)
- **Email Integration: Mail.meme** (Automated and personalized email communication)
- **WhatsApp Messaging: PyWhatKit** (Direct customer notifications)

- **Automation: PyAutoGUI** (Streamlined workflow automation)
- **Data Visualization: Matplotlib** (Interactive analytics and reporting)

Enhance Your Customer Management Strategy

With **NotifyMe**, businesses can:

- **Improve customer satisfaction** through timely and personalized engagement.
- **Increase operational efficiency** by automating routine tasks.
- **Make informed decisions** with real-time data and visual analytics.

5.1 System Architecture

Introduction

The NotifyMe system follows a structured three-tier architecture designed for scalability, maintainability, and efficient data flow. The architecture consists of:

1. **Client (Frontend)**
2. **Backend (Business Logic & Data Processing)**
3. **Database (Data Storage & Retrieval)**

Each layer operates independently while ensuring seamless integration for optimal performance.

Components of the Architecture

1. Client (Frontend)

- **Framework:** Built using Python's **Tkinter** library for an intuitive user interface.
- **Key Features:**
 - **Card-based layout** for organized display of employee and company profiles.
 - User-friendly forms for data input and management.
 - Interactive dashboards for real-time updates.

2. Backend (Logic & Database Access)

- **Core Functionality:**
 - Processes business logic and user inputs.
 - Handles **CRUD (Create, Read, Update, Delete)** operations.
 - Manages data flow between users, employees, and companies.
- **Integrations & Automation:**
 - **Email Integration:** Uses **Mail.meme** for automated and scheduled email communication.
 - **WhatsApp Messaging:** Leverages **PyWhatKit** for single-message delivery.
 - **Bulk Messaging:** Accepts **Excel files** for automated bulk notifications.
 - **Task Automation:** Implements **PyAutoGUI** for workflow automation.
- **Data Analysis & Reporting:**
 - Generates insights using **Matplotlib** (pie charts, graphs).

3. Database (MySQL)

- **Role:** Serves as the **persistent storage layer**, ensuring data integrity and security.
 - **Key Tables:**
 - **Company:** Stores company details (name, industry, contact info).
 - **Employee:** Maintains employee records (role, department, associated company).
 - **User:** Manages user credentials and access permissions.
 - **Operations:**
 - Supports **SQL queries** for efficient data retrieval and manipulation.
 - Enables **scalable data handling** for growing business needs.
-

Data Flow Overview

1. **User Input** → Captured via Tkinter frontend.
 2. **Processing** → Backend validates inputs, executes logic, and interacts with MySQL.
 3. **Storage/Retrieval** → Database updates/fetches records as needed.
 4. **Output** → Results displayed on UI or sent via email/WhatsApp.
-

Key Advantages

- **Modular Design:** Easy updates or expansions (e.g., adding new integrations).
- **Efficiency:** Automated workflows reduce manual effort.
- **Scalability:** MySQL supports large datasets with optimized queries.

5.2 Database Design

Introduction

The database for NotifyMe is designed to efficiently store and manage user, company, and employee data. Built on MySQL, it follows a relational model with clearly defined entities, attributes, and relationships to ensure data integrity and optimal performance.

5.2.1 Key Entities and Their Relationships

The database consists of three core tables:

1. **User Table** – Handles authentication and user profiles.
2. **Company Table** – Stores company details.
3. **Employee Table** – Manages employee records linked to companies.

Company Table:

Field	Type	Null	Key	Default	Extra
company_id	Int	NO	PRI	NULL	auto_increment
company_name	varchar(255)	NO		NULL	
company_no	varchar(20)	NO		NULL	
primary_business	varchar(255)	NO		NULL	
secondary_business	varchar(255)	YES		NULL	
since	varchar(255)	NO		NULL	
Email	varchar(255)	NO	UNI	NULL	
website	varchar(255)	YES		NULL	

Table 5.2.1: Company Table

Employees Table:

Field	Type	Null	Key	Default	Extra
id	int	No	PRI	NULL	auto_increment
name	varchar(255)	No		NULL	
department	varchar(100)	No		NULL	
phone_no1	varchar(20)	No		NULL	
phone_no2	varchar(20)	YES		NULL	
Designation	varchar(100)	No		NULL	
linkedin_link	varchar(255)	Yes		NULL	
service_provided	varchar(255)	No		NULL	
company	varchar(255)	No		NULL	

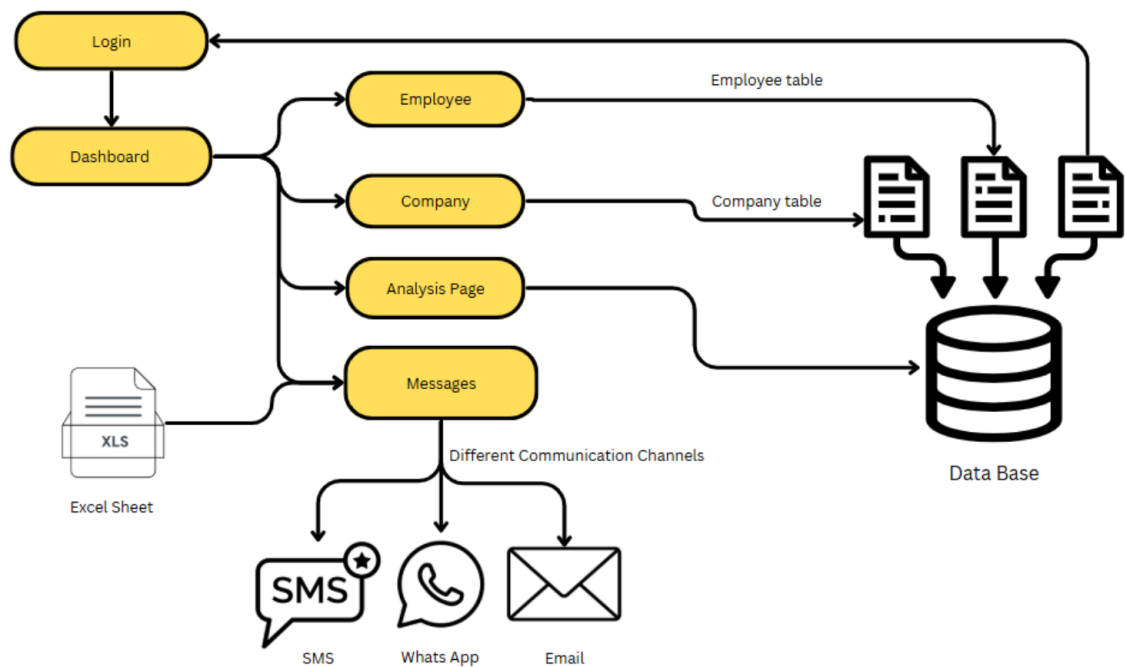
Table 5.2.2: Employee Table

User Table:

Field	Type	Null	Key	Default	Extra
id	Int	No	PRI	NULL	auto_increment
name	varchar(255)	No		NULL	
email	varchar(255)	No	UNI	NULL	
username	varchar(100)	No	UNI	NULL	
password	varchar(255)	No		NULL	

Table 5.2.3: Product Table

5.3 Work Flow:



5.3.1 Project Workflow Diagram

The NotifyMe system follows a structured operational workflow designed to ensure seamless user experience and efficient data management. The flow can be divided into three primary phases: User Authentication, Data Management, and Communication Handling.

1. User Authentication Phase:

- Begins with the login screen where users enter their credentials
- System verifies username and password against the User table in the database
- Successful authentication grants access to the main dashboard
- Failed attempts prompt error messages and allow retries

2. Data Management Phase:

- Dashboard serves as the central control point with navigation options
- Company management:
 - Users can view all company records in tabular format
 - Options to add new companies or edit existing entries
 - Direct website access through embedded links
- Employee management:
 - Comprehensive employee listings capabilities
 - Functionality to add new employees or update records
 - Quick access to LinkedIn profiles when available

3. Communication Handling Phase:

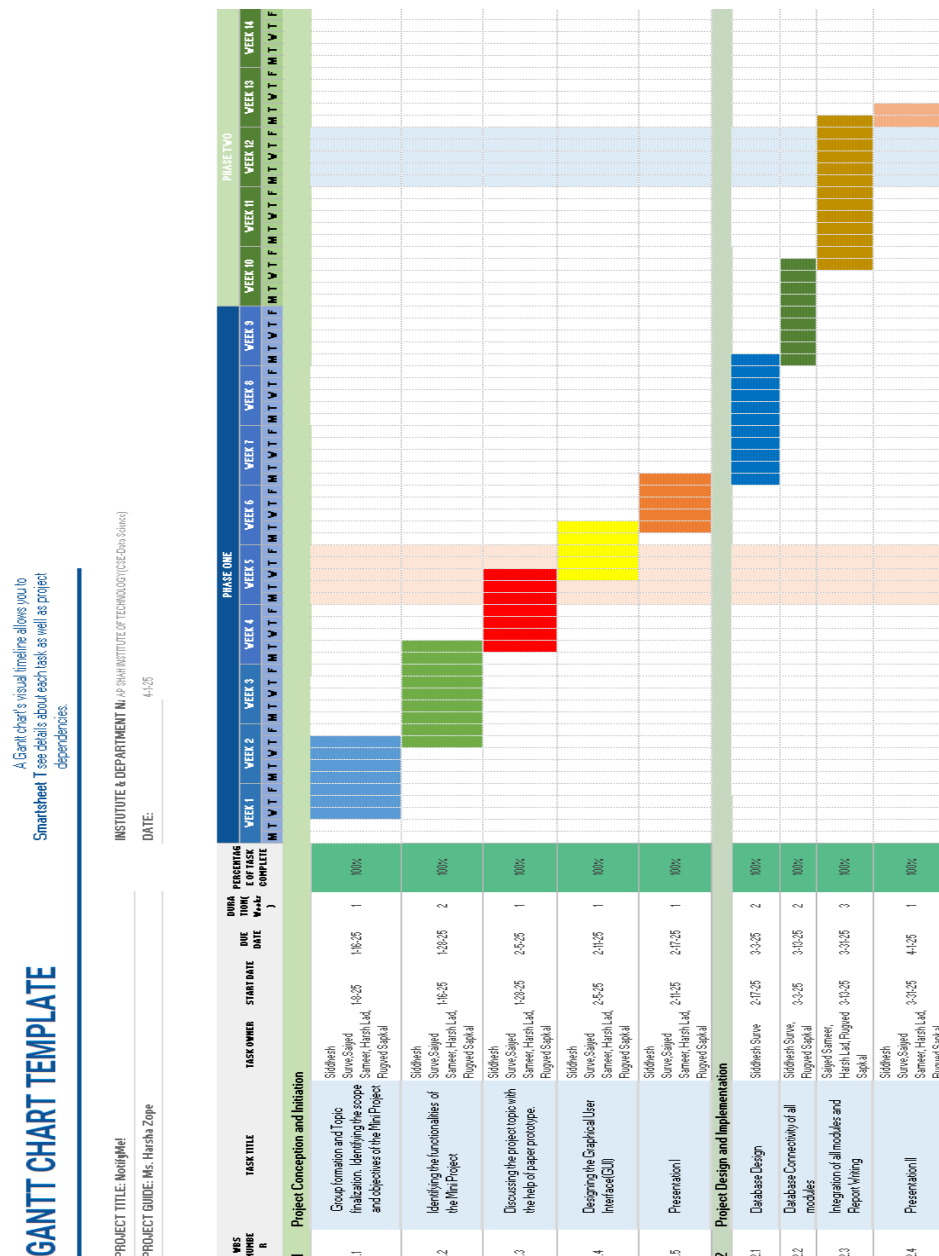
- Integrated communication tools:
 - Email functionality through Mail.meme integration
 - WhatsApp messaging via pywhatkit
 - Bulk messaging system accepting Excel file inputs
- Automated processes:
 - Scheduled communications through PyAutoGUI
 - Data analysis and visualization using Matplotlib

System Workflow Characteristics:

- Linear progression from authentication to core functionalities
- Role-based access control ensuring data security
- Real-time database synchronization across all operations
- Comprehensive error handling.

Project Scheduling

This chapter outlines the timeline and sequential stages followed during the development of the project. Each phase was planned and executed systematically over a 12-week period to ensure timely completion and effective implementation of all proposed features.



The timeline of the project was 12 weeks long where we work in following stages:

1. Group formation and Topic finalization: It's stage where we form a group of 4 members that have specific skillset to complete the any project and the scope and objectives where identified that ensures the application and outcome of the project. This stages took 4 days to complete from 6th January to 9th January. Here we don't faces any difficulties and finalized the topic for project

2. Identifying the functionalities of Miniprojector: In this stage we discussed the final outcomes and the basic workflow of selected topic , the duration of stage was from 8th to 14th of January. Basic block diagram , flowchart and core functionalities are discussed among the group members with overlap of topic finalization stage.

3. Discussing the project topic with the help of paper prototype: This stage was heavily based on end user experience towards the project and the placements of UI component. A paper prototype is developed how has a basic UI structure of project. In this process we discovered that a card layout for Employee and Companies page will be more efficient that ordinary table view. We decide to apply a pie chart in analysis page for the simplicity. The duration of this stage was from 15th January to 10th of February.

4. Designing the Graphical User Interface: In this stage we developed the basic pages for application using pythons tkinter library we just placed the UI elements in the stage the alignment and styling was not done. This stage overlaped with above stage as it required continuous feedbacks and suggestion from group members. The duration of this stage was from 5th February to 10th of February.

5. Presentation 1: We presented our project application with basic UI, Database Connectivity and basic messaging demonstration also it's scope and objectives to panel of project co-ordinator and mentor. We got suggestions and improvements calls from panel about UI improvements and bulk messaging features

6. Database Design : Here Siddhesh designed the schema of project which includes the required tables. The time period of this stage was from 6th February to 13th of February.

7. Database Connectivity : Here we connect the schema of database to the UI pages of project. The SMS We followed the online resource to achieve it. The stage was from 10th of Feb to 21th of Feb

8. Integration of all modules and Report Writing: As this was a final stage we implemented the suggested changes given in Presentation1. The automation and bulk message sending achieved from working on it for 2 continuous weeks and in final we week the modern UI is applied. The report work is done simultaneously while developing the application for project.

We done meeting with project mentor to ensure all the objectives are achieved on 18th of March and implemented the suggestions in next days. The time duration of this stage was from 24th February to 1st April.

9.Presentation 2 : Presented the Project with demonstration of project application.

Chapter 7

Results

This chapter presents the outcomes of implementing the NotifyMe! CRM system. It highlights the effectiveness of the system's features, evaluates the performance in real-world scenarios, and demonstrates how the application meets the objectives defined at the beginning of the project.

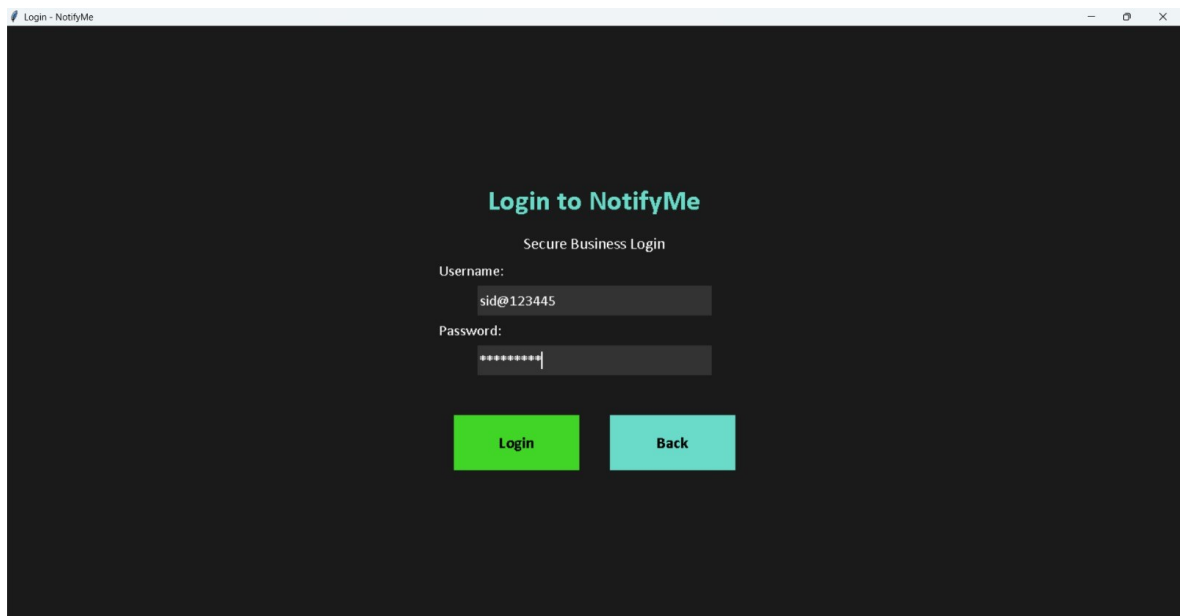


Fig 7.1. Login Page

1. Login Screen

The Login Screen serves the crucial purpose of providing secure authentication for accessing the NotifyMe! CRM system. It includes input fields for the username and password, which are validated against the credentials stored in the User Table. Upon entering valid credentials, the user is granted access and redirected to the Dashboard. In case of incorrect credentials, an error message is displayed, prompting the user to retry with valid login information.

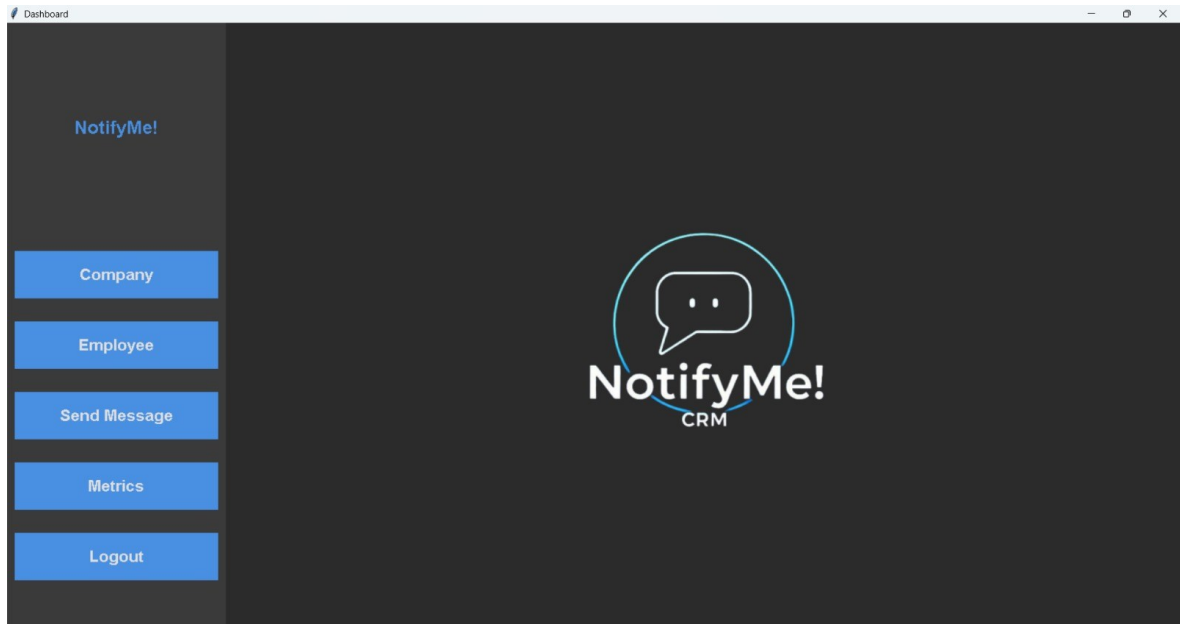


Fig 7.2. DashBoard Page

2. Dashboard

The Dashboard acts as the central hub of the NotifyMe! CRM system, providing users with an overview of key metrics and quick navigation options. It features summary cards that display important data such as the total number of companies and employees. Additionally, analytical matrices like pie charts offer visual insights into company and employee performance. The dashboard also includes navigation buttons for easy access to other sections, such as the Company and Employee modules, ensuring a seamless user experience.

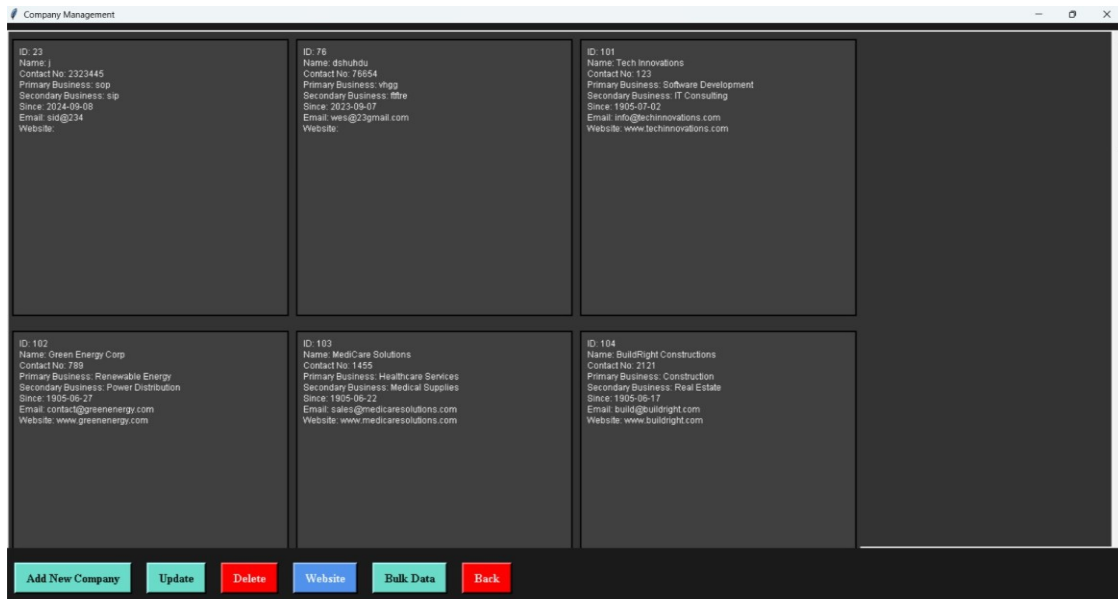


Fig 7.3. Company Management Page

3. Company Section

The Company Section is designed to manage and view all company-related records within the system. It features a data table that lists companies along with key details such as company name, email, and primary business. Users can add new companies through a dedicated form, which captures input and stores it in the Company Table. Additionally, a “Visit Website” button allows users to directly open a company's official site in a browser. To enhance usability, the section also includes search and filter options, enabling quick access to specific company information based on user queries.

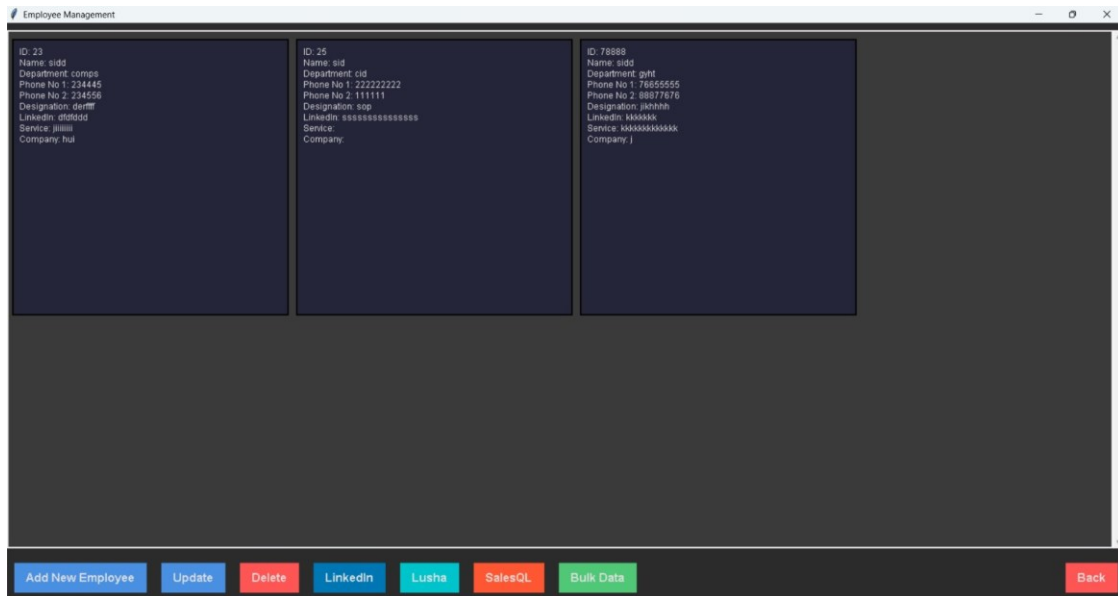


Fig 7.4. Employee Management Page

4. Employee Section

The Employee Section is focused on managing employee data associated with various companies. It includes a data table that displays essential employee details such as name, department, and designation. Users can add new employees by filling out a form that updates the Employee Table in the database. The section also features a “Visit LinkedIn” button, which redirects users to the respective employee’s LinkedIn profile for professional verification. Additionally, options to edit or delete existing employee records are available, allowing for efficient updates and maintenance of employee information.

5. Send Message Button:

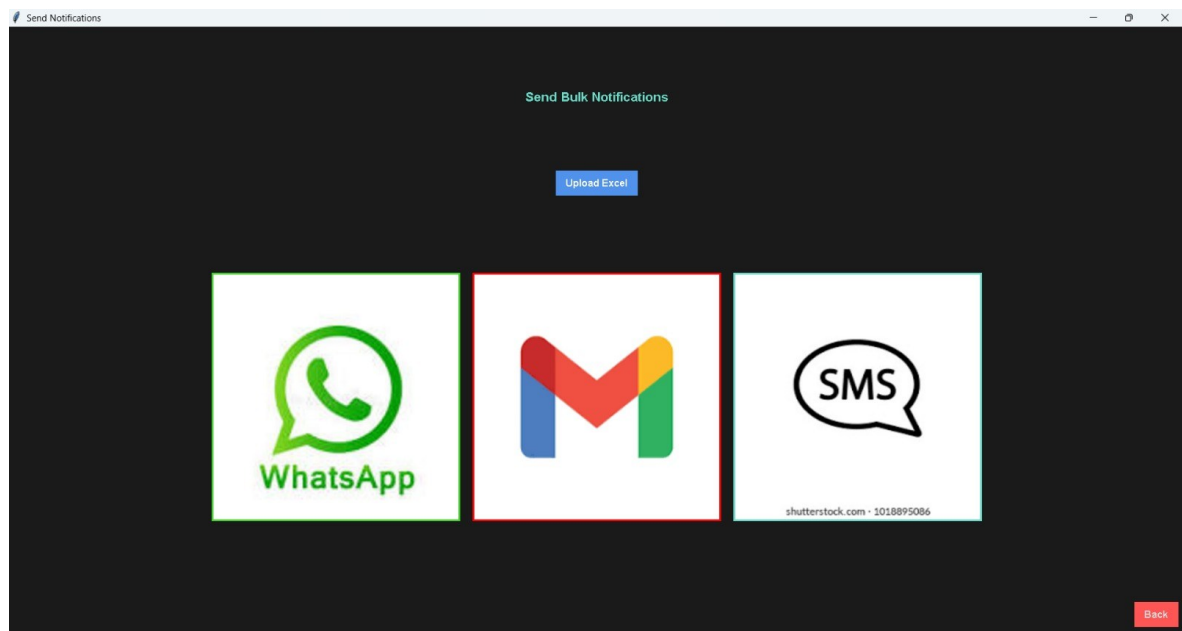
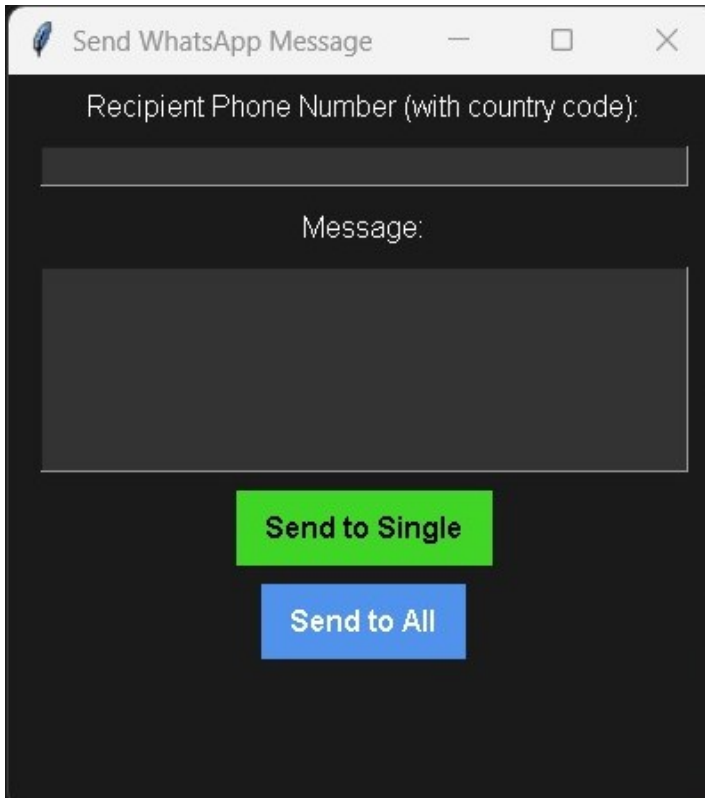


Fig 7.5.1 Sending Message page

A screenshot of a dialog box titled "Send SMS Message". It has a dark background. The first field is labeled "Recipient Phone Number (with country code):" and has a text input field below it. The second field is labeled "Message:" and has a larger text area below it. At the bottom, there are two buttons: a green one labeled "Send to Single" and a blue one labeled "Send to All".

Fig 7.5.2 Send SMS prompt



Send WhatsApp Message

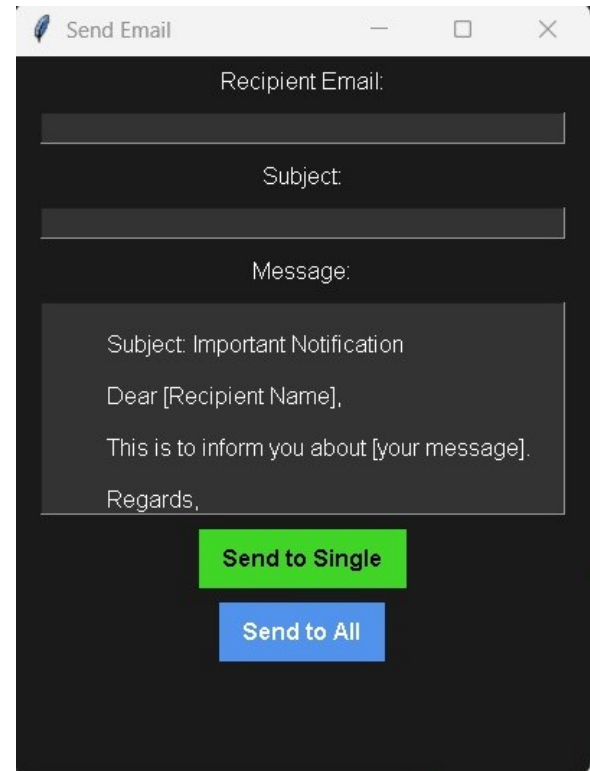
Recipient Phone Number (with country code):

Message:

Send to Single

Send to All

Fig 5.7.3 Send WhatsApp message prompt



Send Email

Recipient Email:

Subject:

Message:

Subject: Important Notification

Dear [Recipient Name],

This is to inform you about [your message].

Regards,

Send to Single

Send to All

Fig 5.7.4 Send Email message prompt

- The Messaging Section enables users to send bulk messages across multiple communication channels efficiently. It includes an "Upload Excel" button that allows users to upload a file containing recipient details for bulk processing. The system supports three communication methods: WhatsApp for sending bulk messages, Gmail for email notifications, and SMS through an integrated messaging service. A "Back" button is provided for easy navigation to the previous page. The user interface features a dark-themed layout, complemented by clear visual icons for each messaging option, ensuring that there is a presence of modern and user-friendly experience.

Metrics Page:

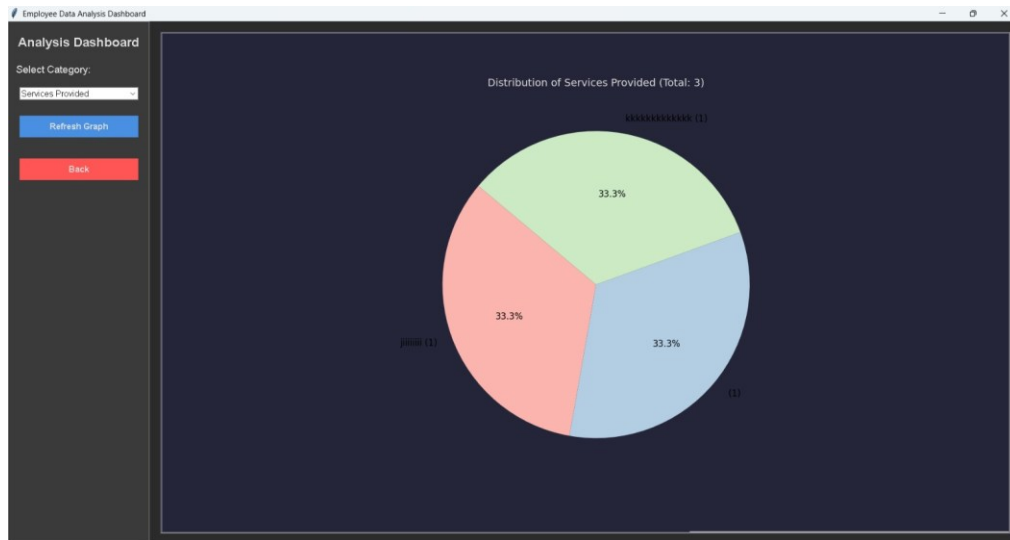


Fig 6. Metrics (Data Analysis) Page

- The Analytics Section is designed to provide valuable insights and data-driven analytics based on the information stored in the system. It features a comprehensive dashboard view that presents key business metrics through interactive and visually engaging charts and graphs. Users can explore trends in employee performance, client engagement, and communication statistics. The section also includes functionalities such as filtering and searching data by date range, department, or service category. Additionally, users can export analytical reports in Excel or PDF formats for further use. Real-time updates ensure that business indicators like total employees, service distribution, and client interactions are always current and actionable.

Chapter 8

Conclusion

The NotifyMe! CRM system successfully achieves its core objectives, including secure user login, client and employee data handling, and automated messaging via WhatsApp, SMS, and Email. With a structured MySQL database and a user-friendly interface, the system ensures efficient data management and a smooth user experience. It has been thoroughly tested in real-world scenarios, proving its reliability in handling large volumes of data and facilitating business communication through an integrated dashboard.

Throughout the development, challenges such as API integration, database optimization, and interface refinement provided valuable learning opportunities in full-stack development. These experiences strengthened skills in backend-frontend coordination and working with third-party services. In the future, the system can be enhanced with advanced analytics, multi-channel messaging, workflow automation, and a mobile application. Overall, NotifyMe! serves as a strong foundation for future scalability and business process automation.

References

- [1] MySQL Documentation. "MySQL 8.0 Reference Manual." URL: <https://dev.mysql.com/doc/refman/8.0/en/>

- [2] Twilio. "Twilio API Documentation – SMS, WhatsApp, and Email Integration." URL: <https://www.twilio.com/docs>

- [3] Meta for Developers. "WhatsApp Business API Documentation." URL: <https://developers.facebook.com/docs/whatsapp>

- [4] Google Developers. "Gmail API Documentation." URL: <https://developers.google.com/gmail/api>

- [5] GeeksforGeeks. "MySQL and Python Integration." URL: <https://www.geeksforgeeks.org/python-mysql-database-connection/>

- [6] Stack Overflow. "Various API Integration and Python Development Queries." URL: <https://stackoverflow.com/>

- [7] W3Schools. "Flask and MySQL Tutorial." URL: https://www.w3schools.com/python/python_mysql_getstarted.asp

- [8] Visual Studio Code Documentation. "Using VS Code for Python and Web Development." URL: <https://code.visualstudio.com/docs>