

## **Industry Internship**

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Partial fulfilment of the requirements for the degree of

**BACHELOR OF TECHNOLOGY**

in

**Computer Science and Engineering**

by

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**Enrolment No: 210305105302**

Under the supervision of

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in

**Gauraj infotech Private Limited, Vadodara, Gujarat**



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING  
PARUL INSTITUTE OF TECHNOLOGY  
PARUL UNIVERSITY**

**APRIL-2025**

## Parul Institute of Technology, Limbda



### CERTIFICATE

This is to certify that the project report submitted along with the project entitled **StarOne CRM (Customer Relationship Management)** has been carried out by **Dipen PrashantKumar Patel** under my guidance in partial fulfilment for the degree of Bachelor of Technology in Computer Science and Engineering, 8<sup>th</sup> Semester of Parul University, Vadodara during the AY 2024-25.

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### DECLARATION

We hereby declare that the Internship report submitted along with the Internship entitled **StarOne CRM (Customer Relationship Management)** submitted in partial fulfilment for the degree of Bachelor of Technology in Computer Science and Engineering to Parul University, Vadodara, is a Bonafide record of original project work carried out by me at Gaura Infotech Pvt Ltd. under the supervision of Dr. Vinod Patidar and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

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## ACKNOWLEDGEMENT

Behind any major work undertaken by an individual there lies the contribution of the people who helped him to cross all the hurdles to achieve his goal.

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**Place:** Vadodara

**Date:** 27th March, 2025

## ABSTRACT

The StarOneCRM project is a comprehensive Customer Relationship Management (CRM) system developed during my internship, aimed at addressing the growing need for efficient customer management solutions in modern businesses. Built using the MERN stack (MongoDB, Express.js, React, and Node.js), StarOneCRM is a scalable, user-friendly, and feature-rich platform designed to streamline customer interactions, task management, and payment processing. The system was successfully deployed on Microsoft Azure, ensuring high availability, scalability, and security.

The primary objective of this project was to create a CRM system that integrates advanced functionalities such as multi-layer user authentication (Google, Facebook, and OTP-based login), task assignment and tracking, Stripe payment processing, and real-time communication (chat and video calls). Additionally, the system incorporates machine learning-based customer segmentation using the RFM-Population model, which enhances customer insights by integrating geographic and demographic data into traditional RFM analysis.

The development process followed an Agile methodology, ensuring iterative progress and continuous feedback. Key features of StarOneCRM include:

- User Authentication: A three-layer registration process with admin verification.
- Task Management: Create, assign, and track tasks with beautiful data tables.
- Payment Processing: Seamless integration with Stripe for secure transactions.
- Real-time Communication: Socket.io-based chat and Peer.js-powered video calls.
- File Management: Image uploads using Multer and GridFS.

The system was rigorously tested for performance, scalability, and usability, with positive feedback from test users. The deployment on Azure ensured that the platform is accessible globally, with robust security measures in place.

The results of this project demonstrate the success of implementing modern CRM systems that not only meet the requirements of the enterprise, but also provide the basis for future improvements. Machine learning integration for customer segmentation distinguishes StaroneCRM from traditional systems and provides deeper insight into customer behaviour and target marketing strategies.

In summary, StaroneCRM represents a significant advance in CRM technology, combining the latest features with user-centric design. This project illustrates the potential of Mern stacks for the development of scalable web applications, highlighting the importance of integration of advanced technologies such as machine learning and real-time communication in business solutions. Future work may focus on expanding the functionality of the system.



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## ABBREVIATIONS

1. CRM - Customer Relationship Management
2. RFM - Recency, Frequency, Monetary (customer segmentation model)
3. MERN - MongoDB, Express.js, React, Node.js (tech stack)
4. UI-UX - User Interface - User Experience
5. SEO - Search Engine Optimization
6. API - Application Programming Interface
7. OTP - One-Time Password
8. AWS - Amazon Web Services (cloud platform)
9. Azure - Microsoft Azure (cloud platform)
10. PHP - Hypertext Preprocessor (programming language)
11. HR - Human Resources
12. UML - Unified Modelling Language
13. DFD - Data Flow Diagram
14. ER - Entity-Relationship (diagram)
15. REST - Representational State Transfer (API architecture)
16. OAuth - Open Authorization (authentication protocol)
17. AI - Artificial Intelligence
18. ML - Machine Learning
19. NLP - Natural Language Processing
20. KPI - Key Performance Indicator
21. MFA - Multi-Factor Authentication
22. IoT - Internet of Things
23. SQL - Structured Query Language
24. NoSQL - Not Only SQL (e.g., MongoDB)
25. HTML - Hypertext Markup Language
26. CSS - Cascading Style Sheets
27. JS - JavaScript
28. CI/CD - Continuous Integration / Continuous Deployment

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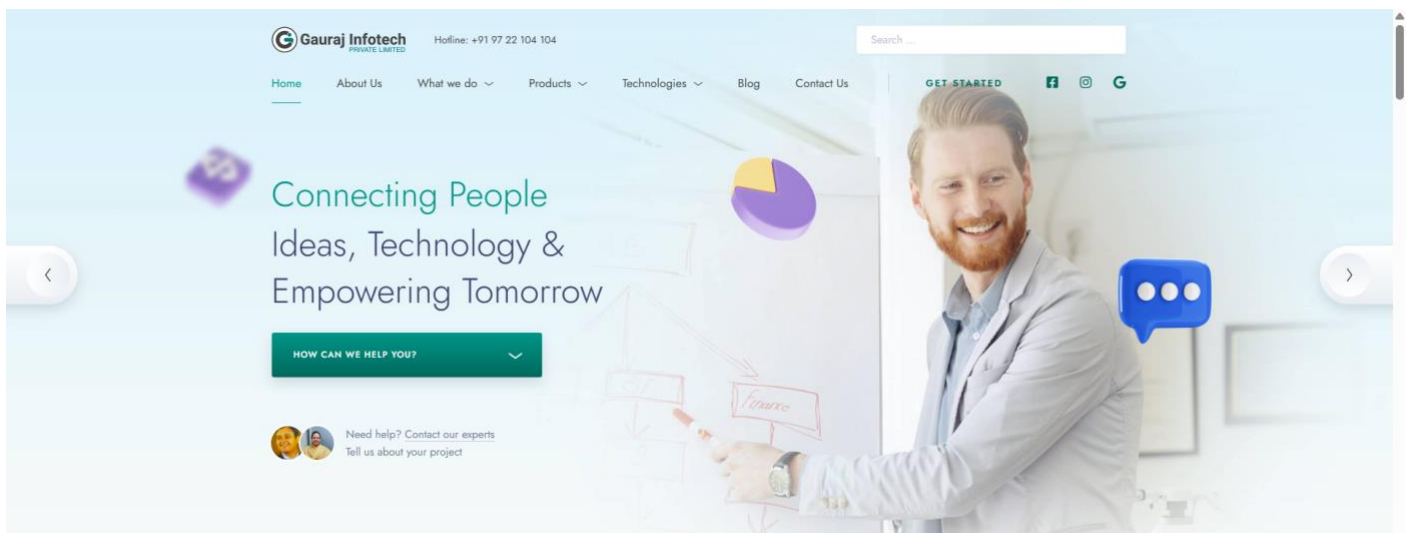
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# CHAPTER 1: OVERVIEW OF THE COMPANY

## 1.1 History

Gauraj Infotech Pvt Ltd, was established in the year 2012, is a leading technology solutions provider headquartered in Vadodara, Gujarat, India. Over the past decades, the company has grown exponentially both in reputation and size, offering a wide range of IT services and solutions, including software development, web design, digital marketing, UI-UX design and mobile app development. With a strong focus on innovation and customer satisfaction for all clients, Gauraj Infotech has successfully delivered over 400 campaigns, managed 762,000 pages, and served more than 500 clients globally throughout the past decade. The company's journey from a startup to a trusted IT partner reflects its commitment to excellence and adaptability in the ever-evolving tech landscape and this era of technology.



*Figure 1: Company History*

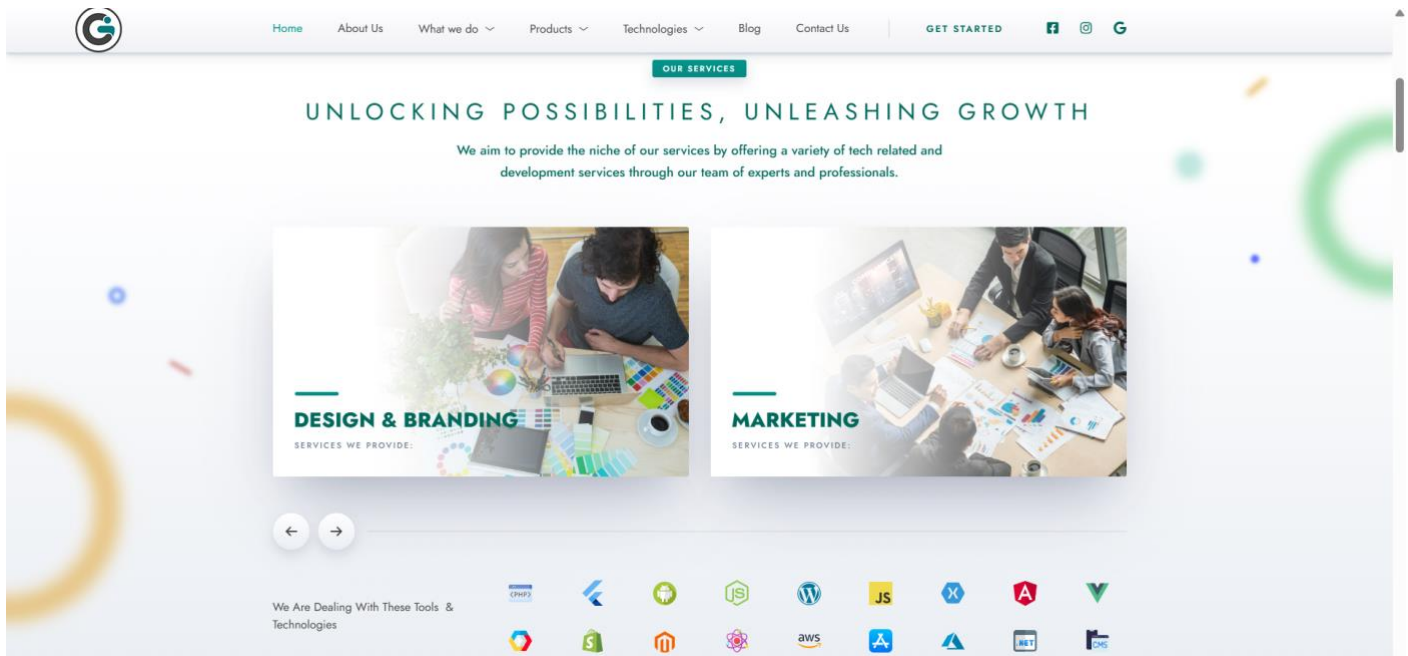
## 1.2 Different Products

Gauraj Infotech mainly focuses on providing cutting-edge IT solutions and IT services tailored to the diverse needs of our customers globally. The company's scope of work includes the following below:

- Design and Branding: Creating attractive visuals and strategic brand identity as per customer requirements.
- Digital Marketing: SEO service offers, social media marketing, content marketing, content writing according to the company requirements.
- Web Solutions: Development of Reaction-Fast websites, e-commerce platforms, and custom web applications according to the company requirements.
- Mobile App Development: Create intuitive and powerful apps for iOS and Android according to the company requirements.
- Dedicated Team/Support: Provided by qualified IT specialists for project-specific requirements according to the company requirements.

- Presentation Design: Crafts that persuade corporate presentations according to the company requirements.

The company uses advanced technologies such as PHP, Flutter, Node.js, WordPress, React, AWS, and Google Cloud to provide scalable and efficient solutions according to the company requirements.



*Figure 2: Company Product*

### 1.3 Organization Chart

The organizational structure of Gauraj Infotech is designed to ensure seamless operations and effective collaboration. Key roles include:

- CEO/Founder: Nihar Soni
- Customer Support: Nidhi Trivedi
- HR Manager: Minal Joshi
- Development Team: Arpan Patel (Flutter & Mobile App Developer), FidaAli Vahora (Team Leader & PHP Developer), Nasrin Patel (PHP Developer), and others.
- Digital Marketing Team: Dharam Jit Jadeja (SEO), Ayushi, Pooja Yadav, and Pallavi (Social Media & Branding).
- Testing & Quality Assurance: Mihir Patel (Development Tester).

The company's flat hierarchy promotes open communication and innovation.

### 1.4 Capacity of Plant

As a software and IT services company, Gauraj Infotech operates primarily through its skilled workforce and cloud-based infrastructure. The company's capacity is defined by its ability to handle multiple projects simultaneously, supported by

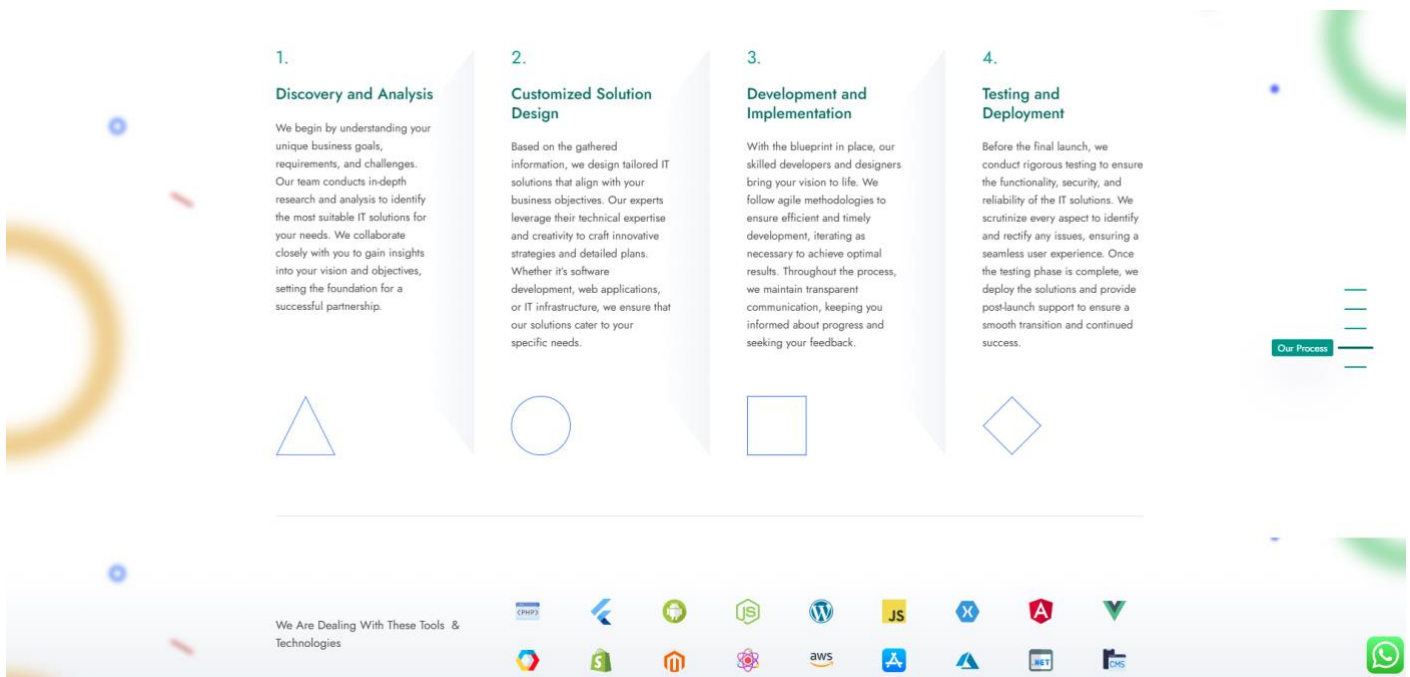


a team of over 20 professionals. With scalable cloud solutions and agile methodologies, Gauraj Infotech ensures efficient project delivery and high-quality outcomes.

## 2.1 Work Carried Out in Each Department

- **Development Department:** Responsible for designing, coding, and implementing software solutions, including web and mobile applications.
- **Digital Marketing Department:** Manages SEO, social media campaigns, and content marketing to enhance client visibility and engagement.
- **Designing & Branding Department:** Focuses on creating visually appealing designs and brand identities for clients.
- **Testing & Quality Assurance:** Ensures the functionality, security, and reliability of developed solutions through rigorous testing.
- **Customer Support:** Provides post-launch assistance and resolves client queries to ensure satisfaction.

- Development Tools: PHP, Flutter, Node.js, WordPress, React, Angular, and Vue.js. Cloud Platforms: AWS, Google Cloud, and Microsoft Azure.
- Testing Tools: Automated testing frameworks and manual testing protocols.
- Design Tools: Adobe Creative Suite, Figma, and Sketch.



**Figure 3: Company Departments**

## 2.3 Schematic Layout of Production Process

The production process at Gauraj Infotech follows a structured workflow:

- Discovery & Analysis: Understanding client requirements and conducting market research.
- Solution Design: Creating customized IT solutions aligned with client goals.
- Development & Implementation: Building and coding the solution using agile methodologies.
- Testing & Deployment: Rigorous testing followed by deployment and post-launch support.

## 2.4 Stages of Production

- Requirement Gathering: Collaborating with clients to define project objectives.
- Planning: Creating a very detailed and elaborate project plan, including timelines and employee, resource allocation.
- Design: Developing wireframes, prototypes, and UI/UX designs.
- Development: Writing code and integrating functionalities.
- Testing: Identifying and fixing bugs to ensure a seamless user experience.
- Deployment: Launching the solution and providing ongoing support.

## CHAPTER 3: INTRODUCTION

### 3.1 Aim and objective of the internship

The primary focus of the internship project was to accomplish the following goals:

1. **Build a Full-Stack CRM System:** The project involved designing and deploying a CRM system utilizing the MERN stack, with an emphasis on scalability, security, and ease of use.
2. **Improve Customer Segmentation:** By combining geographic population data with the RFM model, the aim was to refine customer segmentation accuracy, facilitating more precise and effective marketing campaigns.
3. **Integrate Advanced Functionalities:** Key features such as user authentication, payment processing, real-time communication, and file management were incorporated to create a robust and comprehensive CRM solution.
4. **Perform Research and Analysis:** A thorough review of existing literature on CRM systems, customer segmentation, and geographic data integration was conducted to identify gaps and explore opportunities for innovation.
5. **Assess and Validate the System:** The system underwent rigorous testing to evaluate its functionality, analyze performance metrics, and validate its practical effectiveness in real-world applications.

The achievement of these objectives led to the development of a fully operational CRM system that not only aligns with business needs but also introduces innovative strategies for managing customer relationships.

### 3.2 General Introduction

In modern business environments, CRM systems (customer relationship management) have been developed as an essential tool for businesses that want to efficiently manage their interactions with existing and potential customers. These systems aim to optimize business processes, improve customer satisfaction and ultimately drive sales growth. When competition is fierce, CRM systems have been developed beyond mere data management tools. It now serves as a comprehensive platform to promote customer commitment, loyalty and long-term relationships.

StarOneCRM is the latest CRM solution developed with Mern Stack, MongoDB, Express.js, React and node.js. This latest technology stack ensures that StaroneCRM is not only scalable and customizable, but also comes with a variety of advanced features. The platform is tailored to the dynamic needs of the enterprise and offers features such as user authentication, task management, payment processing, and actual communication. By integrating these capabilities, StaroneCRM offers an overall solution for businesses of all sizes, from small startups to large companies.

The main motive of the internship was to design and implement StarOneCRM systems beyond traditional capabilities by including various innovative characteristics and geographical knowledge of customer segmentation. By integrating the RFM model (Recency, frequency, monetary) into population-based clustering, StarOneCRM aims to provide deeper insights into customer behaviour so that companies can effectively adjust their strategies. This report documents

development processes, research results, and project results, highlighting its importance in the context of modern CRM systems.

### 3.3 Problem Definition

Despite the CRM systems on the market, many companies continue to fight against effective management of customer relationships. A considerable number of existing CRM solutions suffer from limitations such as lack of flexibility, insufficient scalability, and insufficient progressive properties. They make these flaws unsuitable for businesses with unique or development requirements. Some of the most urgent issues with current CRM systems are:

- **High Cost:** Many CRM solutions have very high price tags that keep small and medium-sized businesses financially inaccessible. High license fees and subscription costs often prevent very small businesses from taking over these systems.
- **Limited Adjustment:** Most CRM systems often lack the flexibility needed to adapt to a specific business process. This stiffness can prevent an organization from adapting the system to its own operational requirements. And thus, making them more harmful to small businesses than useful creating even more complication into the current business lifecycle.
- **Insufficient features:** Traditional CRM systems often integrate advanced features such as real-time communication for machine learning, payment processing, and customer segmentation. The lack of this broad feature really limits our ability to provide an overall solution.

These challenges underscore the need for not only adaptive and scalable, but also feature-rich CRM solutions. StarOneCRM has been developed to tackle these gaps and provides a platform to meet the diverse needs of modern companies.

### 3.4 Motivation

The creation of StarOneCRM was driven by an increasing demand for affordable, user-friendly, feature-rich CRM systems. Many existing solutions don't fit into the promise, especially when it comes to tuning and advanced features. StarOneCRM is designed to fill this gap, providing businesses with a robust platform that combines user access with powerful features.

On a personal level, this project provided an exciting opportunity to use my technical know-how to solve real-world problems in full stack development, machine learning, and cloud computing development. The challenge of building a scalable and secure CRM system from scratch was both intellectually and professionally valuable. This effort not only enhanced my technical skills, but also strengthened my commitment to providing high quality solutions that address real business needs.

### 3.5 Objectives

The main goals of the StarOneCRM project are as follows:

1. **Build a Robust CRM System:** The project aims to develop a CRM platform equipped with advanced features like user authentication, task management, payment processing, and real-time communication. These capabilities are intended to help businesses manage customer relationships more effectively and efficiently.
2. **Incorporate Machine Learning:** StarOneCRM plans to integrate machine learning, specifically the RFM-Population model, for customer segmentation. This approach will enable the system to analyze customer behaviour, forecast trends, and deliver actionable insights to support business growth.
3. **Ensure Scalability and Security:** To provide high availability and strong security, StarOneCRM is hosted on Microsoft Azure. This cloud platform offers automatic scaling, global accessibility, and advanced security measures, ensuring the system remains reliable and secure as businesses expand.

### 3.6 Scope of the Project

#### 3.6.1 Existing System

Several CRM systems, such as Salesforce, HubSpot, and Zoho, currently dominate the market. While these platforms offer various features for managing customer relationships, they have notable limitations:

- **High Costs:** Licensing and subscription fees for these systems can be too expensive, especially for small businesses with tight budgets.
- **Limited Customization:** Many off-the-shelf CRM solutions lack the flexibility to adapt to specific business processes, leading to inefficiencies and poor integration with existing workflows.
- **Insufficient Advanced Features:** Traditional CRM systems often lack advanced functionalities like real-time communication, payment processing, or machine learning-based analytics, limiting their ability to meet the needs of modern businesses.

#### 3.6.2 Proposed System

StarOneCRM is designed to overcome these limitations by offering a customizable and scalable CRM solution built on the MERN stack. Key features of the proposed system include:

- **Multi-Layer User Authentication:** The platform supports various authentication methods, such as Google, Facebook, and OTP-based login, ensuring secure and user-friendly access.
- **Task and User Management:** A task management module allows users to create, assign, and monitor tasks as well as users and payments efficiently, improving productivity.

- **Payment Processing:** Integration with Stripe enables user for secure and streamlined payment processing, making it ideal for businesses that need a dependable payment solution.
- **Real-Time Communication:** The platform includes chat and video call features powered by Socket.io and Peer.js, facilitating seamless collaboration and quick responses to customer inquiries.
- **Machine Learning Algorithms Integration:** The RFM-Population model is used for customer segmentation, enabling even small businesses to analyse customer behaviour, predict trends, and make many data-driven decisions.

The MERN stack ensures that StarOneCRM is scalable, modular, and easy to maintain, making it suitable for businesses of all sizes, from startups to large enterprises.

### 3.7 Hardware & Software Requirements

The development and deployment of StarOneCRM utilized a variety of technologies and tools, including:

- **Frontend:** React.js was used to create a responsive and dynamic user interface, ensuring a smooth experience across devices.
- **Backend:** Node.js and Express.js were employed to manage server-side logic and APIs, ensuring efficiency and scalability.
- **Database:** MongoDB was selected for its ability to handle large volumes of unstructured data specially files in binary, making it ideal for a CRM system.
- **Cloud Platform:** Microsoft Azure was chosen for deployment due to its global accessibility, automatic scaling, and robust security features.
- **Development Tools:** Tools such as Postman for testing API calls, Git and GitHub for version control, and Visual Studio Code as the primary code editor were used throughout the development process.

By leveraging these technologies, StarOneCRM delivers a reliable, scalable, and feature-rich CRM solution tailored to the needs of modern businesses. The use of Microsoft Azure further enhances the platform's reliability, security, and scalability, ensuring it can grow alongside businesses as they expand.



## CHAPTER 4: SYSTEM ANALYSIS

### 4.1 Literature Review

Customer segmentation is the basis of an effective CRM strategy that allows companies to classify customers based on behaviour, preferences and demographics. Traditional segmentation models such as the RFM model (recency, frequency, monetary) were used to identify high-value customers and predict immigration. However, these models often overlook the effects of geographic and demographic factors on customer behaviour.

Valmohammadi (2017) [1] investigates the relationship between CRM innovation and performance using RFM analysis. By segmenting customers based on routine, frequency, and financial value, businesses can better target their businesses. However, this study also highlights the limitations of the RFM model, which does not account for demographic and geographic factors that may influence purchasing decisions. This inconsistency highlights the need for advanced models that integrate geographic and market data in RFM analysis. Some other research [2], emphasizes the importance of geographic vulnerability in understanding consumer behaviour, further supporting the reason for enhanced RFM frameworks and model for clustering.

Research by Moral (2010) [3] and Pellicone et al. (2018) [4] researched impact of environmental changes like climate and agriculture on purchasing power of the consumers. While these research does provide valuable insights into the role of location in customer experience, they cannot be directly applied to all CRM systems. Implementing financial and spatial data into CRM models can increase the accuracy of customer segmentation just by accounting for geographic differences in purchasing decisions based on the purchasing power, ultimately leading to better business outcomes. Similar studies [5], explore the use of spatial-temporal models for analysis of customer data, reinforcing the necessity of incorporating geographic variables in the model.

Zheng and Chi (2014) [6] focused on the role of environmental and demographic variables in influencing consumer purchase intentions. However, there is also some research that links these concepts to CRM strategies. Integrating environmental, market, and geographic factors into RFM models can improve customer segmentation, especially for products affected by environmental issues or location-based factors.

Technology in the CRM field is rapidly evolving, with data collection and analysis capabilities improving. Mahmud et al. (2018) [7] and Allouch et al. (2017) [8] explored the use of advanced technologies such as cloud computing and smartphone applications to collect and process real-time data. These tools have the potential to improve CRM decision-making by providing more accurate and timely visibility into customer behaviour. However, further research is needed to investigate integrating these strategies into CRM systems to help segment customers, especially when combined with geography and demographics.

Dewnarain et al. (2018) [9] introduced a framework for social customer relationship management, putting emphasis on the role of social media in shaping customer loyalty and engagement. While this framework mainly focuses on the hospitality industry, it does offer insights into how CRM strategies should evolve by integrating social dimensions.

Expanding this structure to include other sectors, particularly e-commerce, could enrich CRM strategies by taking into consideration social and behavioural data in customer segmentation.

While existing literature provides valuable insights into CRM, RFM, and geographical considerations, several gaps remain. Future research could focus on developing integrated models that combine CRM, RFM, purchasing power, and geographical insights. Moreover, studies should further explore how socio-economic conditions, such as income levels and employment rates, impact consumer purchasing behaviour in different regions. The use of machine learning models, such as K-means clustering, could be expanded to include these variables and improve segmentation accuracy. The use of machine learning models, such as K-means clustering and deep learning methods, could also be expanded to have these variables and improve segmentation accuracy, as suggested by some researchers [10].

Over the past decades, CRM systems (customer relationship management) have been developed even more than expected, switching to a highly developed platform that integrates employee sales, marketing and customer capabilities. While early CRM systems focused primarily on the storage of customer information, modern systems use advanced technologies such as machine learning and artificial intelligence to provide implementable knowledge to automate processes and improve customer loyalty.

The importance of customer segmentation in customer segmentation is an important aspect of CRM that allows companies to classify customers based on common features such as demographic data, behaviour, and purchasing patterns. By segmenting customers, businesses can adapt their marketing strategies, improve customer loyalty, and optimize resource allocation. However, these methods often overlook external factors such as geographic and demographic impacts that can have a significant impact on customer behaviour. Analyse customer data, identify trends, and predict future behaviour using techniques such as clustering, classification, and regression. For example, K-Means clustering algorithms are typically used for customer segmentation, while decision trees and neural networks are used for prediction and recommendation systems from migration.

## 4.2 Evaluation of Existing Systems

Several CRM systems currently dominate the market, each offering their own unique features and capabilities. Below are some analyses of three popular CRM systems:

### 4.2.1 Salesforce

- Enhanced: Very possible, extensive integration of robust analytics with third party providers.
- Limitations: Really High cost, steep learning curve, and complex setup. Which might not be viable for the smaller businesses.

### 4.2.2 HubSpot

- Definitely: a user-friendly interface, free-level for small and medium-sized businesses, powerful marketing automation features.

- Limitations: limited adaptation, large enterprise scalability issues, additional costs of advanced features.

#### 4.2.3 Zoho CRM

- Definitely: Affordable price, wide range of properties, excellent scalability.
- Limitations: Limited integration of third-party providers, non-intuitive interfaces, and slow performance for large data records.

Despite their popularity, these CRM systems have some limitations which are:

- High Cost: License fees and subscription costs are not affordable for small businesses.
- Limited Adaptation: Off-the-shelf solutions may not be compatible with specific business processes.
- Scalability Issues: Many systems have difficulty managing large data records or high user loads.
- Lack of advanced features: Traditional CRM systems often lack features such as real-time communication, payment processing, and machine learning analytics.

These limitations underscore the need for customizable, scalable, feature-rich CRM solutions such as StarOneCRM.

### 4.3 Overview of Proposed Technology

Mern Development Stack (MongoDB, Express.js, React, node.js) is a popular technology stack for building modern web applications which are responsive and quick.

The most important benefits are:

- JavaScript Full Stack: Enables a seamless development process with the help of a single programming language and allows us to take advantage of high speed of JavaScript.
- Scalability: The modular architecture of MERN web apps allows for easy scaling of the web application StarOneCRM.
- Performance: Virtual Cathedral and Node.js Non -Blocking I/O ensures high performance and high speed response as well.
- Community Support: A wide range of libraries, frameworks and tools are available thus creating the application process becomes faster overall.

StarOneCRM uses MERN Development Stack to provide a scalable and extremely powerful CRM solution that is quick and easy to access for all type of users.

Microsoft Azure is the leading cloud platform right now that provides a wide range of services for application delivery, management and deployment. The most important benefits of using Azure are shown as below:

- Global Range: Azures data centres provide low latency and high availability worldwide.
- Scalability: Auto-scaling functions allow the system to handle a variety of workloads.
- Security: Integrated security features such as encryption, threat detection, and access control ensure data protection.
- Cost-effective: Pay-as-you-go pricing models cut costs ahead of time.

By providing StarOneCRM to Azure, your systems deliver global accessibility, robust security and cost-effectiveness.

#### **4.3.1 Stripe for Payment Processing**

- Enables secure and seamless transactions through Stripe payment gateway.
- Supports several payment methods and currency such as credit card and UPI.

#### **4.3.2 Socket.io for Real-Time Communication**

- Instant messages and notifications in question through bidirectional communication.
- It guarantees low latency communication between users as well as allows to send video call requests live globally inside the application.

#### **4.3.3 Peer.js for Video Calls**

- Enables video communication in real time as well as allows to share screen, video, audio.
- Use WebRTC for peer-to-peer compounds to reduce server load and less pressure on the backend.

These characteristics make StarOneCRM a modern CRM solution that meets majority of the needs of your enterprise.

## CHAPTER 5: METHODOLOGY

### 5.1 Existing Methodology

#### Overview of Conventional CRM Development Approaches

Traditional CRM development methodologies typically adhere to a waterfall model, which divides the development process into distinct, sequential stages. These stages include requirement analysis, system design, implementation, testing, and deployment. Although this method offers a well-organized framework, it comes with several drawbacks:

1. **Inflexibility:** Once the development process begins, incorporating changes to requirements becomes highly challenging.
2. **Scalability Issues:** The rigid nature of the model makes it difficult to adapt the system as business requirements grow or change.
3. **Delayed Feedback Mechanism:** Testing and feedback are conducted toward the end of the process, which can lead to expensive and time-consuming revisions.
4. **Complex Feature Integration:** Adding advanced functionalities, such as real-time communication or machine learning, often proves to be cumbersome and resource-intensive.

These shortcomings underscore the necessity for a more adaptable and iterative development strategy, particularly for modern CRM systems like StarOneCRM.

### 5.2 Proposed Methodology

#### Agile Development Framework for StarOneCRM

To overcome the limitations of traditional methodologies, StarOneCRM was designed using the Agile framework. Agile focuses on iterative progress, continuous feedback loops, and close collaboration among cross-functional teams. The primary advantages of Agile include:

- **Adaptability:** The ability to respond swiftly to evolving requirements.
- **Rapid Delivery:** Functional components are delivered in short, incremental cycles known as sprints.
- **Quality Assurance:** Ongoing testing and feedback ensure the final product meets high standards.
- **Team Collaboration:** Frequent communication among developers, testers, and stakeholders fosters a cohesive development environment.

The creation of StarOneCRM involved the following phases:

### 5.2.1 Requirement Gathering

- Conducted interviews and surveys with potential users to identify their specific needs.
- Highlighted essential features, including user authentication, task management, payment processing, and real-time communication.
- Compiled detailed documentation of both functional and non-functional requirements.

### 5.2.2 System Design

- Utilized UML diagrams (use case, class, and sequence diagrams) to map out the system's architecture.
- Designed the database schema using MongoDB for efficient data storage.
- Outlined the structure for the frontend (React) and backend (Node.js and Express.js).

### 5.2.3 Implementation and Testing

- Developed the system incrementally, focusing on individual modules during each sprint.
- Integrated third-party APIs, such as Stripe, Google Login, and Facebook Login, to enhance functionality.
- Performed unit testing, user acceptance testing (UAT) for every module of StarOneCRM as well as integration testing.

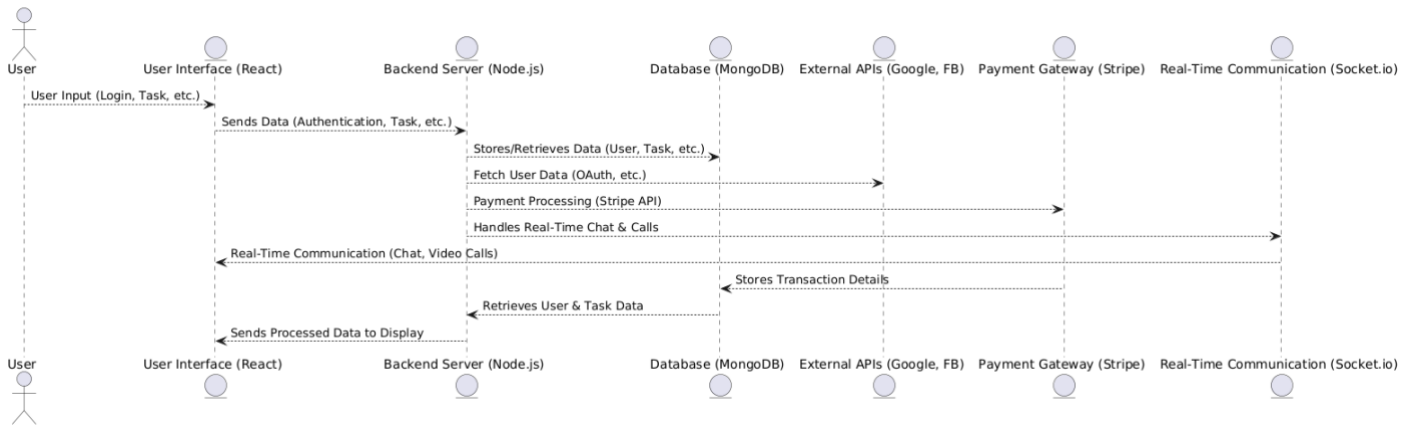
### 5.2.4 Deployment and Maintenance

- Deployed the system on Microsoft Azure to ensure global accessibility and scalability.
- Monitored system performance and incorporated user feedback after deployment.
- Regularly updated the system and applied security patches to maintain reliability.

## 5.3 Data Flow Diagram (DFD)

Explanation of the DFD for StarOneCRM

The Data Flow Diagram (DFD) for StarOneCRM provides a visual representation of how data moves between various modules and external entities. It offers a comprehensive view of data processing and transfer within the system.



*Figure 4: Data Flow Diagram*

## Flow of Data Between Modules

### 5.3.1 User Management

- Data travels from the user interface (React) to the backend server (Node.js) for authentication and profile management.
- User information is stored in MongoDB and retrieved when necessary.

### 5.3.2 Task Management

- Tasks generated by users are forwarded to the backend for processing and assignment.
- Task-related data is stored in the database and displayed on the user interface.

### 5.3.3 Payment Processing

- Payment requests are routed to Stripe through the backend server.
- Transaction records are stored in the database and updated in the user's payment history.

### 5.3.4 Real-Time Communication

- Chat and video call requests are managed using Socket.io and Peer.js.
- Communication data is processed in real-time and displayed on the user interface.

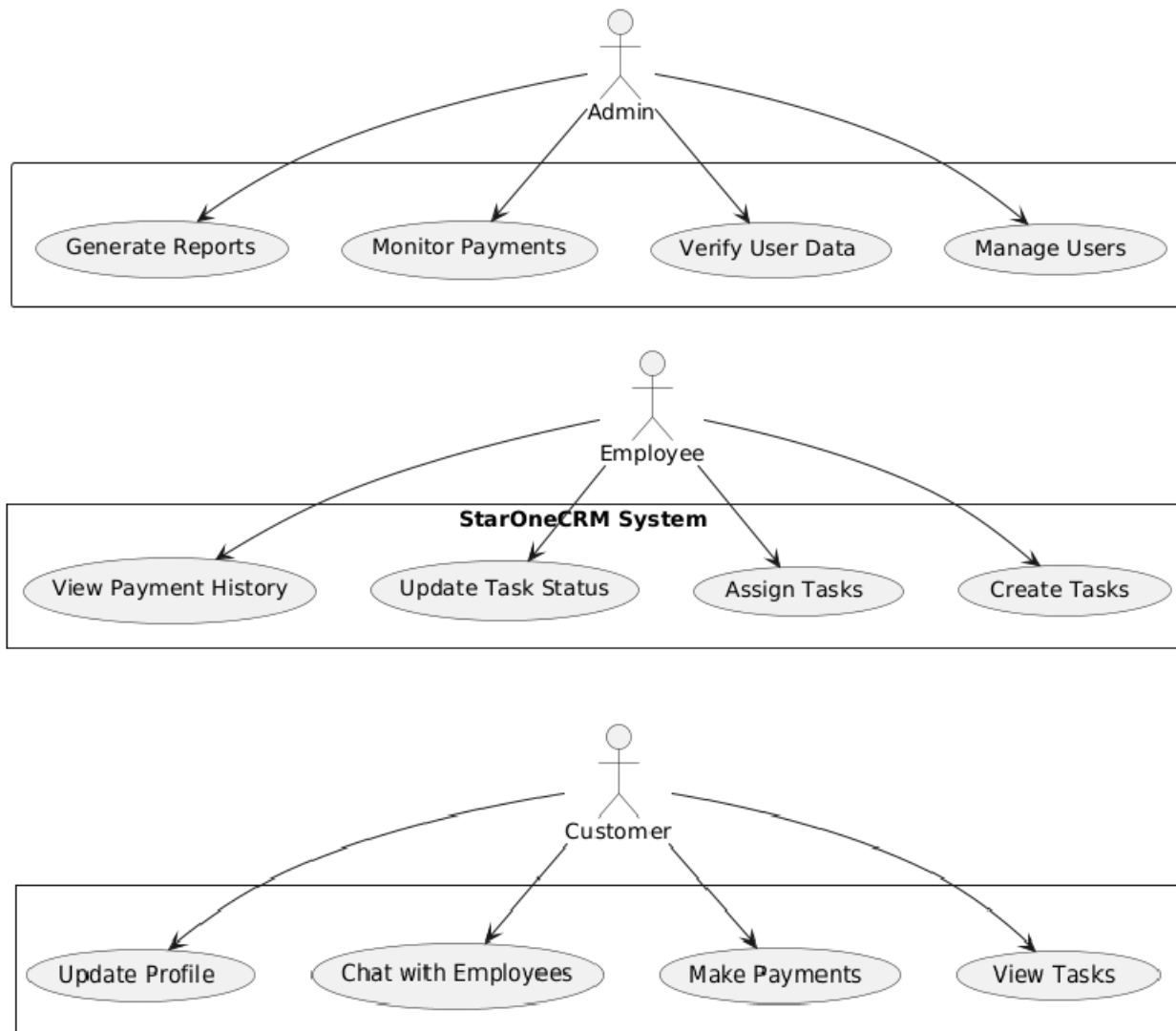
The DFD ensures smooth data flow across modules, facilitating efficient system operation and enhancing user interaction.



## CHAPTER 6: SYSTEM DESIGN

### 6.1 Use Case Diagram

The Use Case Diagram for StarOneCRM offers a graphical overview of how various users (actors) interact with the system. It highlights the roles of administrators, employees, and customers, along with the specific features they can utilize.



*Figure 5: Use Case Diagram*

#### Roles and Functionalities

##### 6.1.1 Admin

- Oversees user accounts, including creating, updating, and deleting them.

- Validates user information during the registration process.
- Tracks payment transactions and produces detailed reports.

#### **6.1.2 Employee**

- Generates and assigns tasks to other employees or customers.
- Updates the status of tasks and reviews payment histories.

#### **6.1.3 Customer**

- Views tasks assigned to them and processes payments.
- Communicates with employees through chat and updates their personal profile.

The Use Case Diagram provides a clear and concise understanding of the system's capabilities and the responsibilities of each user role.

### **6.2 Entity-Relationship (ER) Diagram**

The Entity-Relationship (ER) Diagram for StarOneCRM depicts the database structure, showcasing the relationships between key entities such as users, tasks, payments, and chats.

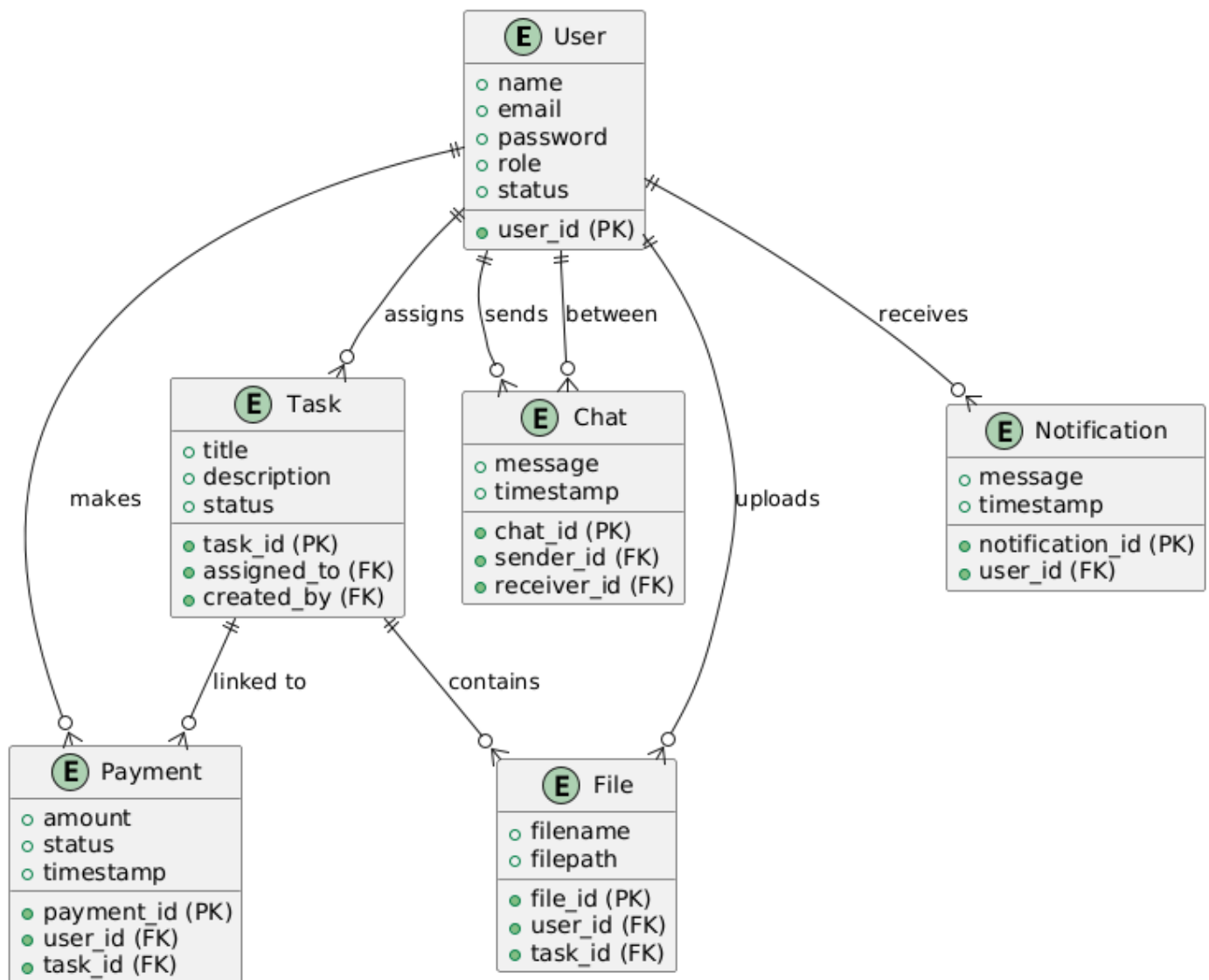


Figure 6: Entity Relationship Diagram

## Entities and Relationships

### 6.2.1 User

- Stores details like name, email, password, role (admin, employee, customer), and status.
- Connected to tasks, payments, chats, and files.

### 6.2.2 Task

- Contains task-related information such as title, description, assigned user, creator, and status.
- Linked to payments and files.

### 6.2.3 Payment

- Records payment details, including amount, status, and the associated user and task.

#### 6.2.4 Chat

- Manages chat messages between users, storing details like sender, receiver, and timestamp.

#### 6.2.5 File

- Handles file uploads, including filename, filepath, and the associated user and task.

#### 6.2.6 Notification

- Manages system notifications for users, including message content and timestamp.

The ER Diagram ensures a well-organized and normalized database structure for StarOneCRM.

### 6.3 System Architecture

#### 6.3.1 Frontend and Backend Architecture

StarOneCRM employs a client-server architecture with a distinct separation between the frontend and backend components.

##### 6.3.1.1 Frontend (React):

- Developed using React.js, the frontend delivers a dynamic and responsive user interface.
- Components are designed for reusability and modularity.
- State management is handled using React Context API and Redux.

##### 6.3.1.2 Backend (Node.js and Express.js):

- The backend is constructed using Node.js and Express.js, offering RESTful APIs for seamless communication with the frontend.
- Manages business logic, authentication, and data processing.
- Integrates with MongoDB for efficient data storage for binary files and retrieval as well.

Integration of Third-Party APIs

#### 6.3.2 Third-party APIs

##### 6.3.2.1 Stripe for Payment Processing:

- Payment requests are routed to Stripe through the backend server.
- Transaction records are stored in the database and updated in the user's payment history.

##### 6.3.2.2 Google and Facebook Login:

- Enables social login functionality for user authentication.

- Utilizes OAuth 2.0 for secure authorization.

#### **6.3.2.3 Socket.io for Real-Time Communication:**

- Facilitates instant messaging and notifications.
- Ensures low-latency communication between users.

#### **6.3.2.4 Peer.js for Video Calls:**

- Enables real-time video communication.
- Uses WebRTC for peer-to-peer connections, minimizing server load.

### **6.3.3 System Workflow**

#### **6.3.3.1 User Interaction:**

- Users interact with the frontend (React) to perform actions such as logging in, creating tasks, and processing payments.

#### **6.3.3.2 API Requests:**

- The frontend sends API requests to the backend (Node.js) for data processing.

#### **6.3.3.3 Data Processing:**

- The backend processes requests, interacts with the database (MongoDB), and integrates with third-party APIs.

#### **6.3.3.4 Response Delivery:**

- The backend sends responses back to the frontend, which updates the user interface accordingly.

This architecture ensures a scalable, modular, and high-performance system tailored to meet the demands of modern businesses.

## CHAPTER 7: IMPLEMENTATION

### 7.1 Module Description

StarOneCRM is designed with a variety of modules, each developed to handle distinct functionalities. The following section provides a detailed breakdown of these modules:

#### 7.1.1 User Authentication

##### 7.1.1.1 user registration and login through multiple methods

- Google Login: Users have the option to sign in using their Google credentials.
- Facebook Login: Users can also log in by connecting their Facebook accounts.
- OTP (one-time password): For extended security and fake emails, users will receive a one-time password via email to complete and continue the authentication process.

##### 7.1.1.2 The authentication workflow

- The user chooses their preferred login method (Google, Facebook, or OTP).
- The system either verifies the user's credentials or sends an OTP for validation.
- After a successful review, users will receive access to the website and can fill in the data that was missing from the previous process in full.

#### 7.1.2 Task Management

This module allows users to create, assign, and keep track of tasks. Its main features include:

- Create Task: Users can configure tasks by specifying details such as title, description, and due date.
- Assign Task: Tasks can be delegated to specific team members or customers.
- Track Task: Users can monitor the progress of tasks (e.g., pending, in progress, completed) and view any updates.

#### 7.1.3 Payment Processing

This module integrates Stripe to enable secure and efficient payment transactions. Its core functionalities are:

- Payment Initiation: Users can initiate payments for tasks or services.
- Payment Confirmation: Stripe handles the transaction and provides confirmation of the payment status.
- Payment History: Users can access a record of past payments and download receipts for their records.

#### 7.1.4 Real-Time Communication

This module facilitates instant communication between users through the following features:

- Chat: We use Socket.io for bidirectional communication and real time chat module for both employee and customer who are assigned to the same task.
- Video Call: Users can start video calls using Peer.js and WebRTC technology.

#### 7.1.5 File Management

This module handles the uploading and storage of files. Key features include:

- Image Uploads: Users can upload images using Multer and GridFS.
- File Storage: Uploaded files are securely stored in MongoDB, ensuring easy access and retrieval.

### 7.2 Pseudo Code of Modules

Below is the pseudo code for key functionalities:

#### User Authentication (Google Login)

1. User clicks on the button "Login with Google."
2. Redirect user to Google OAuth page on the backend server.
3. Google returns an authorization code through the server.
4. Makes use of passport.js methods to further the process.
5. If user exists, log them in otherwise create a new user.
6. Generate a token from the backend if successful and send to frontend.

#### User Authentication (Facebook Login)

1. User clicks on the button "Login with Facebook."
2. Redirect user to Facebook OAuth page on the backend server.
3. Facebook returns an authorization code through the server.
4. Makes use of passport.js methods to further the process.
5. If user exists, log them in otherwise create a new user.
6. Generate a token from the backend if successful and send to frontend.

#### User Authentication (OTP signup and login)

1. User clicks on the button "Login and signup".
2. Fill user detail and then check if account exists on backend
3. If does not exist send email opt and get it verified from the backend.
4. If not exists create user otherwise send a token from the backend to frontend.



### Task Assignment

1. Admin/Employee creates a task with details (title, description, deadline) if created by user they get directly assigned otherwise need to assign a customer.
2. Assign task to a specific user employee once it is created.
3. Save task details in the database though backend authentication.
4. Once tasks are assigned the in both employee task list and customer.
5. After which both customer and employee can talk with each other through chat and video call through the chat page and video call page.

### Payment Processing (Stripe Integration)

1. User initiates payment for a task and is redirected stripe payment page.
2. Send payment details (amount, currency) to Stripe API which is set from the frontend.
3. Stripe processes the payment and stores the detail on the stripe backend.
4. If payment is successful from the stripe site:
  - a. User if forwarded to a URL on frontend for success which send call to backend.
  - b. Backend asks the stripe backend for that payment details through the payment id and then the backend stores the detail on the database.
5. If payment fails:
  - a. User is forwarded to fail URL on the frontend and the failed detail is stored on the backend.

### Real-Time Communication (Chat)

1. As soon as the user selects the task, they send a request to the backend.
2. Backend then assigned a room for the socket connected user.
3. Once user sends a message its stored in the database through the backend.
4. If other user selects same task through the frontend they gets assigned to the same room on the backend.
5. When a user sends message it gets emit through the backend and through the bidirectional communication it is received by other users of the same task room.
6. Thus, all user in the task room receives the messages and are able to send as well.
7. Once the user selects different task of leaves the website, they are removed from the backend socket connection and are removed rom the task room as well.

### Real-Time Communication (Video Call)

1. As soon as the user selects the task, they send a request to the backend.
2. Backend then assigned a room for the socket connected user and a peer.js id and send to frontend.
3. Once user sends a request for call its forwarded through socket.
4. If other user online receives the call and can accept it.

5. Call will now commute through peer.js and will continue as well as allowing user to turn on and off the video and audio.

#### File Management (Image Uploads)

1. User clicks on the edit profile option.
2. User clicks on upload image and then selects a single image.
3. On clicking the submit button the image is send to backend.
4. Multer middleware processes the file and then passes on to the gridFs on the backend.
5. Save the file in MongoDB using GridFS in smaller chunks.
6. Return the file URL to backend and that URL gets associated to the user in backend and gets stored in mongoDB.

### 7.3 UI Outcome of Web Application

#### 7.3.1 User Authentication

**StarOne CRM**

Unlock endless possibilities to connect to you customers.

Know more [↗](#)

Join us *today!*

## Login

Email \*  
cocply135@gmail.com

Password \*  
\*\*\*\*\*

LOGIN

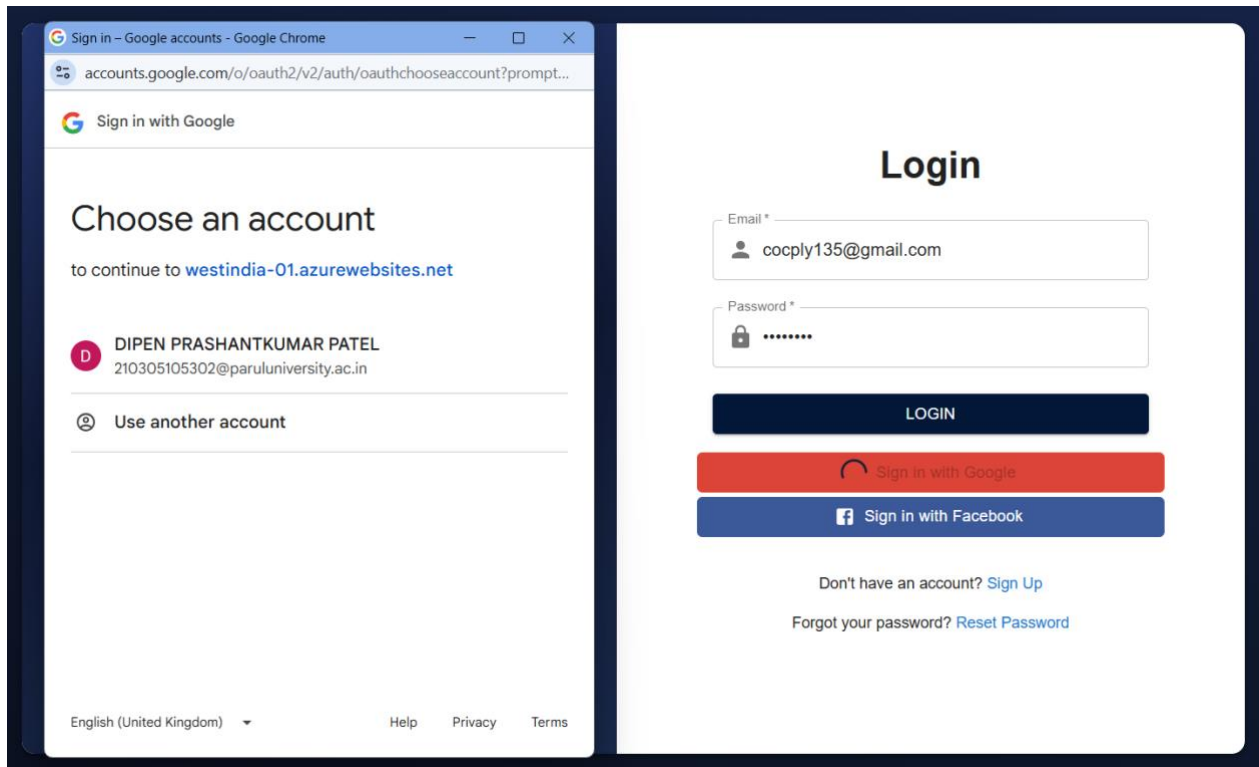
[G Sign in with Google](#)

[f Sign in with Facebook](#)

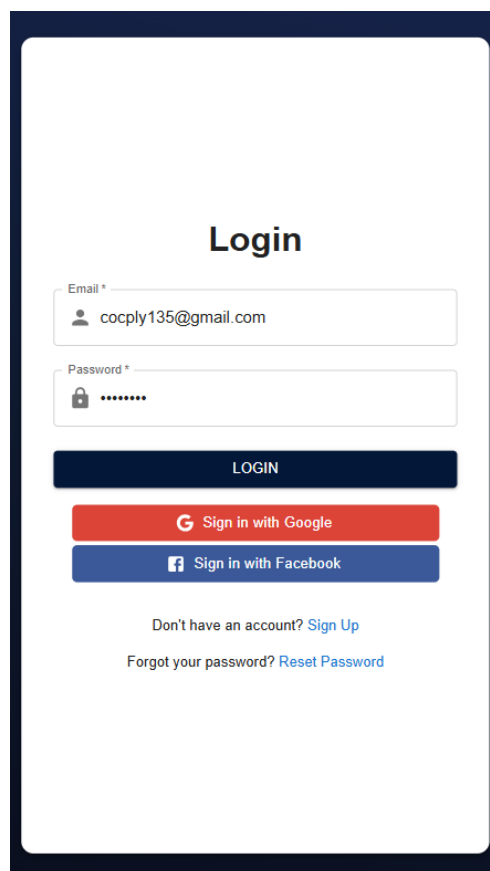
Don't have an account? [Sign Up](#)

Forgot your password? [Reset Password](#)

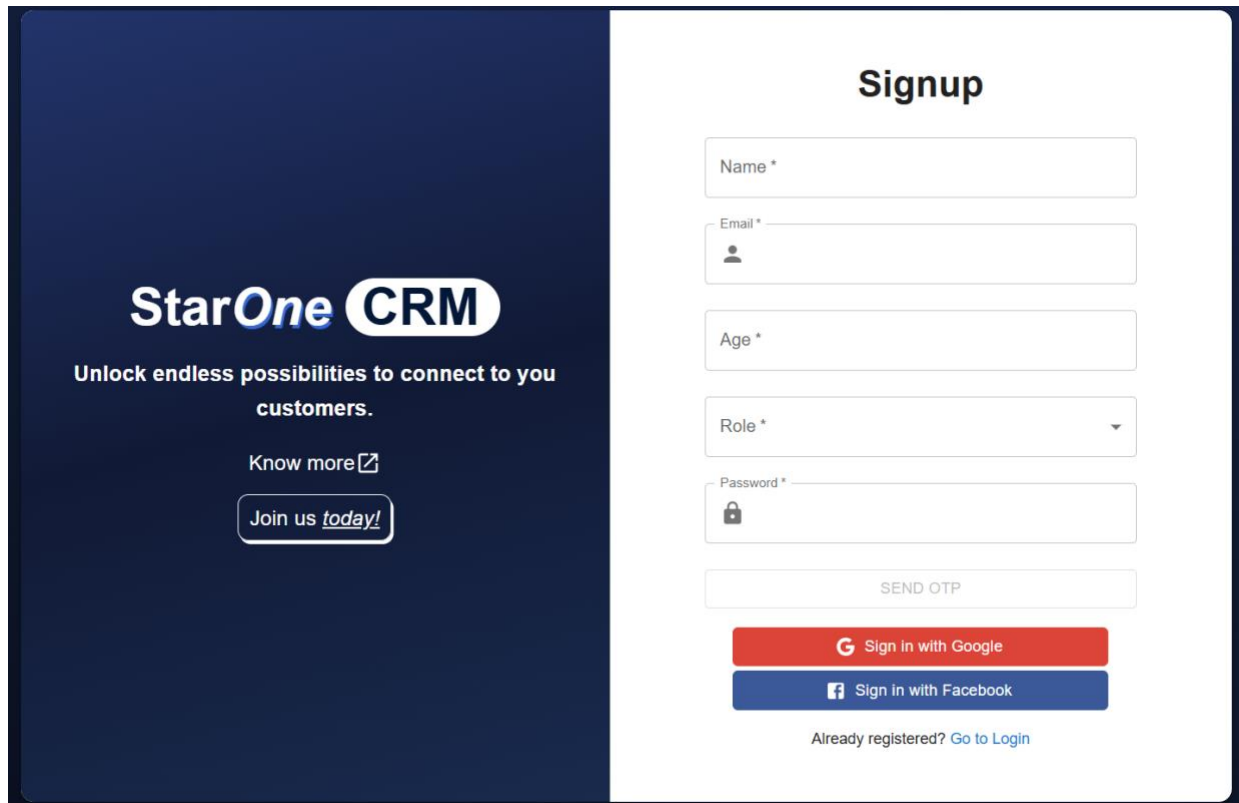
*Figure 7: Authentication UI - 1*



*Figure 8: Authentication UI - 2*

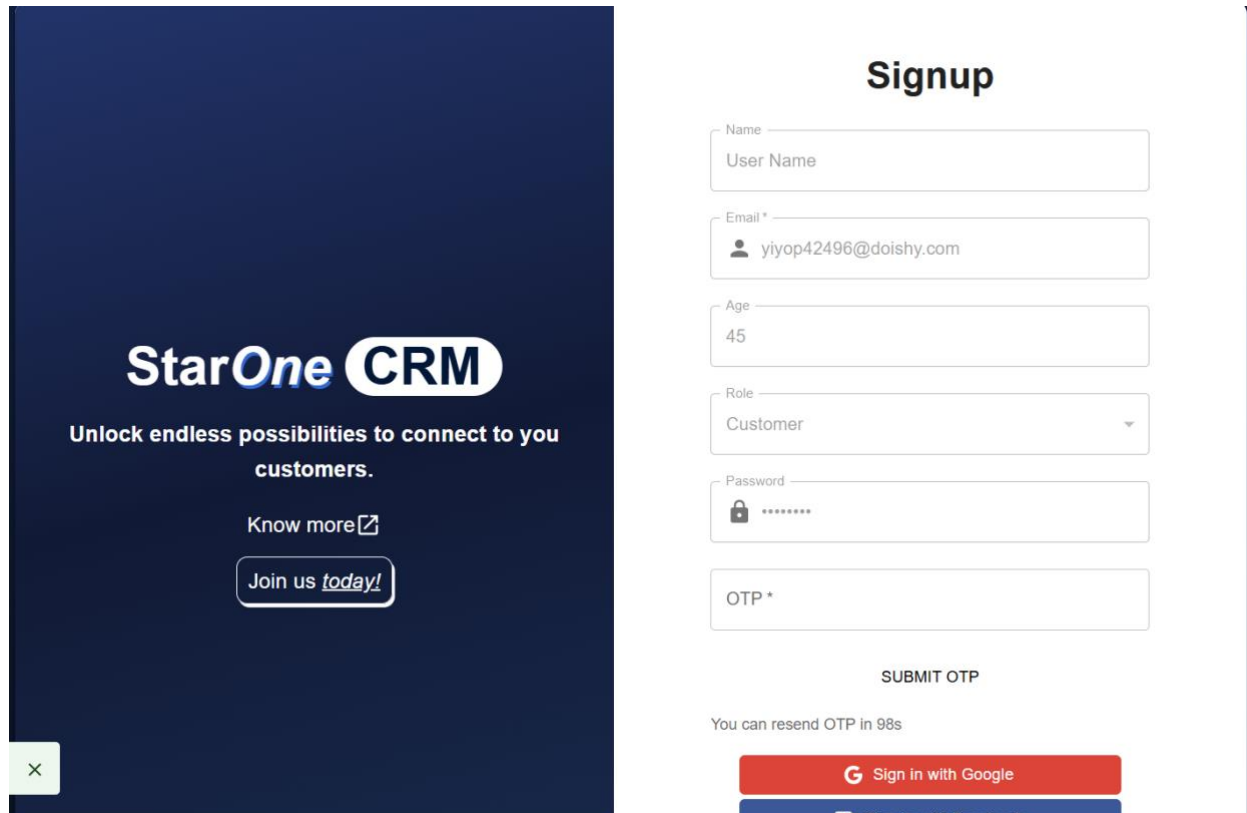


*Figure 9: Authentication UI - 3*



The image shows the StarOne CRM Signup form. On the left, a dark blue sidebar contains the StarOne CRM logo, the tagline "Unlock endless possibilities to connect to you customers.", a "Know more" link with an external icon, and a "Join us today!" button. The main white area is titled "Signup" and contains the following fields: "Name \*" (text input), "Email \*" (text input with a person icon), "Age \*" (text input), "Role \*" (dropdown menu), and "Password \*" (password input with a lock icon). Below these fields is a "SEND OTP" button. At the bottom of the form are two social login buttons: "Sign in with Google" (red) and "Sign in with Facebook" (blue). A link "Already registered? Go to Login" is located at the very bottom.

Figure 10: Authentication UI - 4



This image shows the same StarOne CRM Signup form as Figure 10, but with pre-filled data. The "Name" field is filled with "User Name". The "Email" field is filled with "yiyop42496@doishy.com". The "Age" field is filled with "45". The "Role" dropdown menu is set to "Customer". The "Password" field is filled with "\*\*\*\*\*". The "OTP" field is empty. The "SEND OTP" button is replaced by a "SUBMIT OTP" button. Below the "SUBMIT OTP" button, a message states "You can resend OTP in 98s". The social login buttons for Google and Facebook are still present at the bottom.

Figure 11: Authentication UI – 5

## Complete Your Profile

Task \*

SUBMIT

LOGOUT

Figure 12: Authentication UI – 6

Your form has not been verified  
yet!

Please wait for admin verification. If you have any questions, contact  
support.

LOGOUT

✓ Form submitted successfully ✕

Figure 13: Authentication UI – 7

### 7.3.2 Admin Dashboard

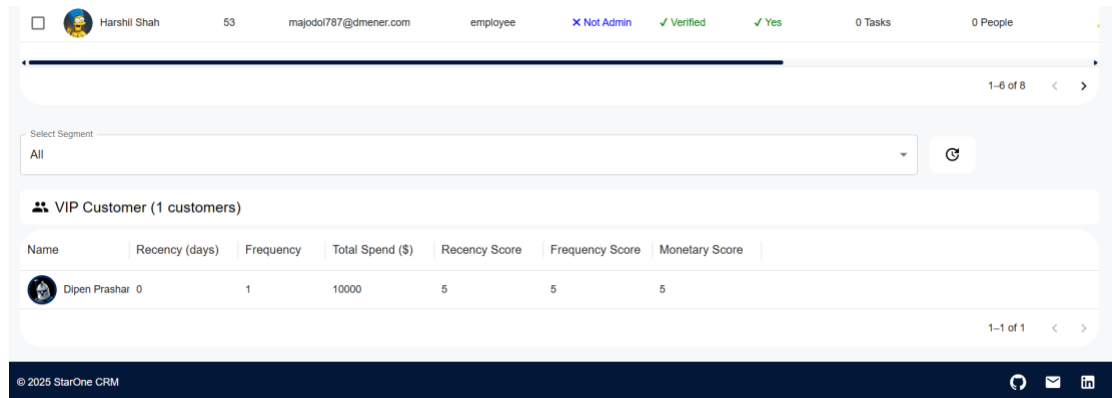


Figure 14: Dashboard UI – 1

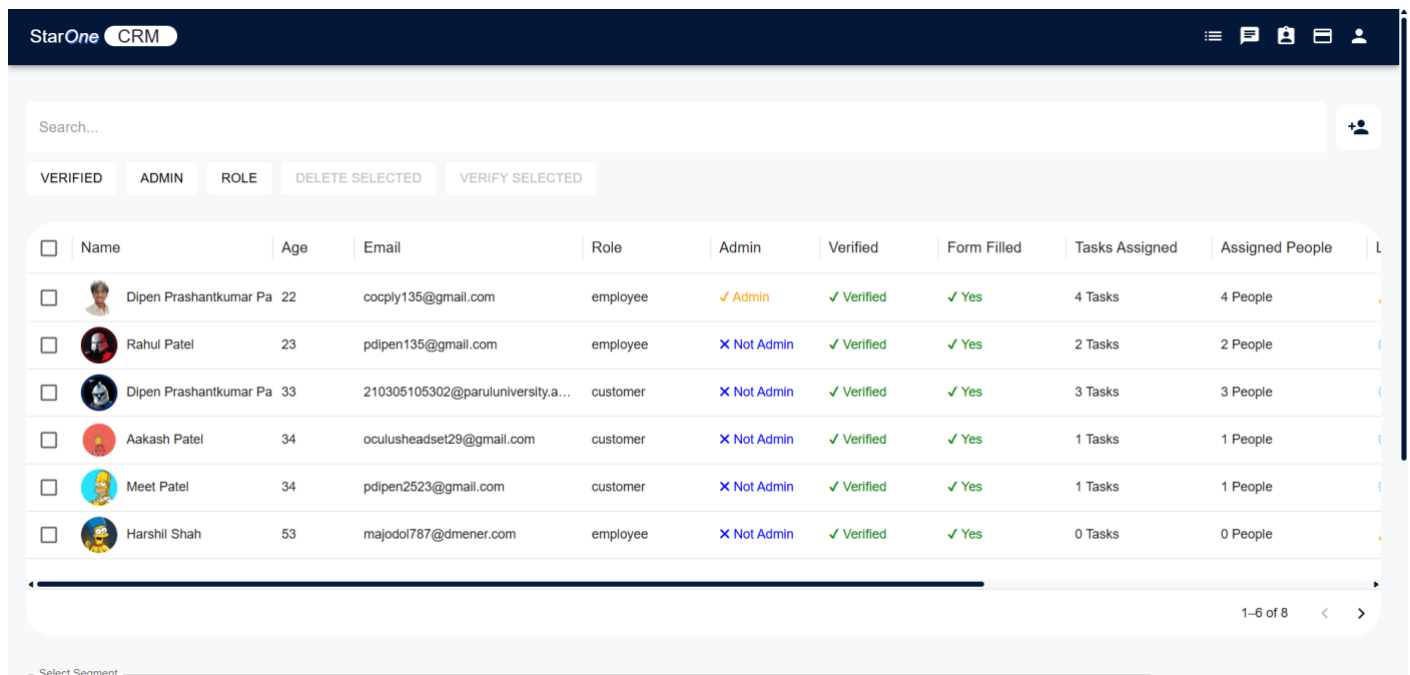





Figure 15: Dashboard UI - 2

StarOne CRM

dip

VERIFIED ADMIN ROLE DELETE SELECTED VERIFY SELECTED

<input type="checkbox"/>	Name	Age	Email	Role	Admin	Verified	Form Filled	Tasks Assigned	Assigned People
<input type="checkbox"/>	 Rahul Patel	23	pdipen135@gmail.com	employee	X Not Admin	✓ Verified	✓ Yes	2 Tasks	2 People
<input type="checkbox"/>	 Dipen Prashantkumar Pa	33	210305105302@paruluniversity.a...	customer	X Not Admin	✓ Verified	✓ Yes	3 Tasks	3 People
<input type="checkbox"/>	 Meet Patel	34	pdipen2523@gmail.com	customer	X Not Admin	✓ Verified	✓ Yes	1 Tasks	1 People

1-3 of 3




Figure 16: Dashboard UI - 3

StarOne CRM

dip

VERIFIED ADMIN ROLE

DELETE SELECTED VERIFY SELECTED

<input type="checkbox"/>	Name	Age
<input type="checkbox"/>	 Rahul Patel	23
<input type="checkbox"/>	 Dipen Prashantkumar Pa	33
<input type="checkbox"/>	 Meet Patel	34

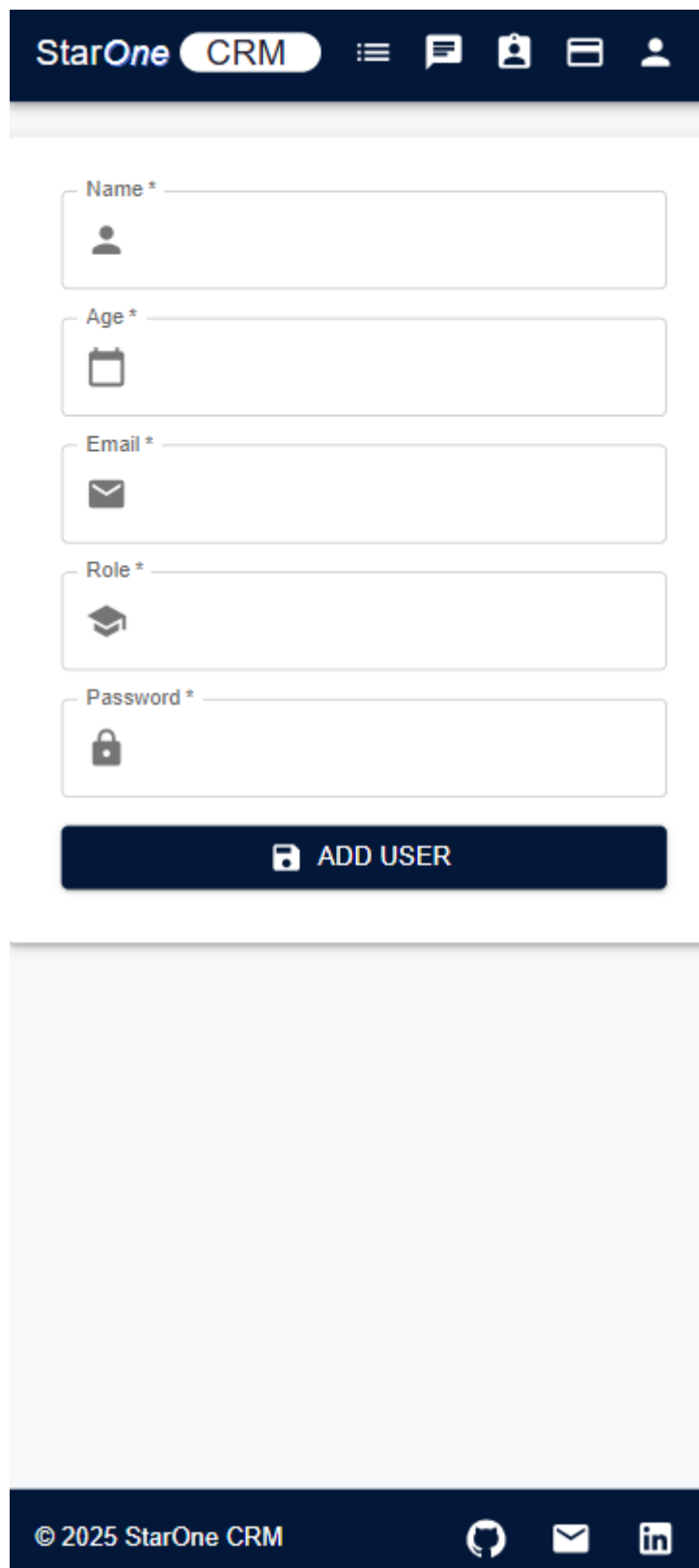
1-3 of 3

Select Segment

All

VIP Customer (1 customers)

Figure 17: Dashboard UI - 4



The image shows a user registration form within the StarOne CRM interface. The form is titled "StarOne CRM" and includes a navigation bar with icons for menu, chat, profile, and other functions. The form fields are:

- Name \* (with a person icon)
- Age \* (with a calendar icon)
- Email \* (with an envelope icon)
- Role \* (with a graduation cap icon)
- Password \* (with a lock icon)

Below the form fields is a dark blue button labeled "ADD USER" with a document icon. The footer of the form displays "© 2025 StarOne CRM" and social media icons for GitHub, Email, and LinkedIn.

Figure 18: Dashboard UI - 5



StarOne CRM

Task

Employee

ASSIGN TASK

+ CREATE TASK

Title	Description	Customer	Customer Email	Employee Assig...	Assigned Empl...	Created At	Last Updated
Frontend-Develop...	Frontend Development	Dipen Prashantku...	210305105302@paruluni...	Yes	Dipen Prashantku...	3/19/2025, 8:00:39 AM	3/19/2025, 8:19:02 AM
Socket-Application	Socket Application Development	Dipen Prashantku...	210305105302@paruluni...	Yes	Rahul Patel	3/19/2025, 8:11:20 AM	3/19/2025, 8:19:17 AM
Backend-Develop...	Backend Development	Dipen Prashantku...	210305105302@paruluni...	Yes	Dipen Prashantku...	3/19/2025, 8:19:44 AM	3/19/2025, 8:20:59 AM
PHP-Development	PHP Development	Aakash Patel	oculusheadset29@gmail....	Yes	Rahul Patel	3/19/2025, 9:17:36 AM	3/19/2025, 9:33:11 AM
Wordpress-Devel...	Wordpress Development	Meet Patel	pdipen2523@gmail.com	Yes	Dipen Prashantku...	3/19/2025, 9:18:17 AM	3/19/2025, 9:31:34 AM
Web-Development	Web Development	Harshal shah	sinat38505@cybtric.com	Yes	Dipen Prashantku...	3/19/2025, 10:03:47 AM	3/19/2025, 10:10:09 AM
Welcome Task	Peer Development	User Name	ylyop42496@dolshy.com	No	Unassigned	3/21/2025, 2:54:43 PM	3/21/2025, 2:54:43 PM

1-7 of 7

<>

Figure 19: Dashboard UI - 6

StarOne CRM

Task

ASSIGN TASK

+ CREATE TASK

Title	Description	Customer	Customer Email				
Frontend-Develop...	Frontend Development	Dipen Prashantku...	210305105302@paruluni...	Yes	Dipen Prashantku...	3/19/2025, 8:00:39 AM	3/19/2025, 8:19:02 AM
Socket-Application	Socket Application Development	Dipen Prashantku...	210305105302@paruluni...	Yes	Rahul Patel	3/19/2025, 8:11:20 AM	3/19/2025, 8:19:17 AM
Backend-Develop...	Backend Development	Dipen Prashantku...	210305105302@paruluni...	Yes	Dipen Prashantku...	3/19/2025, 8:19:44 AM	3/19/2025, 8:20:59 AM
PHP-Development	PHP Development	Aakash Patel	oculusheadset29@gmail....	Yes	Rahul Patel	3/19/2025, 9:17:36 AM	3/19/2025, 9:33:11 AM
Wordpress-Devel...	Wordpress Development	Meet Patel	pdipen2523@gmail.com	Yes	Dipen Prashantku...	3/19/2025, 9:18:17 AM	3/19/2025, 9:31:34 AM
Web-Development	Web Development	Harshal shah	sinat38505@cybtric.com	Yes	Dipen Prashantku...	3/19/2025, 10:03:47 AM	3/19/2025, 10:10:09 AM

Employee

Dipen Prashantkumar Patel

Rahul Patel

Harshil Shah

Figure 20: Dashboard UI - 7

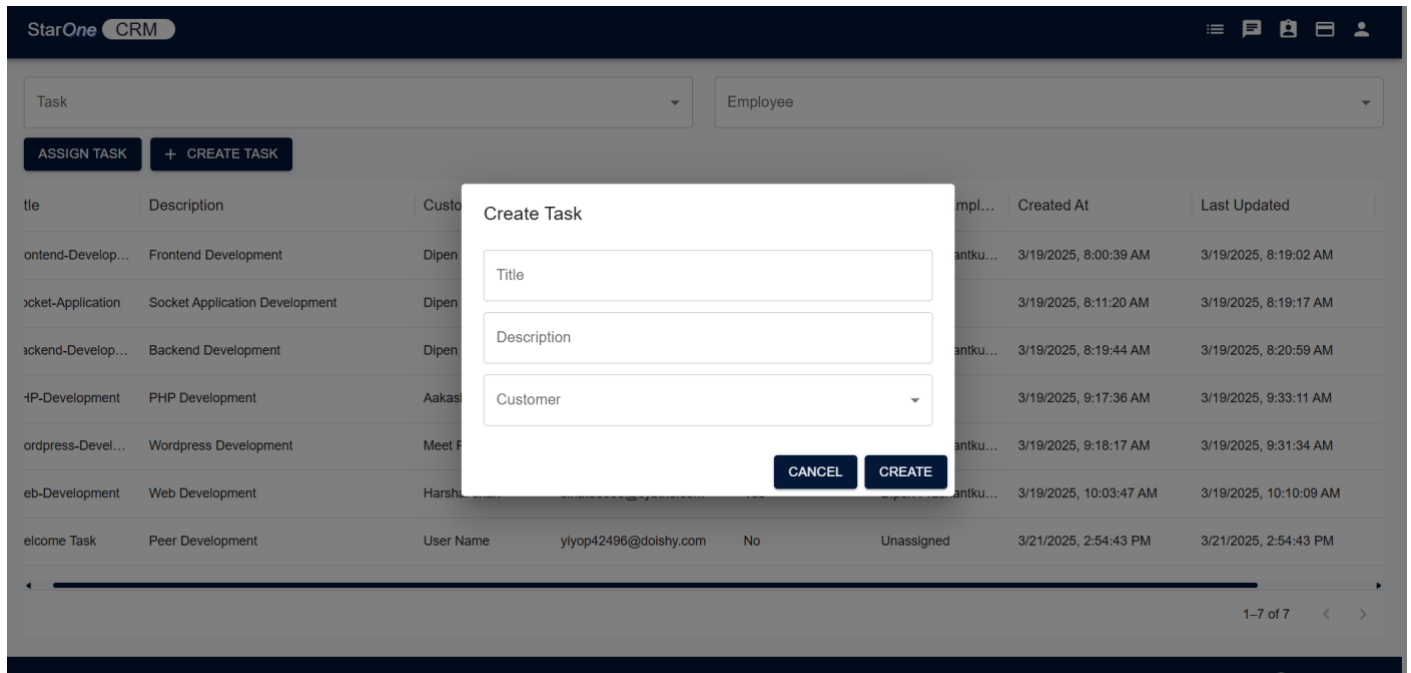


Figure 21: Dashboard UI - 8

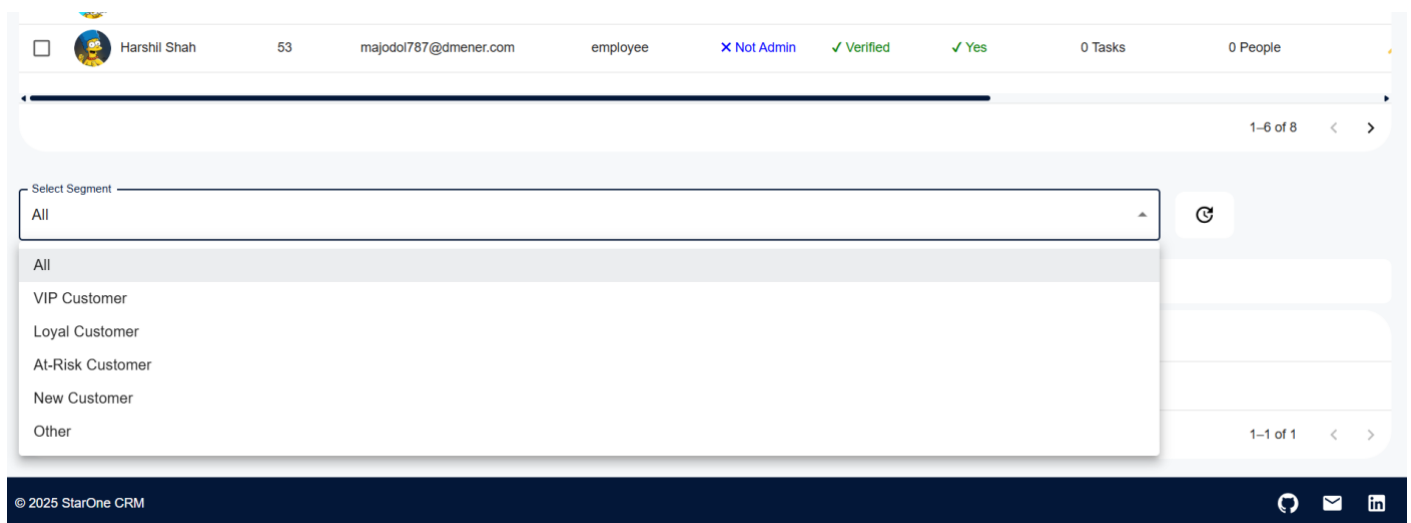


Figure 22: Dashboard UI - 9

StarOne CRM

Select User

User Name

Amount

Currency

Payment Method

Status

Created At

Updated At

Dipen Prashantkumar Patel

\$100.00

USD

CARD

COMPLETED

Mar 19, 2025, 8:30:17 PM

Mar 19, 2025, 8:30:30 PM

1-1 of 1

© 2025 StarOne CRM

Figure 23: Dashboard UI - 10

### 7.3.3 User Profile

StarOne CRM

Dipen Prashantkumar Patel

cocply135@gmail.com

employee

Personal Information

Name

Dipen Prashantkumar Patel

Age

22

Role

employee

Email

cocply135@gmail.com

Assigned Tasks

Frontend-Development

Backend-Development

Wordpress-Development

Web-Development

EDIT PROFILE

DELETE PROFILE

LOGOUT

© 2025 StarOne CRM

<https://polite-field-09918cc004.azurestaticapps.net/#/profile>


Figure 24: Profile UI - 1

PARUL UNIVERSITY

34

PARUL INSTITUTE OF TECHNOLOGY

StarOne CRM



Dipen Prashantkumar Patel

cocply135@gmail.com

employee

Personal Information

Name

Dipen Prashantkumar Patel

Age

22

Role

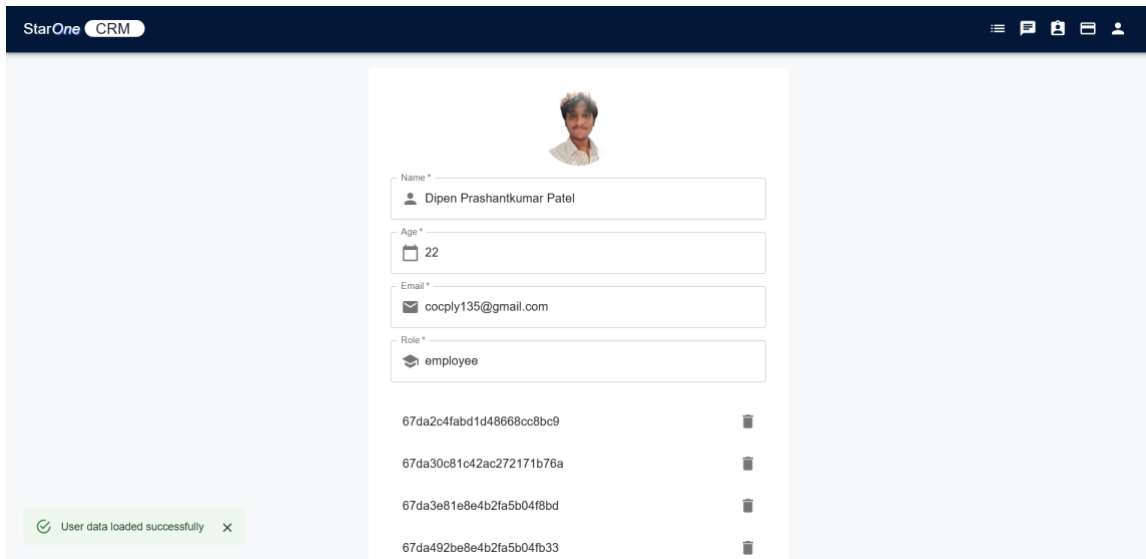
employee

Email

cocply135@gmail.com

Assigned Tasks

Figure 25: Profile UI - 2



The image shows a web application interface for StarOne CRM. At the top, there is a dark blue header with the text "StarOne CRM" and several icons on the right. Below the header, there is a profile card for a user named Dipen Prashantkumar Patel. The card includes a profile picture, a name field, an age field (22), an email field (cocply135@gmail.com), and a role field (employee). Below these fields, there is a list of four hexadecimal strings, each with a trash icon to its right. A green notification banner at the bottom left says "User data loaded successfully".

StarOne CRM

Name \*  
Dipen Prashantkumar Patel

Age \*  
22

Email \*  
cocply135@gmail.com

Role \*  
employee

67da2c4fabd1d48668cc8bc9

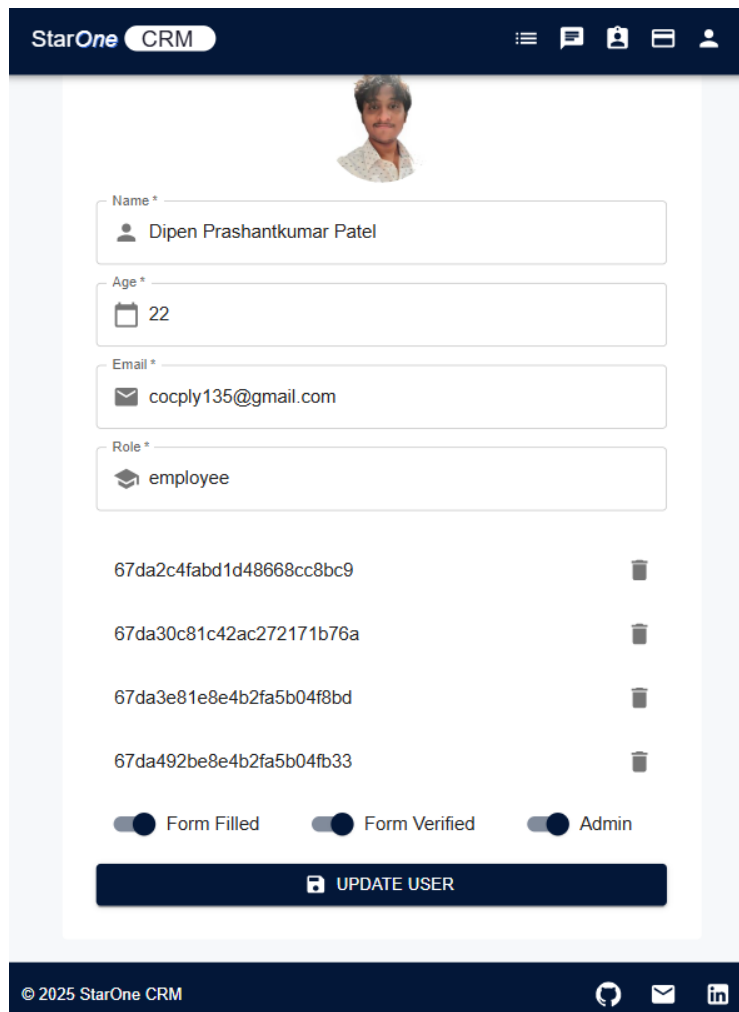
67da30c81c42ac272171b76a

67da3e81e8e4b2fa5b04f8bd

67da492be8e4b2fa5b04fb33

✔ User data loaded successfully ✕

Figure 26: Profile UI - 3



The image shows a web application interface for StarOne CRM, similar to Figure 26 but with additional features. It includes the same profile card for Dipen Prashantkumar Patel. Below the list of hexadecimal strings, there are three toggle switches labeled "Form Filled", "Form Verified", and "Admin". At the bottom of the profile card, there is a dark blue button labeled "UPDATE USER". The footer of the application shows "© 2025 StarOne CRM" and several icons.

StarOne CRM

Name \*  
Dipen Prashantkumar Patel

Age \*  
22

Email \*  
cocply135@gmail.com

Role \*  
employee

67da2c4fabd1d48668cc8bc9

67da30c81c42ac272171b76a

67da3e81e8e4b2fa5b04f8bd

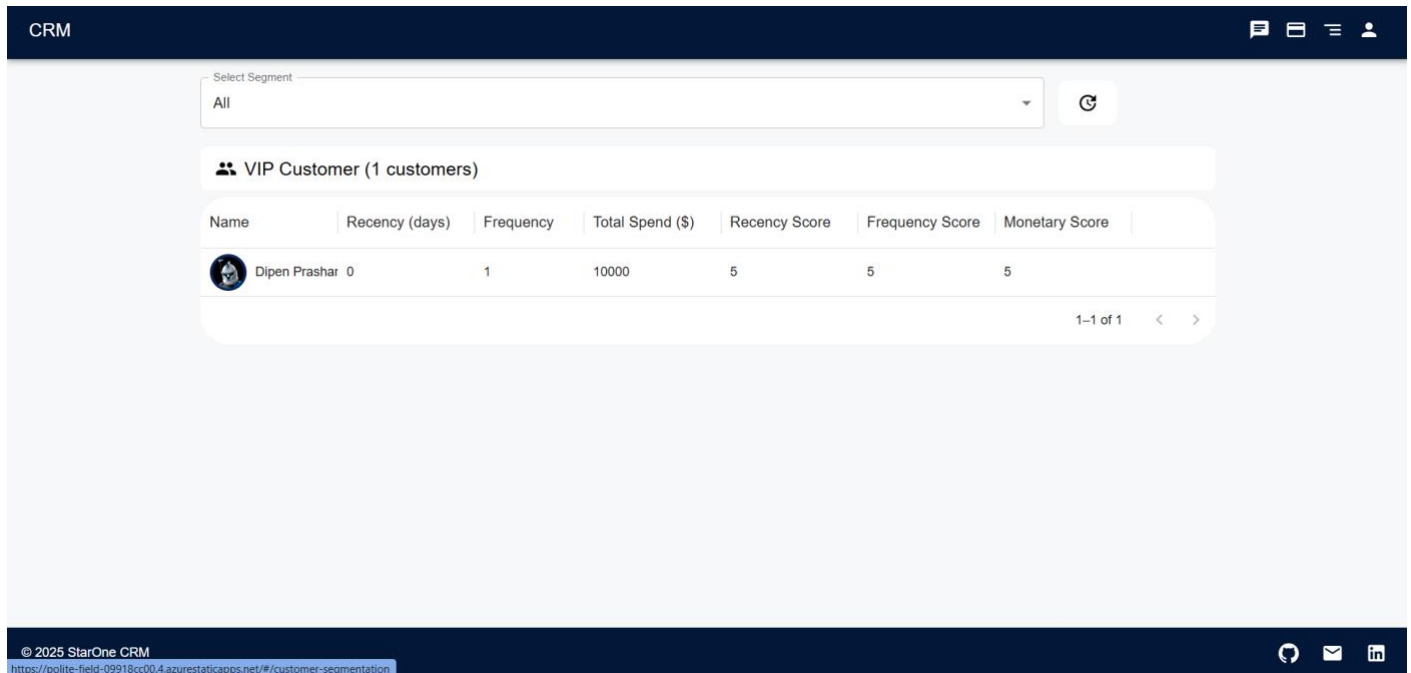
67da492be8e4b2fa5b04fb33

☒ Form Filled ☒ Form Verified ☒ Admin

UPDATE USER

© 2025 StarOne CRM

Figure 27: Profile UI - 4



The screenshot shows the 'CRM' interface with a 'Select Segment' dropdown set to 'All'. Below this, a section titled 'VIP Customer (1 customers)' contains a table with customer data. The table has columns for Name, Recency (days), Frequency, Total Spend (\$), Recency Score, Frequency Score, and Monetary Score. A single row shows a customer named Dipen Prashar with a recency of 0 days, frequency of 1, total spend of 10000, and scores of 5 for both recency and frequency, and a monetary score of 5. The footer includes copyright information for 2025 StarOne CRM and a URL.


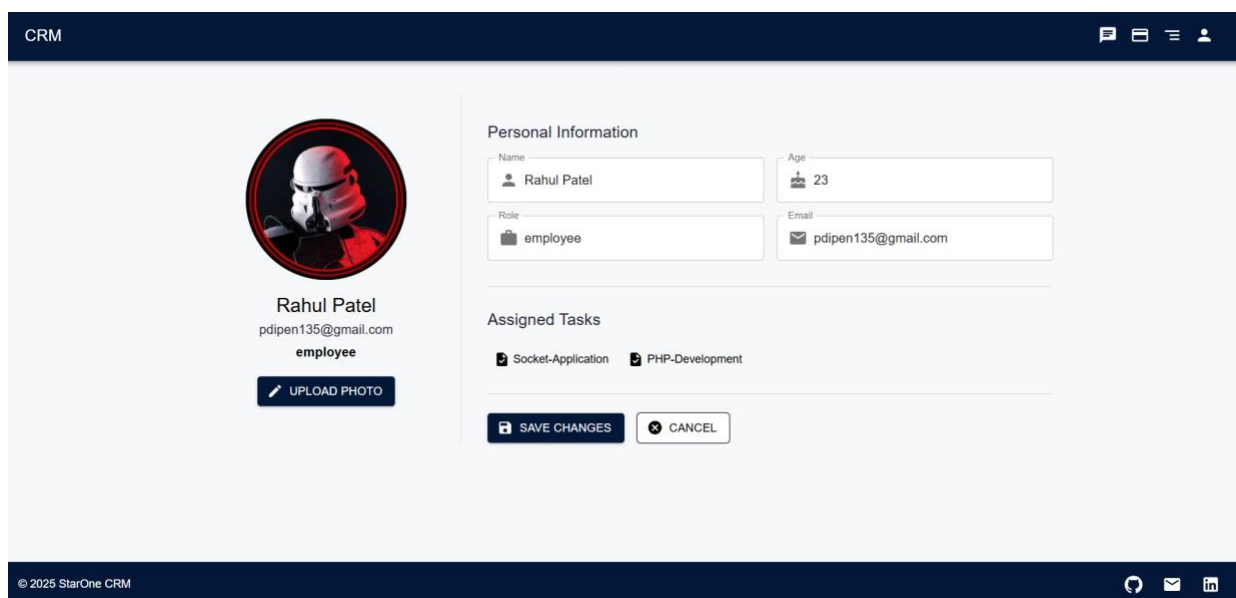
Name	Recency (days)	Frequency	Total Spend (\$)	Recency Score	Frequency Score	Monetary Score
 Dipen Prashar	0	1	10000	5	5	5

Figure 28: Profile UI - 5



The screenshot shows the 'CRM' interface for a user profile. On the left is a circular profile picture of a person in a helmet. Below the photo is the name 'Rahul Patel', email 'pdipen135@gmail.com', and role 'employee'. There is an 'UPLOAD PHOTO' button. On the right, the 'Personal Information' section contains input fields for Name (Rahul Patel), Age (23), Role (employee), and Email (pdipen135@gmail.com). Below this, the 'Assigned Tasks' section lists 'Socket-Application' and 'PHP-Development'. At the bottom are 'SAVE CHANGES' and 'CANCEL' buttons. The footer includes copyright information for 2025 StarOne CRM.

**Personal Information**

Name:  Age:

Role:  Email:

**Assigned Tasks**

☒ Socket-Application ☒ PHP-Development

Figure 29: Profile UI - 6

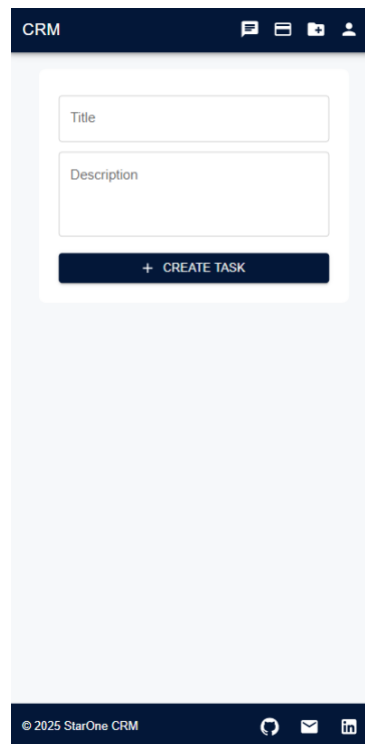


Figure 30: Profile UI - 7

### 7.3.4 Chat Communication

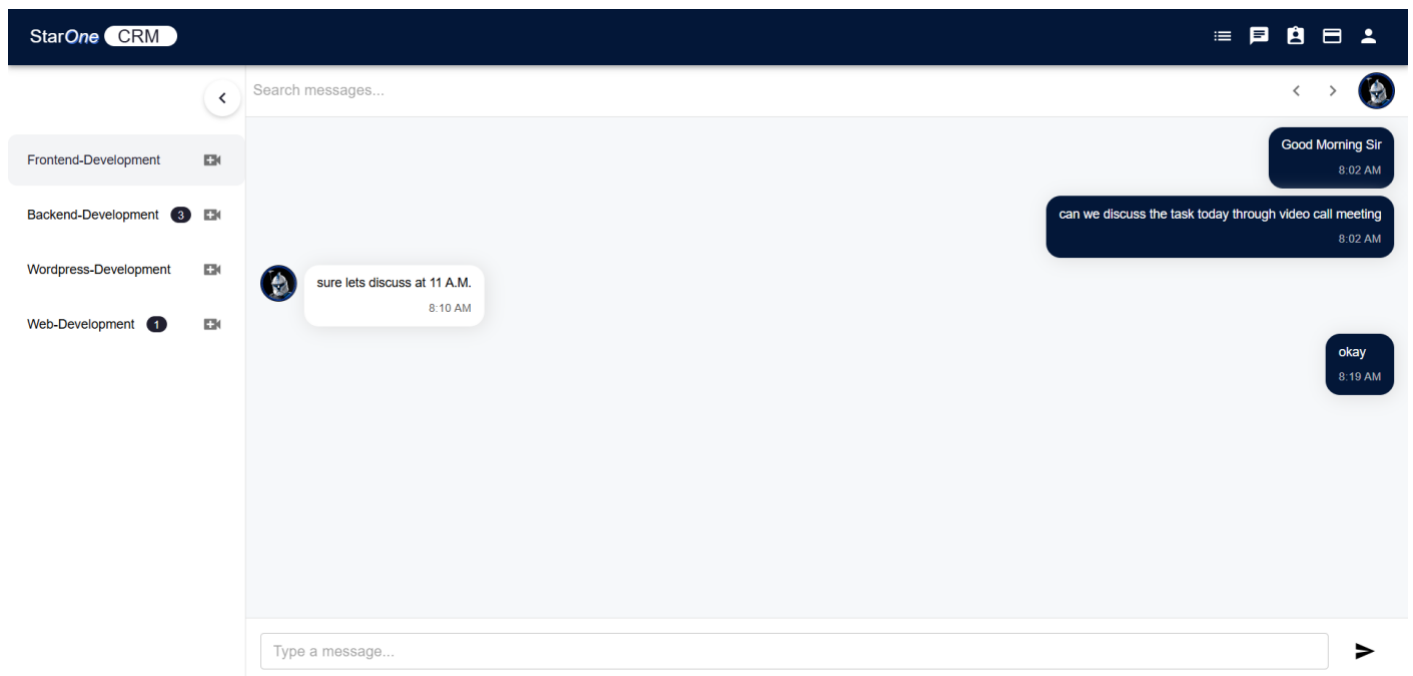


Figure 31: Chat UI-1

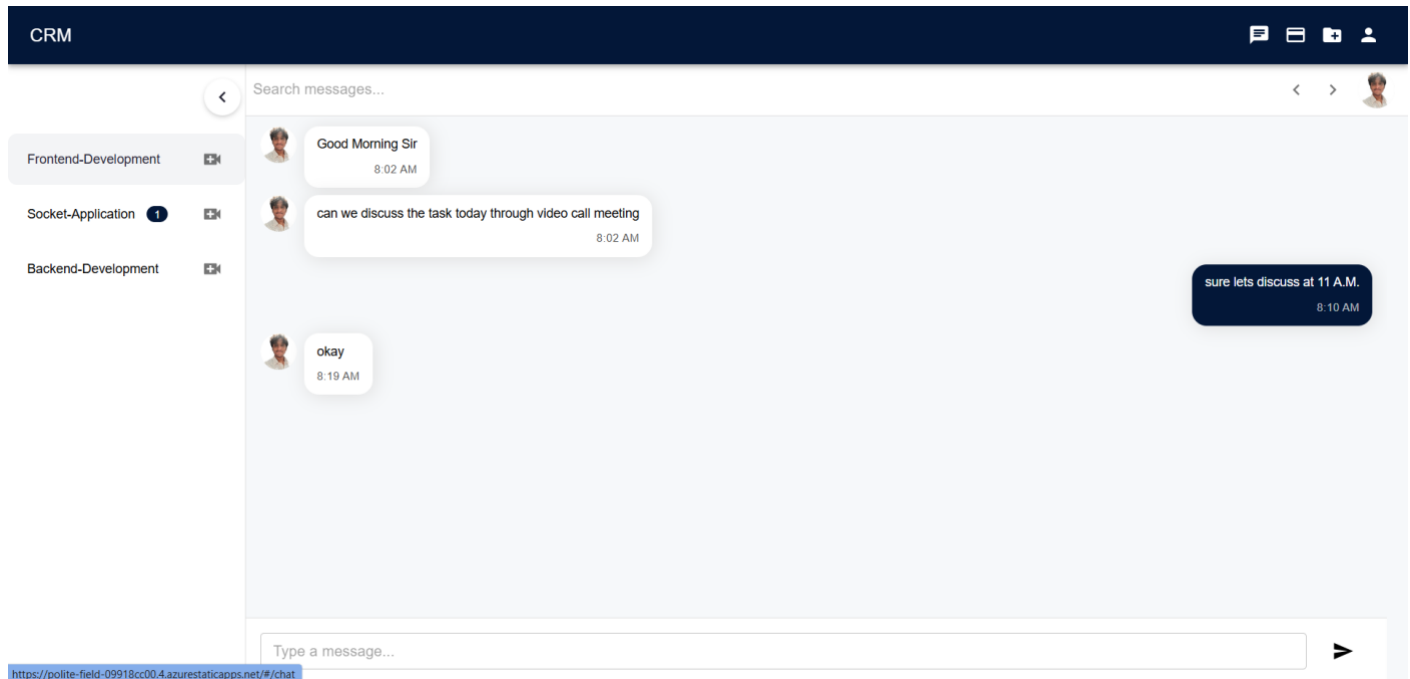


Figure 32: Chat UI - 2

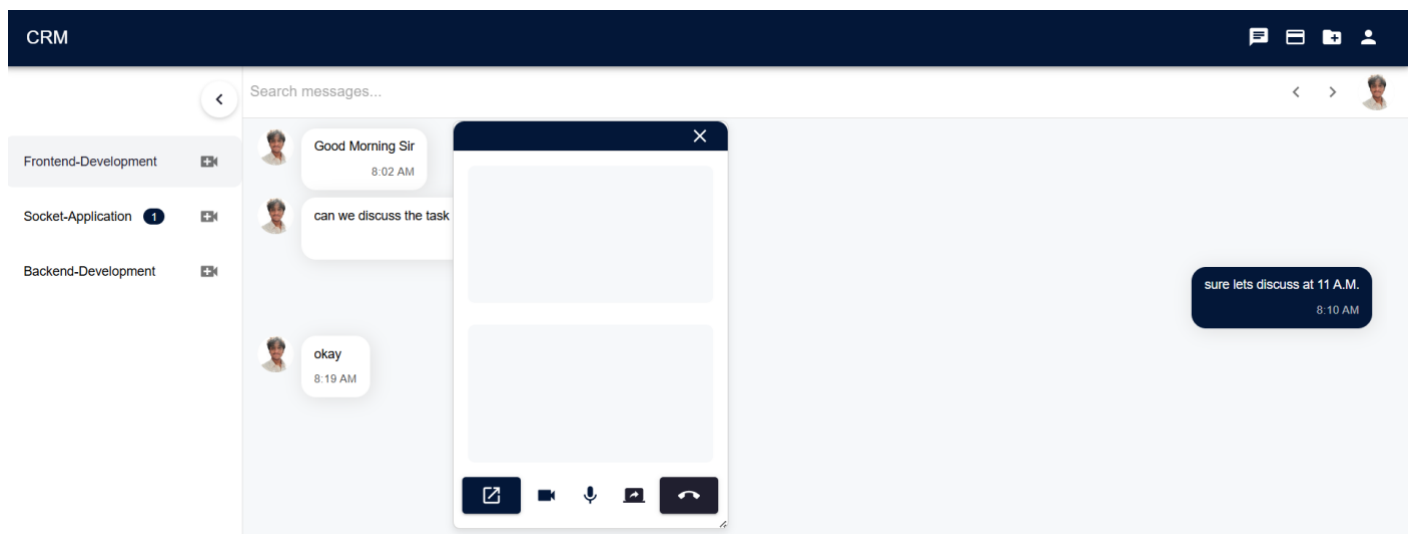


Figure 33: Chat UI - 3



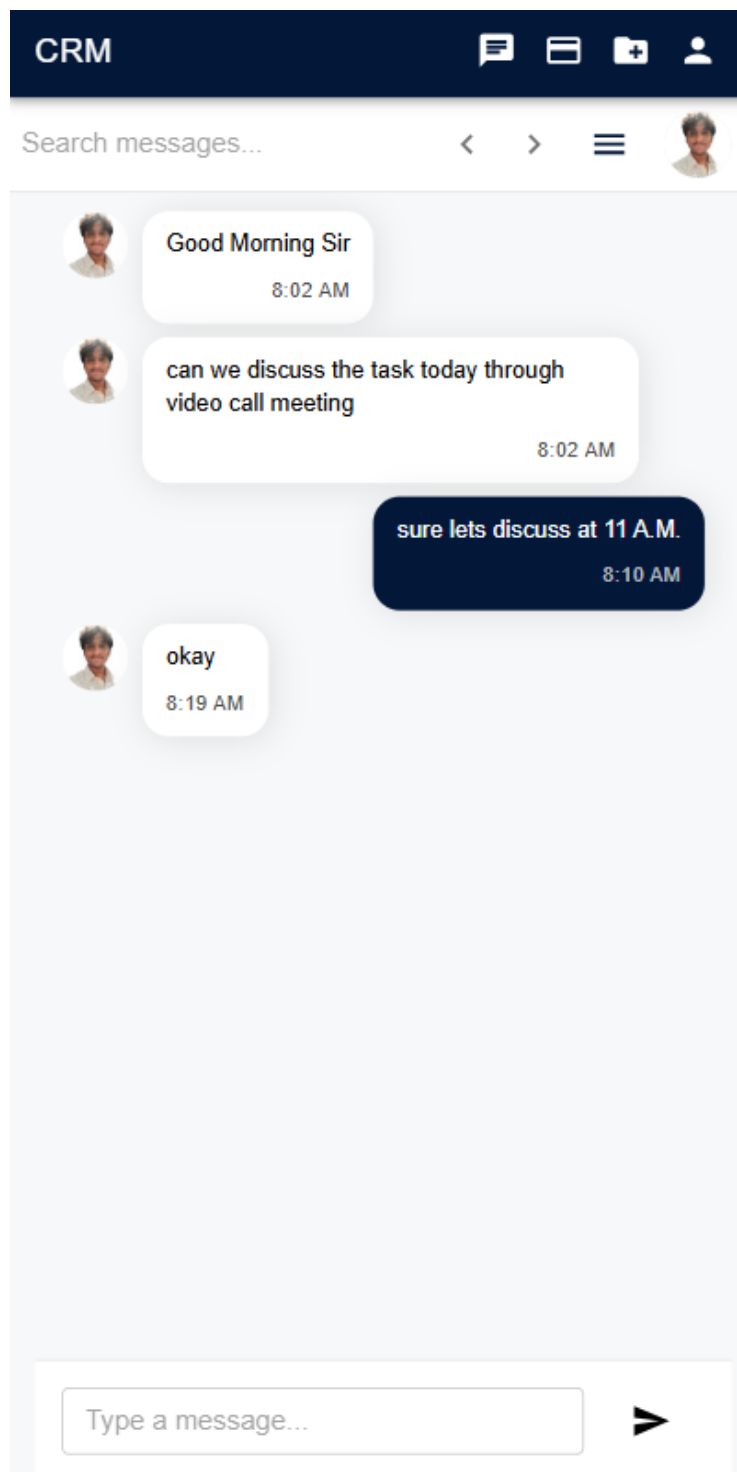


Figure 34: Chat UI - 4

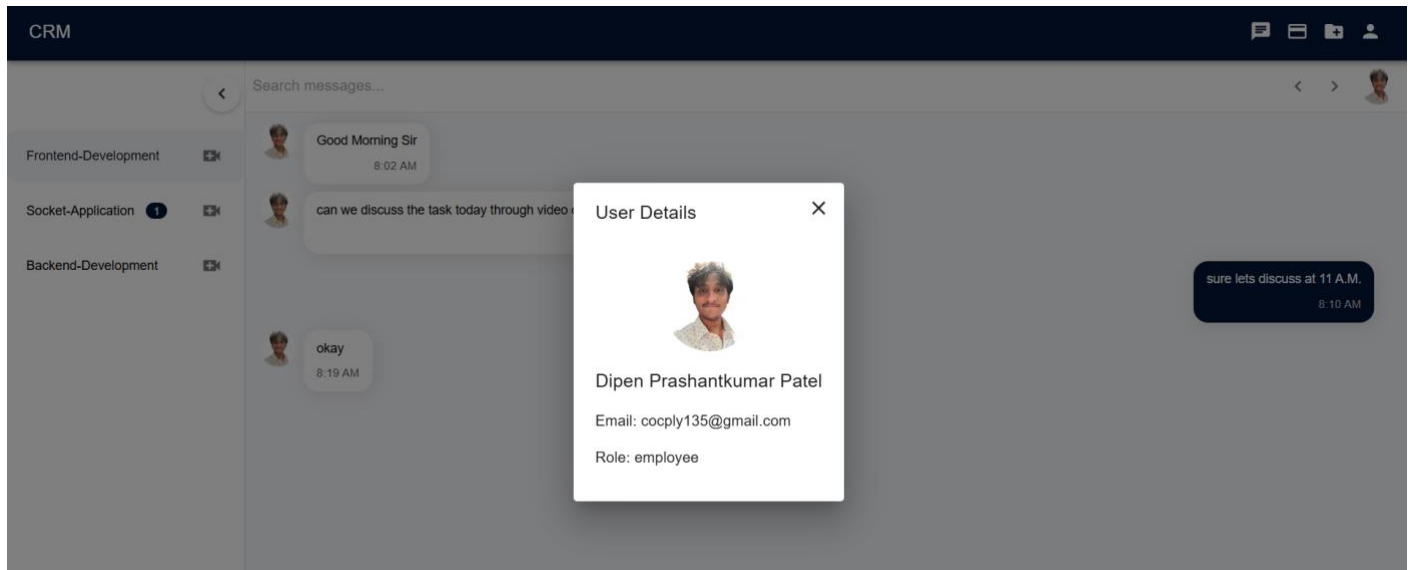


Figure 35: Chat UI - 5

### 7.3.5 Payment

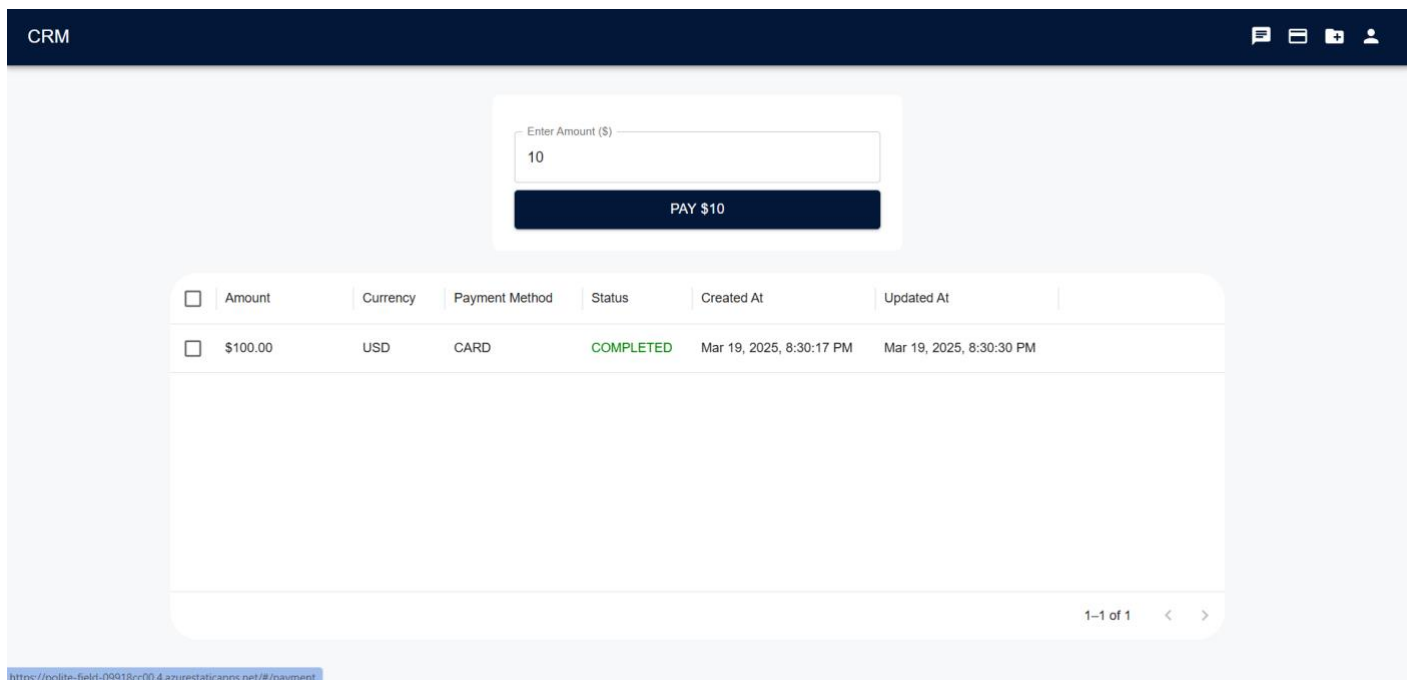


Figure 36: Payment UI - 1

CRM

Enter Amount (\$)

10

PAY \$10

<input type="checkbox"/>	Amount	Currency	Payment M
<input type="checkbox"/>	\$100.00	USD	CARD

1-1 of 1 < >

*Figure 37: Payment UI - 2*

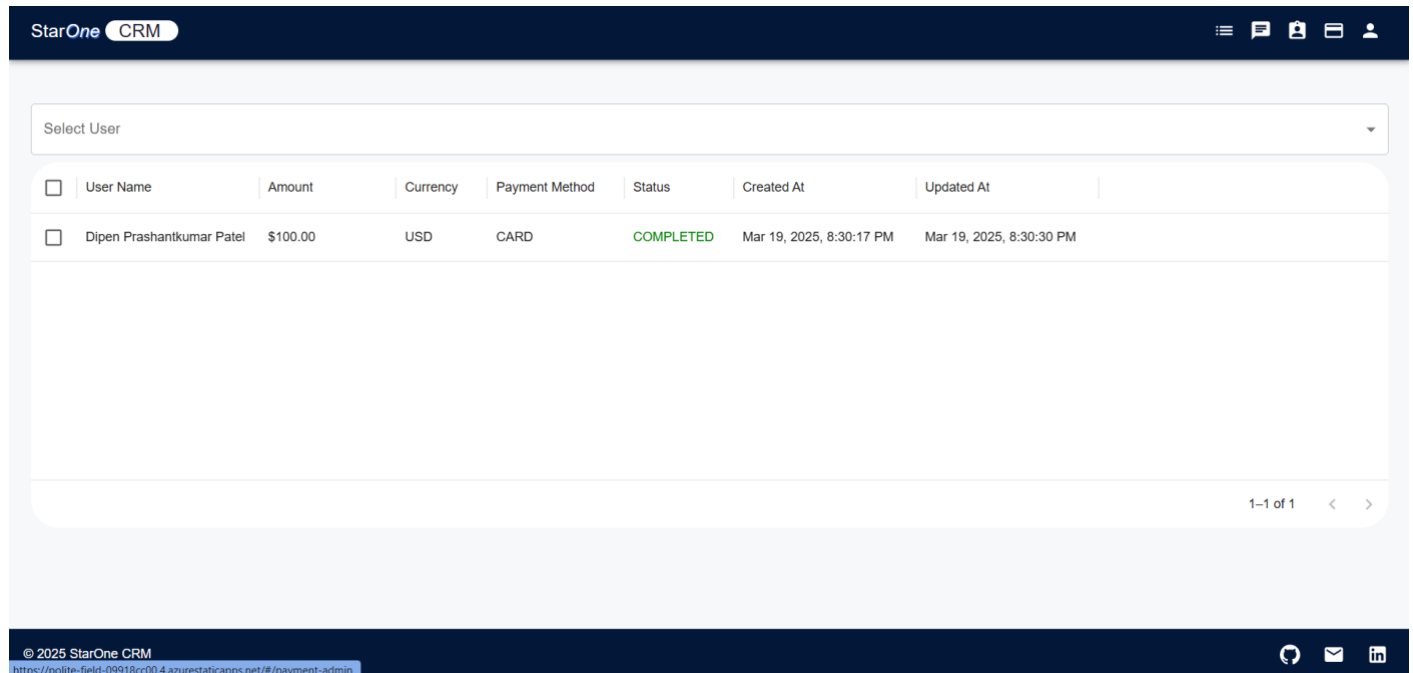


Figure 38: Payment UI - 3

### 7.3.6 Video Call

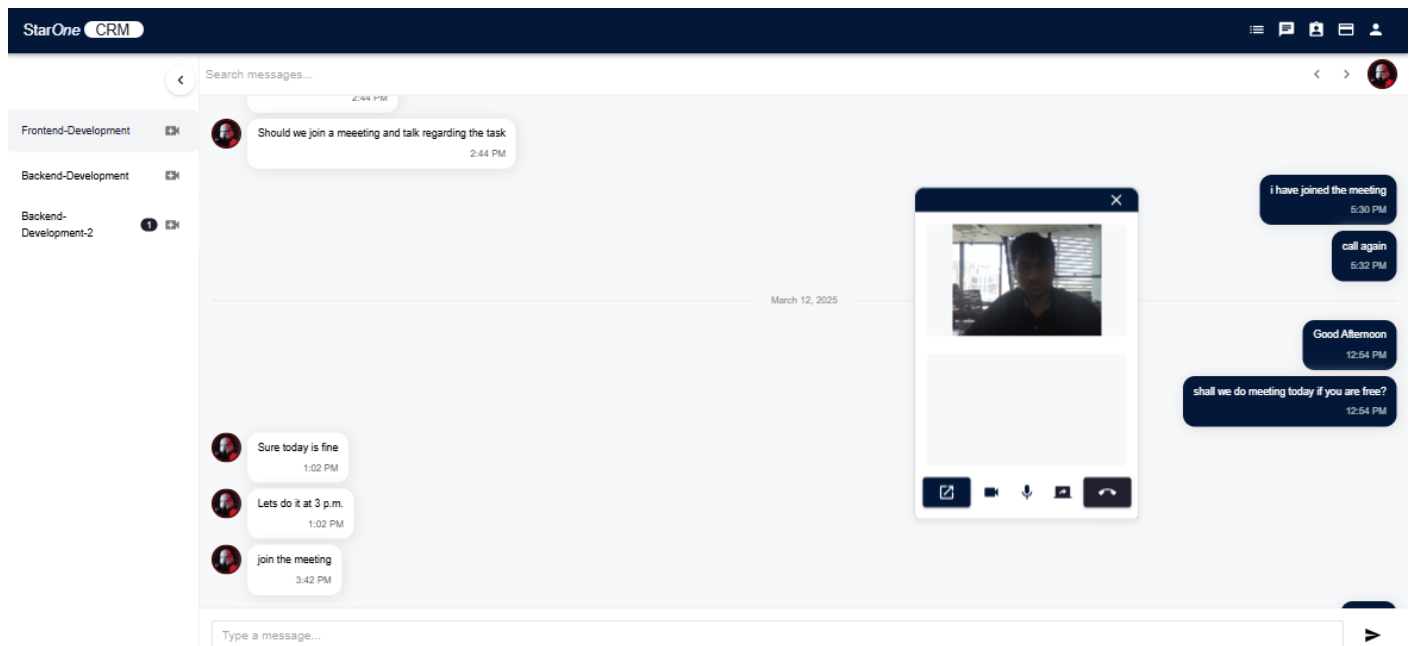


Figure 39: Video Call UI - 1

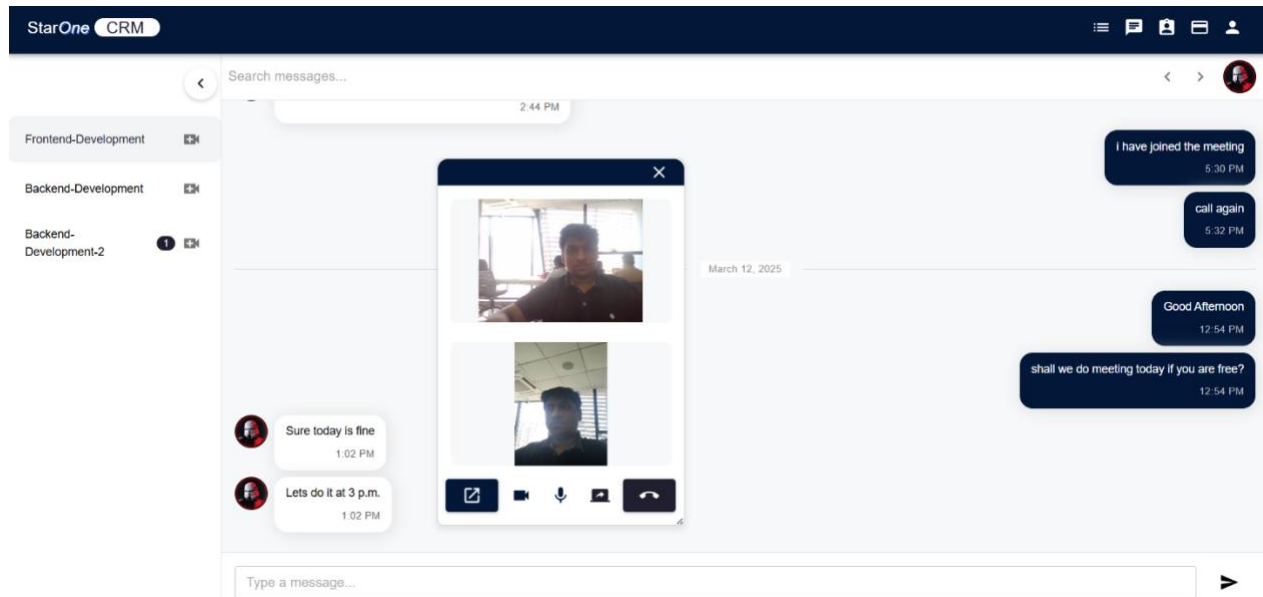


Figure 40: Video Call UI - 2

### 7.3.7 Landing Page

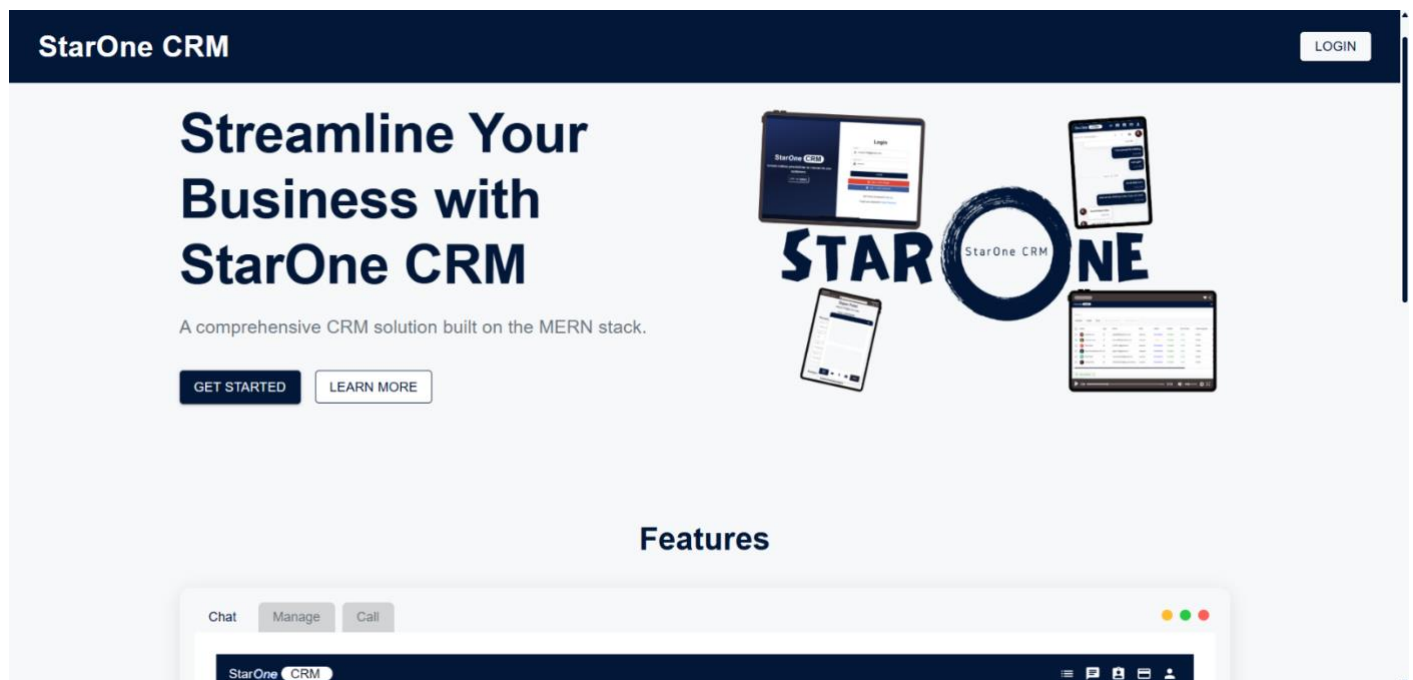


Figure 41: Landing Page UI - 1

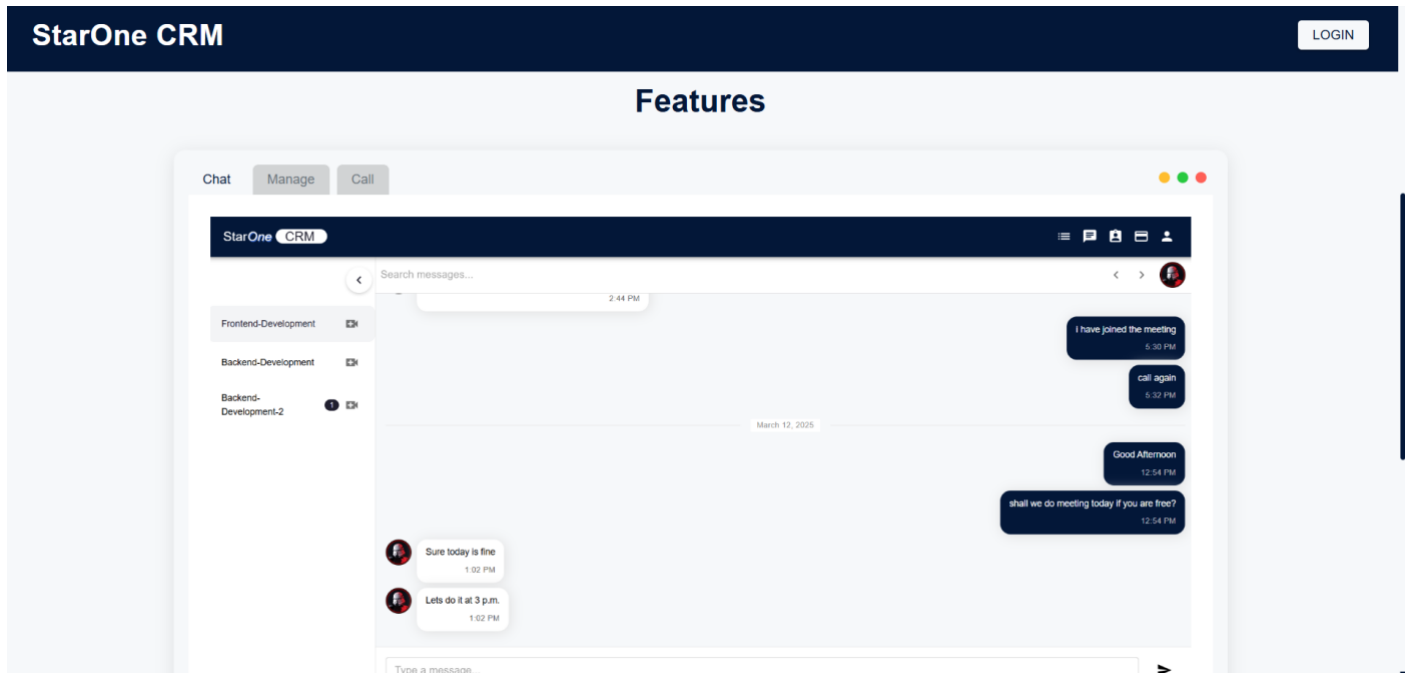


Figure 42: Landing Page UI – 2

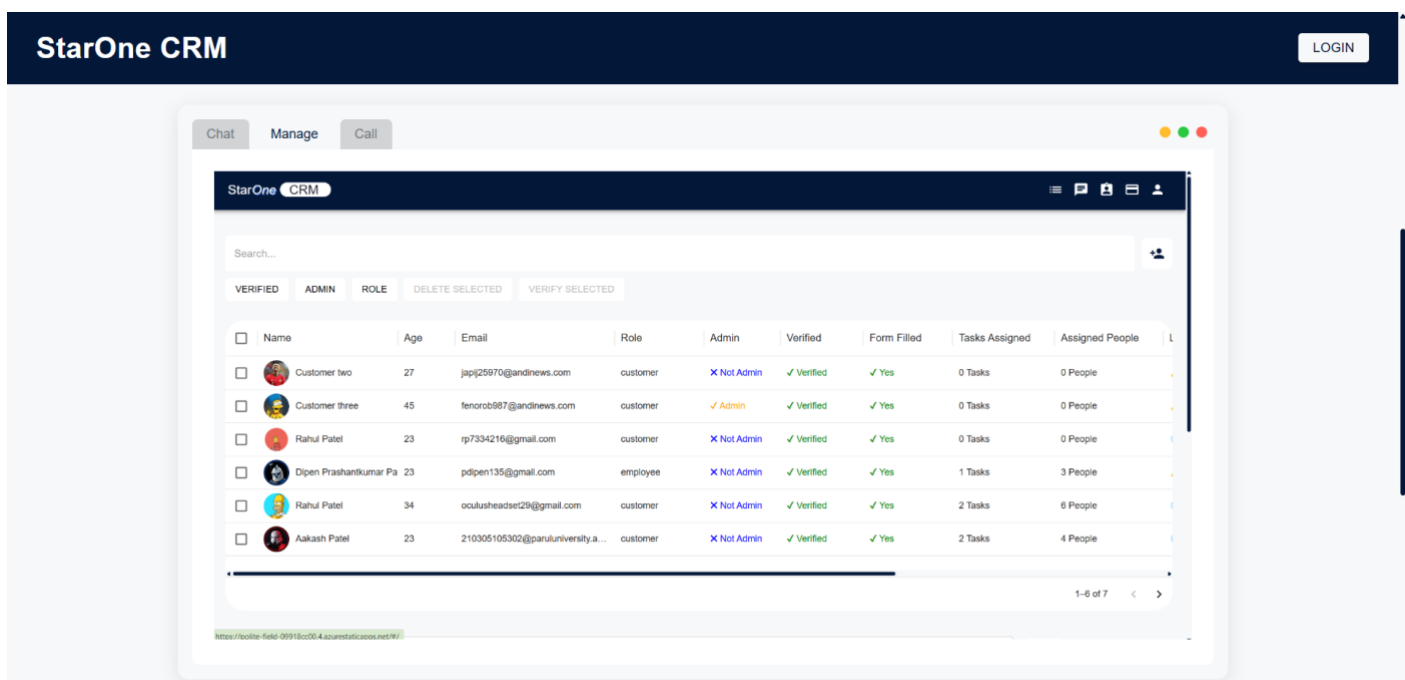
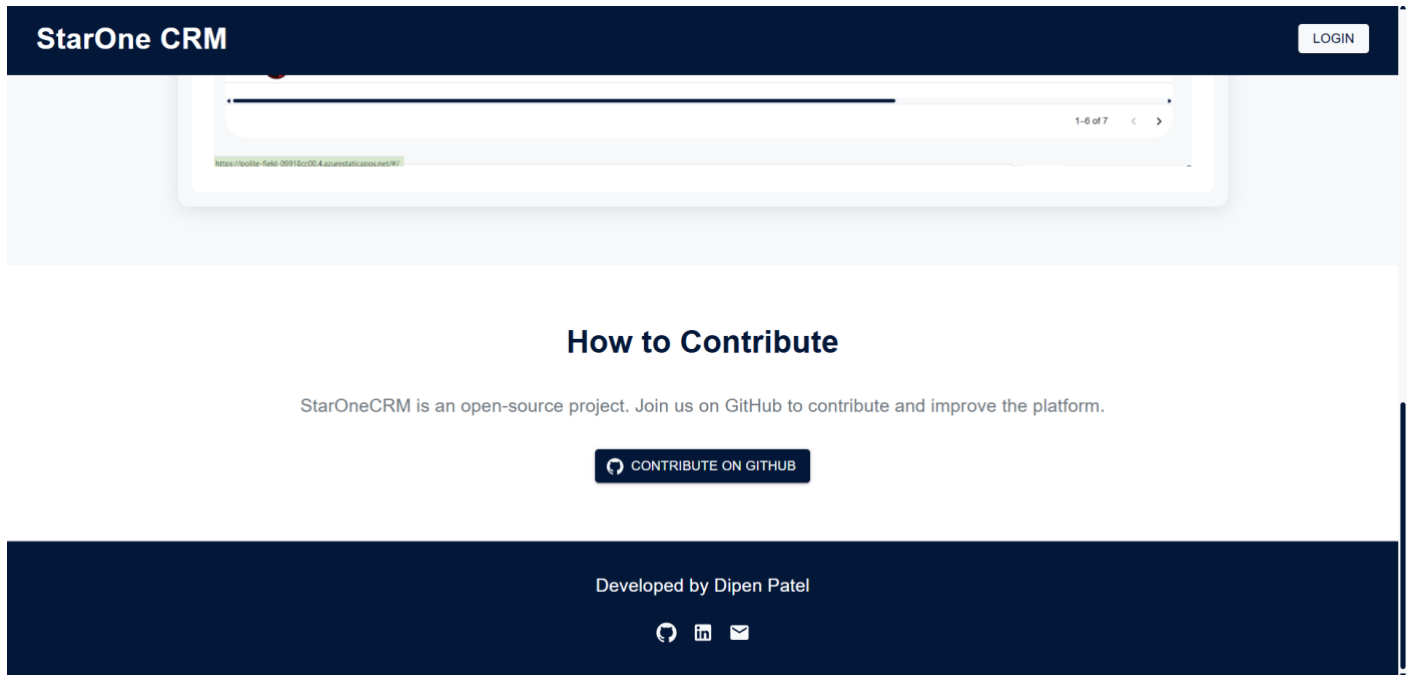


Figure 43: Landing Page UI - 3



*Figure 44: Landing Page UI – 4*

## CHAPTER 8: TESTING

### 8.1 Testing Methodology

The testing technique for the StarOneCRM framework was outlined to guarantee the strength, unwavering quality, and adaptability of the application. The testing handle was separated into unit testing, integration testing, and framework testing. Unit testing cantered on person components such as controllers, models, and utility capacities. Integration testing guaranteed that diverse modules worked consistently together, whereas framework testing approved the end-to-end usefulness of the application.

The testing arranges included the taking after steps:

#### 8.1.1 Unit Testing:

Each controller and demonstrate was tried in segregation utilizing deride information to guarantee redress usefulness.

#### 8.1.2 Integration Testing:

The interaction between controllers, models, and outside administrations (e.g., Stripe for installments) was tried.

#### 8.1.3 Framework Testing:

The whole application was tried in a organizing environment to reenact real-world utilization.

#### 8.1.4 Execution Testing:

The framework was tried beneath overwhelming stack to guarantee it seem handle different concurrent clients.

#### 8.1.5 Security Testing:

Confirmation, authorization, and information approval were thoroughly tried to anticipate vulnerabilities.

### 8.2 Test Comes about and Investigation

#### 8.2.1 Test Cases

The taking after table summarizes the test cases, anticipated yields, genuine yields, and comments:

*Table 1 Test Case*

Test ID	Test Condition	Expected Output	Actual Output	Remark
TC001	User registration with valid OTP	User registered successfully	User registered successfully	Pass
TC002	User registration with invalid OTP	Error: Invalid or expired OTP	Error: Invalid or expired OTP	Pass



TC003	Login with correct credentials	Token generated	Token generated	Pass
TC004	Login with incorrect credentials	Error: Invalid email or password	Error: Invalid email or password	Pass
TC005	Assign customer to employee	Customer assigned successfully	Customer assigned successfully	Pass
TC006	Unassign customer from employee	Customer unassigned successfully	Customer unassigned successfully	Pass
TC007	Create a new task	Task created successfully	Task created successfully	Pass
TC008	Update an existing task	Task updated successfully	Task updated successfully	Pass
TC009	Delete a task	Task and associated messages deleted	Task and associated messages deleted	Pass
TC010	Process RFM data	RFM scores updated	RFM scores updated	Pass
TC011	Payment integration with Stripe	Payment processed successfully	Payment processed successfully	Pass
TC012	OTP generation and validation	OTP sent and validated	OTP sent and validated	Pass
TC013	Profile image upload and retrieval	Image uploaded and retrieved successfully	Image uploaded and retrieved successfully	Pass
TC014	Password reset functionality	Password reset successfully	Password reset successfully	Pass
TC015	Google and Facebook authentication	User authenticated successfully	User authenticated successfully	Pass

### 8.2.2 Test Comes about Examination

The testing stage uncovered that the framework performed as anticipated in most scenarios. Be that as it may, many issues were recognized:

**Execution Bottleneck:** Beneath overwhelming stack, the framework experienced a slight delay in handling RFM information. This was moderated by optimizing database questions and including ordering.

**Edge Cases:** A few edge cases, such as invalid OTPs or lapsed sessions, were not dealt with smoothly at first. These were tended to by including appropriate blunder dealing with and client input mechanisms.

**Security Vulnerabilities:** Amid security testing, some vulnerabilities related to session administration were recognized and settled by actualizing stricter session termination arrangements.

### 8.2.3 Testing Outcomes

Given below table shows the outcome of the testing process with percentage success and percentage fail

*Table 2 Test Case Results*

Test Category	Total Tests Conducted	Passed Tests	Failed Tests	Success Rate
Unit Testing	150	145	5	96.67%
Integration Testing	100	95	5	95.00%
System Testing	80	78	2	97.50%
Performance Testing	50	48	2	96.00%
Security Testing	70	68	2	97.14%
Total	450	434	16	96.44%

The by and large victory rate of 96.44% demonstrates that the framework is profoundly dependable and meets the utilitarian and non-functional prerequisites.

The fizzled tests were basically due to edge cases and execution bottlenecks, which were tended to amid the improvement cycle.

## CHAPTER 9: CONCLUSION AND FUTURE SCOPE

### 9.1 In general Investigation of Internship

The StarOneCRM venture illustrated tall practicality as a comprehensive client relationship administration device. The integration of progressed highlights such as RFM investigation, instalment preparing, and third-party verification (Google and Facebook) showcased the system's capacity to handle complex commerce prerequisites. The project's measured design and careful testing guaranteed adaptability and unwavering quality, making it reasonable for arrangement in real-world scenarios.

### 9.2 Issues Experienced and Conceivable Arrangements

Execution Issues:

The introductory execution of RFM information preparing was moderate due to unoptimized inquiries. This was settled by including database ordering and optimizing accumulation pipelines.

Security Concerns:

Session obsession vulnerabilities were distinguished amid testing. Actualizing secure session administration hones and standard security reviews made a difference moderate these dangers.

Third-Party Integration Challenges:

Joining Stripe and OAuth suppliers (Google, Facebook) required taking care of different edge cases, such as arrange disappointments and invalid tokens. Strong mistake taking care of and retry components were executed to address these issues.

### 9.3 Outline of Internship

The internship venture included the improvement of a full-stack CRM framework with highlights such as client administration, assignment task, RFM examination, instalment preparing, and third-party verification. The framework was built utilizing Node.js, Express, MongoDB, and Respond, with Stripe and OAuth integrative for instalment and confirmation. The venture taken after Spry techniques, with customary sprints and iterative advancement.

### 9.4 Restrictions and Future Improvements

Restrictions:

The framework as of now depends on a single database (MongoDB), which may not be perfect for all utilize cases. Real-time analytics and detailing capabilities are restricted. The RFM demonstrate does not account for outside variables such as regular patterns or financial conditions.

Future Upgrades:

Progressed Analytics: Coordinated machine learning models for prescient analytics and client behavior determining.

Multi-Database Bolster: Include back for social databases to handle complex questions more proficiently.

Real-Time Dashboards: Create real-time dashboards for observing key execution pointers (KPIs).

Improved Security: Execute multi-factor verification (MFA) and progressed encryption strategies.

Adaptability Enhancements: Investigate containerization (e.g., Docker) and organization devices (e.g., Kubernetes) for way better adaptability.

In conclusion, the StarOneCRM extend effectively conveyed a strong and adaptable CRM arrangement. The experiences picked up from testing and investigation will direct future upgrades, guaranteeing the framework remains competitive and versatile to advancing trade needs.

## 9.5 Conclusion

The StarOneCRM venture speaks to a noteworthy breakthrough within the improvement of present day, versatile, and feature-rich Client Relationship Administration (CRM) frameworks. Built utilizing the MERN stack (MongoDB, Express.js, Respond, and Node.js) and conveyed on Microsoft Purplish blue, StarOneCRM addresses the restrictions of conventional CRM frameworks by advertising progressed functionalities such as multi-layer client confirmation, assignment administration, instalment handling, real-time communication, and machine learning-based client division.

The StarOneCRM venture speaks to a significant step forward within the advancement of advanced CRM frameworks. By coordination progressed highlights such as real-time communication, secure instalment preparing, and upgraded client division, the framework gives a comprehensive arrangement for businesses pointing to move forward client engagement and drive income development.

The integration of population-based clustering with the RFM demonstrate has demonstrated especially viable, advertising more profound experiences into client behaviour and empowering focused on promoting techniques. The project's victory underscores the significance of leveraging geographic and statistic information in CRM frameworks, as well as the potential of machine learning calculations to upgrade division exactness.

Future work seems investigate the integration of extra factors, such as social media intelligent and regular patterns, to advance refine client division. Moreover, the utilize of progressed clustering calculations, such as Gaussian Blend Models (GMM) and profound learning procedures, may give indeed greater flexibility and exactness.

In conclusion, StarOneCRM illustrates the potential of imaginative advances and data-driven approaches to convert client relationship administration, advertising profitable experiences and devices for businesses in a competitive commercial centre.

## 9.6 Future Scope

While StarOneCRM has achieved its primary objectives, there are several opportunities for future enhancements to further improve its functionality and usability.

### Potential Enhancements

#### 9.6.1 Integration of AI-Based Customer Support

- Implement AI-driven chatbots to provide instant customer support and resolve common queries.
- Use Natural Language Processing (NLP) to understand and respond to user requests effectively.
- Enhance customer satisfaction by providing 24/7 support without human intervention.

#### 9.6.2 Expansion of Machine Learning Models

- Incorporate additional machine learning algorithms, such as deep learning and reinforcement learning, for more accurate customer segmentation and behaviour prediction.
- Explore the use of predictive analytics to forecast customer churn and identify high-value customers.
- Integrate sentiment analysis to analyse customer feedback and improve service quality.

### **9.6.3 Mobile Application Development**

- Develop a cross-platform mobile app (iOS and Android) to improve accessibility for on-the-go users.
- Ensure seamless synchronization between the web and mobile versions for a consistent user experience.
- Include features like push notifications and offline access to enhance usability.

### **9.6.4 Enhanced Reporting and Analytics**

- Add advanced reporting features, such as customizable dashboards and data export options, to help businesses make data-driven decisions.
- Implement real-time analytics to monitor key performance indicators (KPIs) and track business growth.

### **9.6.5 Integration with Third-Party Tools**

- Integrate with popular business tools like Slack, Trello, and Google Workspace to streamline workflows and improve productivity.
- Provide APIs for developers to build custom integrations and extend the system's functionality.

### **9.6.6 Improved Personalization**

- Use machine learning to provide personalized recommendations and marketing campaigns based on user behaviour and preferences.
- Allow users to customize their profiles, dashboards, and notifications for a more personalized experience.

### **9.6.7 Enhanced Security Features**

- Implement multi-factor authentication (MFA) for added security.
- Use blockchain technology for secure and transparent transaction records.
- Regularly update security protocols to protect against emerging threats.

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# APPENDIX

## Details of Chapters

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## ANNEXURE-1: ACCEPTANCE LETTER

804, K-10 Grand, B/h Atlantis,  
Sarabhai Campus, Genda Circle,  
Vadodara – 390007  
Gujarat, INDIA

**Contact:** +91 9722104104  
**Email:** info@aurajinfotech.com  
**Website:** www.aurajinfotech.com



**GAURAJ INFOTECH PRIVATE LIMITED**

### Internship Letter

Date: 14-12-2024

To,  
Dipen Patel,  
Vadodara

**Subject:** Internship Offer Letter for Trainee Web/App Developer

Dear Dipen,

We are pleased to offer you an internship with **GAURAJ INFOTECH PVT. LTD.** as a **Trainee Web/App Developer**. This internship will provide you with hands-on experience in web and app development using **PHP (Laravel)** and **MySQL Database** technologies as well as on **WordPress**.

#### **Internship Details:**

- **Internship Period:** From **23<sup>rd</sup> December 2024** to **24<sup>th</sup> April 2025 (4 Months)**
- **Working Hours:** Monday to Friday, from **9:00 AM to 4:00 PM**
- **Location:** Vadodara Office
- **Responsibilities:** You will be involved in training sessions and, if required, working on live projects under the guidance of our experienced team.

#### **Expectations:**

1. You are expected to be **sincere, dedicated, and loyal** throughout the internship period.
2. You will need to adhere to company rules and maintain professional conduct.
3. You will be required to sign a **Non-Disclosure Agreement (NDA)** to ensure the confidentiality of the projects and information shared during the internship.

This internship offers you an opportunity to gain valuable skills and contribute meaningfully to real-world projects. We look forward to your active participation and commitment to making the most of this learning experience.

Please sign the attached copy of this letter and return it to us by [specific date], indicating your acceptance of this internship offer and your agreement to the terms mentioned above.

We are excited to welcome you to **GAURAJ INFOTECH PVT. LTD.** and wish you all the best for your internship journey.

**Yours sincerely,**

GAURAJ INFOTECH PVT. LTD.

**DIRECTOR**



[Authorized Signatory Name]

#### **Acknowledgment:**

I, **Dipen Patel**, accept the internship offer and agree to the terms and conditions mentioned above.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## ANNEXURE-2: NOC



Established & Incorporated Under Gujarat Private Universities  
(Second Amendment) Act, 2015 (Guj. Act No. 7 of 2015)

**Parul<sup>®</sup>**  
University



Date: 12/26/2024

To,  
**Gauraj infotech private limited**  
**Vadodara**

Subject: NOC for immediate joining of selected student

Dear Sir / Madam,

This is to inform that **Enrollment No 210305105302, Dipen prashantkumar patel 8A1** from our institute is allowed to join from date **23-Dec-2024** up to **24-Apr-2025**. This student can join your organisation on full time basis but at the same time, he/she will be required to appear for all Weekly Tests, Mid-Sem Exams, External Semester Exams, vivas, submission and practical exams and must perform satisfactorily in order to become eligible to get degree certificate.

We would request you to kindly consider the same and approve leaves accordingly as per the exam schedule as & when gets finalised.

Yours Faithfully,

**Ms. Sumitra Menaria**  
Head & Assistant Professor - CSE Department,  
Parul Institute of Technology, Vadodara.

## ANNEXURE-3: LOG BOOK



# STUDENTS EXTERNAL ATTACHMENT INTERNSHIP LOG-BOOK

*DURATION: 16 WEEKS*

### STUDENT'S PARTICULARS

[illegible]

2	1	0	3	0	5	1	0	5	3	0	2
---	---	---	---	---	---	---	---	---	---	---	---

9	4	2	7	3	0	1	0	0	3
---	---	---	---	---	---	---	---	---	---

pdipen135@gmail.com

[illegible][illegible][illegible]

7	4	0	5	4	7	4	8	8	7
---	---	---	---	---	---	---	---	---	---

fbvohra95@gmail.com

[illegible]

9	0	0	9	5	2	6	2	7	0
---	---	---	---	---	---	---	---	---	---

vinod.patidar28579@paruluniversity.ac.in

PARUL INSTITUTE OF TECHNOLOGY

WEEKLY PROGRESS CHART (FIRST WEEK) (WEEK ENDING: 27-12-24)

Day	Task Done
Monday	Met the employees and got to know the team leads and their respective tasks. There wasn't much work for me on the first day. I familiarized myself with the projects they were working on and discussed my strengths with the team. They assessed which team or project I might be suitable for. I was assigned a task to implement API CRUD operations for a CRM.
Tuesday	Worked on the CRM CRUD task. Added API calls to /crud/ for creating a user, deleting a user, updating user data, and reading a list of users with all their details.
Wednesday	Holiday
Thursday	Hosted the frontend and backend separately on Azure using Azure Function App and Azure Static Web App. Configured the API calls with CORS settings. Faced issues with the backend not allowing PATCH requests, which caused problems with update calls.
Friday	Integrated the user list data into a react-data-table-component. Added functionality for searching and sorting the data by name, role, age, and email. Updated the UI for the user data table using the selected color palette.

WEEKLY PROGRESS CHART (SECOND WEEK) (WEEK ENDING: 03-01-25)

Day	Task Done
Monday	Hosted the application with the new UI and populated it with 4,400 dummy user records generated through API calls using a JavaScript script executed with Node.js. Tested the sorting and searching functionalities.
Tuesday	Presented the project to the team lead. Received feedback to add backend validation for the data and a frontend UI to display errors and success messages. Started working on these tasks.
Wednesday	Holiday
Thursday	Implemented backend validation for the following: - Age must be a number. - Name must be a string. - Role must be a string. - Email must match a specific format using regular expressions.
Friday	Enhanced the frontend UI using react-toastify to display success and error messages. Added error handling for scenarios such as duplicate email, invalid age (non-numeric), invalid name (non-string), and incorrectly formatted email.



**WEEKLY PROGRESS CHART (THIRD WEEK) (WEEK ENDING: 10-01-25)**

Day	Task Done
Monday	Deployed the application again using GitHub YML files to Azure. Tested the react-toastify notifications and backend validation. Demonstrated the project to the team lead and asked for feedback.
Tuesday	Created a backend for user login functionality and tested it by hosting on Azure. Presented it to the team lead for feedback.
Wednesday	Tested login functionality without a password and with credentials for users. Created separate roles for admin and user access.
Thursday	Created a data flow diagram for authentication and showed it to team lead.
Friday	Added variables isFormFilled, isFormValidated, and Token to validate user accounts. Implemented functionality to ensure only admins can validate and allow users to update their accounts. Tested on Azure and demonstrated to the team lead.

WEEKLY PROGRESS CHART (FOURTH WEEK) (WEEK ENDING: 17-01-25)

Day	Task Done
Monday	Developed a routing system where routes are accessible based on active variables (isFormFilled, isFormValidated, etc.). Tested by hosting on Azure and presenting to the team lead.
Tuesday	Holiday
Wednesday	Holiday
Thursday	Added password-protected login functionality using NodeMailer for OTP verification. Separated routes and improved security measures. Hosted and tested on Azure. Showed the results to the team lead.
Friday	Integrated NodeMailer functionality to send OTP for secure login. Tested various use cases, including expired OTPs and incorrect emails, by hosting on Azure and demonstrating to the team lead.

WEEKLY PROGRESS CHART (FIFTH WEEK) (WEEK ENDING: 27-01-25)

Day	Task Done
Monday	Enhanced login security by separating admin and user routes and ensuring restricted access to sensitive functionalities. Tested by hosting on Azure.
Tuesday	Optimized and refactored the backend code for the login and validation system. Added tests for edge cases. Hosted on Azure and demonstrated improvements to the team lead.
Wednesday	Debugged and resolved minor issues in the OTP-based login functionality. Improved error handling for failed API calls and incorrect user inputs.
Thursday	Added frontend UI feedback for invalid OTPs and incorrect email formats using react-toastify. Tested integration thoroughly on Azure.
Friday	Improved admin routes to allow bulk validation of user accounts. Tested by simulating high-traffic scenarios on Azure.

**WEEKLY PROGRESS CHART      (SIXTH WEEK)      (WEEK ENDING: 31-01-25)**

Day	Task Done
Monday	Fixed issues with the user update functionality. Verified changes and tested compatibility with backend validation logic.
Tuesday	Implemented additional backend security checks for OTP validity duration and enhanced error logging.
Wednesday	Improved UI responsiveness for mobile devices, especially for login and validation pages. Tested cross-browser compatibility.
Thursday	Streamlined the deployment process by automating Azure deployments through GitHub Actions. Tested the pipeline end-to-end.
Friday	Fixed edge cases in the routing logic to handle scenarios where variables like <code>isFormFilled</code> and <code>isFormValidated</code> are undefined or null.

WEEKLY PROGRESS CHART (SEVENTH WEEK) (WEEK ENDING: 07-02-25)

Day	Task Done
Monday	Conducted a final round of testing and documentation for the login, validation, and routing functionalities. Prepared for a project review.
Tuesday	Created three types of users: Admin, Customer, and Employee. Implemented role-based access control to ensure users could only access specific functionalities based on their roles.
Wednesday	Developed a task creation system where a Customer can create a task request. Integrated the feature with the backend API and ensured data validation.
Thursday	Implemented task verification functionality. An Admin can review and verify a task created by a Customer before assigning it further.
Friday	Added the ability for an Admin to assign a Customer to an Employee after verification. Implemented role-based API calls to restrict actions based on user type.

**WEEKLY PROGRESS CHART (EIGHT WEEK) (WEEK ENDING: 14-02-25)**

Day	Task Done
Monday	Restricted Customers and Employees to view only their own profiles. Introduced an access control mechanism ensuring they cannot access or modify others' profiles.
Tuesday	Developed a chat functionality for assigned tasks. Customers and Employees can communicate only with their assigned individual to discuss tasks.
Wednesday	Implemented real-time chat functionality for assigned tasks. Messages are stored in the backend, and users receive real-time updates.
Thursday	Created an Admin Panel UI for task assignment and chat monitoring. Developed a backend system to enable admins to assign and track tasks efficiently.
Friday	Tested the full system, including user roles, task creation, verification, assignment, and chat. Fixed bugs related to user access restrictions and task assignment.

WEEKLY PROGRESS CHART (NINE WEEK) (WEEK ENDING: 16-02-25)

Day	Task Done
Monday	Created Chat functionality using Socket.io in sync with both frontend and backend.
Tuesday	Completed Integration of Google login and Facebook login using google OAuth2.0 and Facebook developer.
Wednesday	Worked on Payment options with Stripe.
Thursday	Configured stripe in frontend and backend as well as tested some test credit card purchase successfully.
Friday	Tested the full system, including payment, login, verification, assignment, and chat. Fixed bugs related to user access restrictions and socket disconnect.

WEEKLY PROGRESS CHART (TENTH WEEK) (WEEK ENDING: 23-02-25)

Day	Task Done
Monday	Improved the chat functionality using Socket.io in sync with both frontend and backend.
Tuesday	Made sure that all logic functionalities work with in sync of globalContext and logout function.
Wednesday	Tested the Payment functionalities with the stripe test accounts.
Thursday	Made sure every payment try either completed or pending is noted in backend in sync with client.
Friday	Tested the full system, including payment, login, verification, assignment, and chat. Fixed bugs Payment through stripe.



WEEKLY PROGRESS CHART (ELEVENTH WEEK) (WEEK ENDING: 02-03-25)

Day	Task Done
Monday	Started Working on UI after completing the testing the required functionalities from client.
Tuesday	Improved the UI with motion and styling using Material ui sx and tradition css styling.
Wednesday	Worked some more on the UI with motion and styling using Material ui sx and tradition css styling.
Thursday	Worked some more on the UI with motion and styling using Material ui sx and tradition css styling.
Friday	Completed the UI work with motion and styling using Material ui sx and tradition css styling. Got the design approved from the team lead

WEEKLY PROGRESS CHART (TWELVE WEEK) (WEEK ENDING: 09-03-25)

Day	Task Done
Monday	Created Video Call functionality using peerjs in sync with both frontend and backend.
Tuesday	Made sure to keep the video call a global component passed through globalcontext so call are received as long as user is online.
Wednesday	Created UI for floating video call component which floats around which you do other works on CRM in call.
Thursday	Work on the Ui of video call and movable window of call and being able to change the sized of the floating video call panel.
Friday	Holiday

**WEEKLY PROGRESS CHART (THIRTEENTH WEEK) (WEEK ENDING: 16-03-25)**

Day	Task Done
Monday	Work more on the Ui of video call and movable window of call and being able to change the sized of the floating video call panel and got it approved.
Tuesday	Integrated screen sharing functionality in the video call component using PeerJS. Ensured audio and screen sharing work seamlessly for all assigned CRM users via Socket.io.
Wednesday	Tested and debugged video call features, ensuring smooth switching between camera, screen share, and mute/unmute options.
Thursday	Finalized UI improvements for the video call component with better transitions and styling.
Friday	Conducted final testing and received team lead approval for video call and screen share features.

WEEKLY PROGRESS CHART (FOURTEENTH WEEK)(WEEK ENDING: 23-03-25)

Day	Task Done
Monday	Set up the hosting process, deployed the CRM frontend and backend using Azure and GitHub Actions.
Tuesday	Wrote automated deployment scripts to update dummy user data on every deployment.
Wednesday	Conducted end-to-end testing of hosted CRM, checking video, screen share, and audio calls.
Thursday	Optimized API calls and socket events to ensure real-time updates work smoothly without performance issues.
Friday	Final review with the team, bug fixes, and documentation for video call and screen share functionality.

WEEKLY PROGRESS CHART (FIFTEENTH WEEK) (WEEK ENDING: 30-03-25)

Day	Task Done
Monday	Started working on RFM (Recency, Frequency, Monetary) model implementation for user payment tracking.
Tuesday	Developed backend logic to fetch and calculate RFM scores based on user transaction history.
Wednesday	Created frontend visualization for RFM scores using charts and analytics UI.
Thursday	Integrated real-time updates for RFM scores when payments are made or updated.
Friday	Completed and tested the RFM model, ensuring it syncs properly with the user's payment data.

WEEKLY PROGRESS CHART (SIXTEENTH WEEK) (WEEK ENDING: 06-04-25)

Day	Task Done
Monday	Implemented Multer and GridFS to store and manage user profile pictures in MongoDB.
Tuesday	Created API endpoints for uploading, updating, and retrieving user profile pictures.
Wednesday	Built UI for profile picture management with real-time updates using Socket.io.
Thursday	Integrated profile picture updates across all CRM-related features where user images appear. Making sure they are compressed accordingly.
Friday	Completed final testing and approved the user profile management system with image handling.

Student's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Comments by Industry Mentor:

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Name: \_\_\_\_\_

Signature of Industry Mentor \_\_\_\_\_

Date: \_\_\_\_\_

## ANNEXURE-4: INTERNSHIP IDENTIFICATION EXERCISE

### 1. Student Information:

SR	NAME OF THE STUDENTS	ENROLLMENT	DEPARTMENT	PHONE NO.	SIGNATURE
1	Dipen prashantkumar patel	210305105302			
2		SUPERVISOR			
3		INDUSTRY MENTOR			

### 2. Internship Related information:

Criterion	Remarks
Constraints	T
Understanding of the Issue	T
Likely Problems / Research Limitations in the proposed Internship	T

### 3. Internship Area Selected:

Title of the Internship area Identified	
Aim:	
Objective(s): (Min 3)	
Methodology:	
Are the environmental and societal implications arising out of the proposed internship?	
YES / NO	



4. Internship Objective Feasibility and Supervisor's Consent (To be completed by the Institute Mentor)

Points	Details for verification	Yes / No
<b>Objective of the internship Identified</b>	Is Objective of internship, found to be appropriate, relevant and finalized after supervisor's consent?	
<b>B. Tech. level challenge</b>	Does the Internship Proposal submitted have adequate and achievable challenge levels of B.Tech?	
<b>Facilities, software and infrastructure</b>	Are equipment / facilities required for doing this Internship available at institute / industry? If not, are alternate arrangements possible?	
<b>Time lines</b>	Will one Semester be adequate for achieving all the objectives mentioned in the proposal?	

Name and Signature of the Institute Mentor with Date:

## ANNEXURE-5-A: INTERNAL REVIEW CARDS

Name of Student: Dipen Prashantkumar Patel	
Enrolment Number: 210305105302	Internship Starting Date: 23-12-24
Major Area:	Review Date:

1. Problem definition (Title) is Appropriate (Yes/No) \_\_\_\_\_ ( to be filled in 1<sup>st</sup> time evaluation)
2. Novelty of the Topic (Yes/No) \_\_\_\_\_ (to be filled in 1<sup>st</sup> time evaluation)
3. Clarity of Objectives (Yes/No) \_\_\_\_\_
4. Does the Objectives fulfilled (Yes/No) \_\_\_\_\_
5. Any suggestions and modifications needed for 2nd /3rd/External evaluation \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
6. Final Approval (Yes/No) \_\_\_\_\_ (to be filled in 1<sup>st</sup> Presentation only)

Particulars	Internal Review Panel ( Institute Level)	
	Expert 1	Expert 2
Name		
Institution		
Institution Code		
Contact No.		
Signature		

Name of Student: Dipen Prashantkumar Patel	
Enrolment Number: 210305105302	Internship Starting Date: 23-12-24
Major Area:	Review Date:

7. Problem definition (Title) is Appropriate (Yes/No) \_\_\_\_\_ ( to be filled in 1<sup>st</sup> time evaluation)

8. Novelty of the Topic (Yes/No) \_\_\_\_\_ (to be filled in 1<sup>st</sup> time evaluation)

9. Clarity of Objectives (Yes/No) \_\_\_\_\_

10. Does the Objectives fulfilled (Yes/No) \_\_\_\_\_

11. Any suggestions and modifications needed for 2nd /3rd/External evaluation \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

12. Final Approval (Yes/No) \_\_\_\_\_ (to be filled in 1<sup>st</sup> Presentation only)

Particulars	Internal Review Panel (Institute Level)	
	Expert 1	Expert 2
Name		
Institution		
Institution Code		
Contact No.		
Signature		

Name of Student: Dipen Prashantkumar Patel	
Enrolment Number: 210305105302	Internship Starting Date: 23-12-24
Major Area:	Review Date:

13. Problem definition (Title) is Appropriate (Yes/No) \_\_\_\_\_ ( to be filled in 1<sup>st</sup> time evaluation)

14. Novelty of the Topic (Yes/No) \_\_\_\_\_ (to be filled in 1<sup>st</sup> time evaluation)

15. Clarity of Objectives (Yes/No) \_\_\_\_\_

16. Does the Objectives fulfilled (Yes/No) \_\_\_\_\_

17. Any suggestions and modifications needed for 2nd /3rd/External evaluation \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

18. Final Approval (Yes/No) \_\_\_\_\_ (to be filled in 1<sup>st</sup> Presentation only)

Particulars	Internal Review Panel ( Institute Level)	
	Expert 1	Expert 2
Name		
Institution		
Institution Code		
Contact No.		
Signature		

## ANNEXURE-5-B: INDUSTRY REVIEW CARDS

Name of the Industry: Gauraj infotech

Name of Student: Dipen Prashantkumar Patel	
Enrolment Number: 210305105302	Internship Starting Date: 23-12-24
Major Area:	Review Date:

Please CHECK ☒ the quality and competency of our student(s) towards work.

Criteria	Rating				
	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)
Following and understanding professional and ethical responsibilities					
Able to communicate technical information, research findings to the peers					
Delivering quality work output					
Completion of the work assigned					
Ability to develop solutions and presenting his/her work with his own interpretations					
Arriving to work on time (Punctuality)					
Using written and oral communications skills for professional purposes					
Working in teams or groups, including multidisciplinary teams					
Applying knowledge of the major functional areas, theories and their application					
Demonstrating knowledge of technological tools and using latest techniques and skills to solve problems					

<b>Additional Observations and Overall Performance Rating</b>
<b>Name and Sign of the Industry Mentor/Supervisor/Officials:</b>

Name of the Industry: Gauraj infotech

Name of Student: Dipen Prashantkumar Patel	
Enrolment Number: 210305105302	Internship Starting Date: 23-12-24
Major Area:	Review Date:

Please CHECK ☒ the quality and competency of our student(s) towards work.

Criteria	Rating				
	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)
Following and understanding professional and ethical responsibilities					
Able to communicate technical information, research findings to the peers					
Delivering quality work output					
Completion of the work assigned					
Ability to develop solutions and presenting his/her work with his own interpretations					
Arriving to work on time (Punctuality)					
Using written and oral communications skills for professional purposes					
Working in teams or groups, including multidisciplinary teams					
Applying knowledge of the major functional areas, theories and their application					
Demonstrating knowledge of technological tools and using latest techniques and skills to solve problems					

<b>Additional Observations and Overall Performance Rating</b>
<b>Name and Sign of the Industry Mentor/Supervisor/Officials:</b>

Name of the Industry: Gauraj infotech

Name of Student: Dipen Prashantkumar Patel	
Enrolment Number: 210305105302	Internship Starting Date: 23-12-24
Major Area:	Review Date:

Please CHECK ☒ the quality and competency of our student(s) towards work.

Criteria	Rating				
	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)
Following and understanding professional and ethical responsibilities					
Able to communicate technical information, research findings to the peers					
Delivering quality work output					
Completion of the work assigned					
Ability to develop solutions and presenting his/her work with his own interpretations					
Arriving to work on time (Punctuality)					
Using written and oral communications skills for professional purposes					
Working in teams or groups, including multidisciplinary teams					
Applying knowledge of the major functional areas, theories and their application					
Demonstrating knowledge of technological tools and using latest techniques and skills to solve problems					

<b>Additional Observations and Overall Performance Rating</b>
<b>Name and Sign of the Industry Mentor/Supervisor/Officials:</b>