CAPSTONE PROJECT

ON

CUSTOMER RELATIONSHIP MANAGEMENT(CRM)

AT

INFINITE COMPUTER SOLUTIONS

Submitted by

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ABSTRACT

Customer relationship management (CRM) is a combination of people, processes and technology that seeks to understand a company's customers. It is an integrated approach to managing relationships by focusing on customer retention and relationship development. CRM has evolved from advances in information technology and organizational changes in customer-centric processes. Companies that successfully implement CRM will reap the rewards in customer loyalty and long run profitability. However, successful implementation is elusive to many companies, mostly because they do not understand that CRM requires company-wide, cross-functional, customer-focused business process re-engineering. Although a large portion of CRM is technology, viewing CRM as a technology-only solution is likely to fail. Managing a successful CRM implementation requires an integrated and balanced approach to technology, process, and people.

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CHAPTER 1

INTRODUCTION

1.1 Definition

Customer Relationship Management (CRM) is a well-known system for managing an organization's communications with customers, clients and sales prospects. This system uses technology for organizing, synchronizing and automating business and sales activities. This is a virtual system, and this system does not require any physical office or environment. So, everybody can use this system easily. Administrator can communicate and provide services through this system, and also user can access and check his status and his project opportunity as well as getting more information about the projects and updating systems.

1.2 Objective

- For simplifying marketing and sales system.
- For providing better customer service.
- For discovering new customers and raise customer profit.
- For increasing cross sell products more effectively.

The Customer Relationship Management (CRM) system needs to support all the basic step of customer life cycle.

The Basic Steps are:

- Attracting present and new leads (customers).
- Adding new customers.
- Adding new business opportunities.
- Buildup communication to customer.
- Holding the customers.

1.3 Purpose

The purpose of CRM system is to:

- Maintain good relationship with customer
- Manage business opportunity
- Lead Management
- Track the business opportunity and develop it
- Daily Meeting, Task, Note, Emails with contacts or leads
- Alert Notification for meeting or call
- Customer Observation

The overall purposes are to search, allure and get new clients, nurture and hold those the organization already has. Entice former clients back in to the fold, and decrease marketing and client service cost.

CHAPTER 2

DESCRIPTION OF THE PROJECT

This section contains different perspective of project with its available functions, user classes and characteristics, operating environment, assumption and dependencies, design and implementation constraints.

2.1 Project Features

In our project we have two types of roles:

- Administrator
- End User

2.1.1 General

Login

Every user logs in with their valid username and password. User having only admin access directly goes to admin panel and user having only End access goes to Home Page, ie., User login by “login as user” whereas admin login as “login as admin”.

Register

Register/Sign Up is used to create an account. If the user doesn’t have an account, he can create an account by using the Register page.

2.1.2 Administrator

User Management

An administrator can perform CURD operations on the Menu, i.e., he can add new menus and inactive/delete the existing menu.

Product Management

Administrators can perform CURD operations and view the list of customers in the users and menu respectively.

Ticket Management

Administrators can view and solve the tickets/complaints raised by the customer the user.

Admin Team

The team of people who can handle the User Management, Product Management and Ticket Management are seen on the Administrator page.

Customer List

The users who has account credentials to access our website.

2.1.3 END User

Dashboard

User can observe user friendly components on the dashboard, which helps him to explore/navigate between the pages of the website. Dashboard consists of Home Page, Product Page, Ticket Page, About Page and Account Settings.

Products

Products page is to display the products, in which user can able to buy the products.

Tickets

If there is an issue in product delivery or product quality, the user can raise an complaint/ticket.

CHAPTER 3

SYSTEM REQUIREMENTS

3.1 SOFTWARE REQUIREMENETS

A software development tool is an application or program that software designers and developers can use to create, maintain, debug, or support other applications or programs. To develop an CRM application, the following tools are used:

- Java (1.8)
- MYSQL
- Spring Boot
- React JS
- CSS
- Bootstrap
- Ajax
- JavaScript
- IDE (Eclipse, Spring STS, Visual Studio)
- Server (Tomcat)

3.2 HARDWARE REQUIREMENTS

General system requirement deals with both least requirements of hardware and software that is required to run the optimal functioning of an application. To run “CRM” application on a website following things should be required:

- Operating System
- Browser (Firefox, Chrome etc.)
- Internet Connection
- PC or Mobile devices

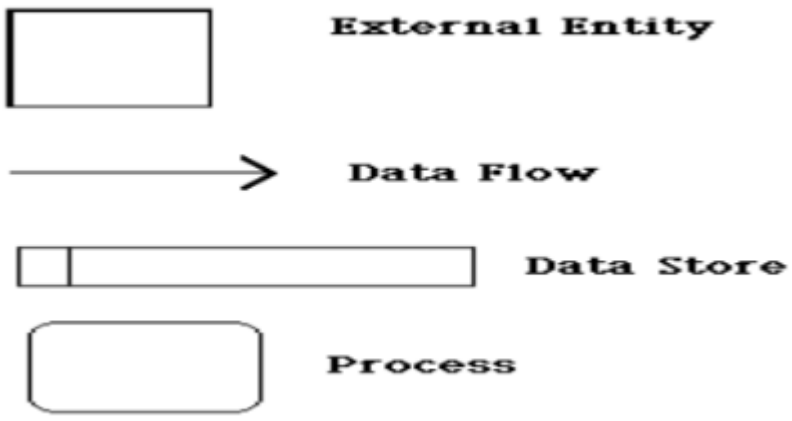
Using the above software and hardware specification one should be able to work with “CRM”.

CHAPTER 4
SYSTEM DESIGN SPECIFICATION

4.1 Data Flow Diagrams

A data flow diagram (DFD) maps out the flow of information for any process or system. It uses defined symbols like rectangles, circles and arrows, plus short text labels, to show data inputs, outputs, storage points and the routes between each destination. A DFD describes what data flow (logical) rather than how they are processed, so it does not depend on hardware, software, data structure or file organization.

Data flow diagrams are one of the three essential perspectives of the structured-systems analysis and design method. The sponsor of a project and the end users will need to be briefed and consulted throughout all stages of a system's evolution. With a data flow diagram, users can visualize how the system will operate, what the system will accomplish, and how the system will be implemented. The symbols used to prepare DFD do not imply a physical implementation. The four basic symbols used to construct data flow diagrams are shown below:



These are symbols that represent data flows, data sources, data transformations and data storage. The points at which data are transformed are represented by enclosed figures, usually circles, which are called nodes.

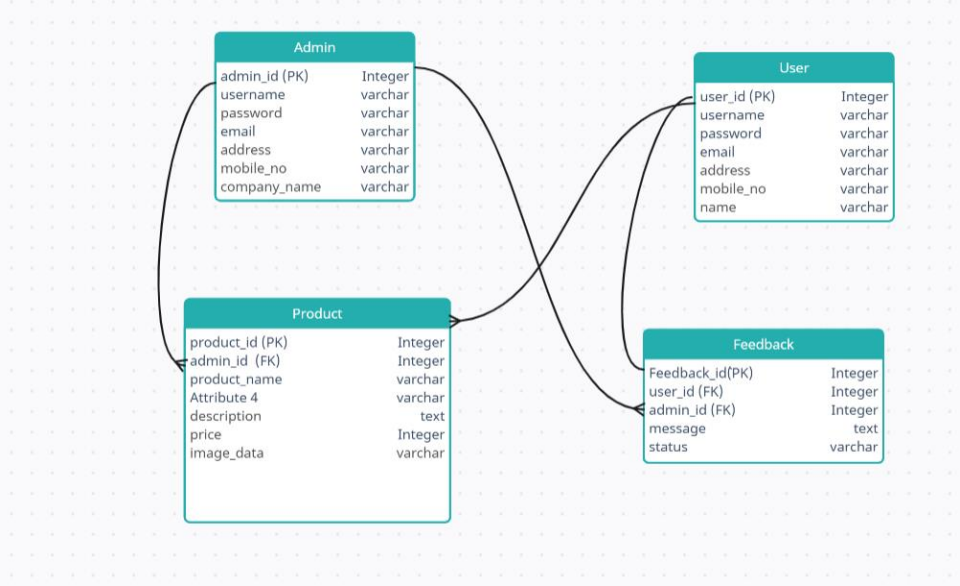


FIG: Data Flow Diagram

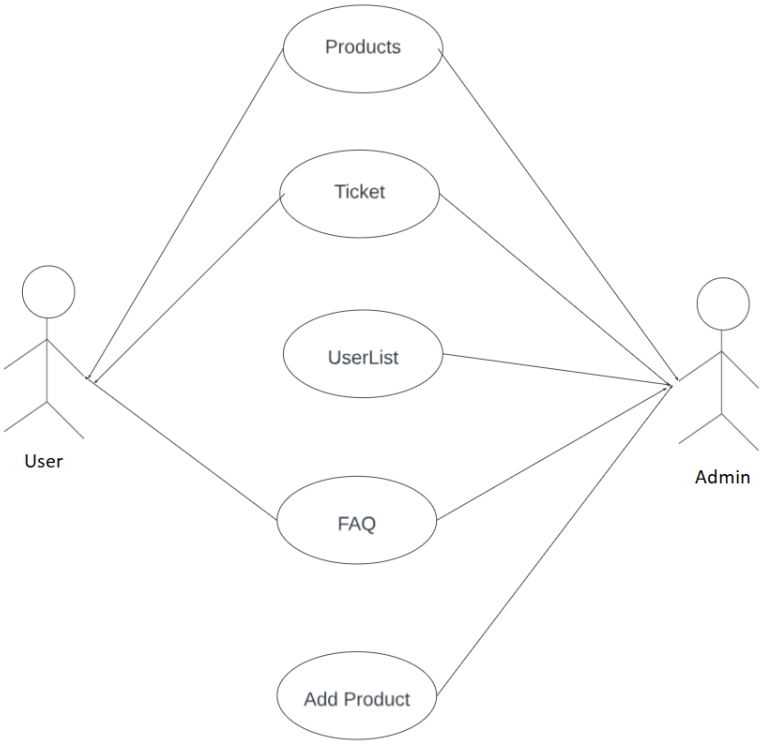


Fig: Usecase Diagram

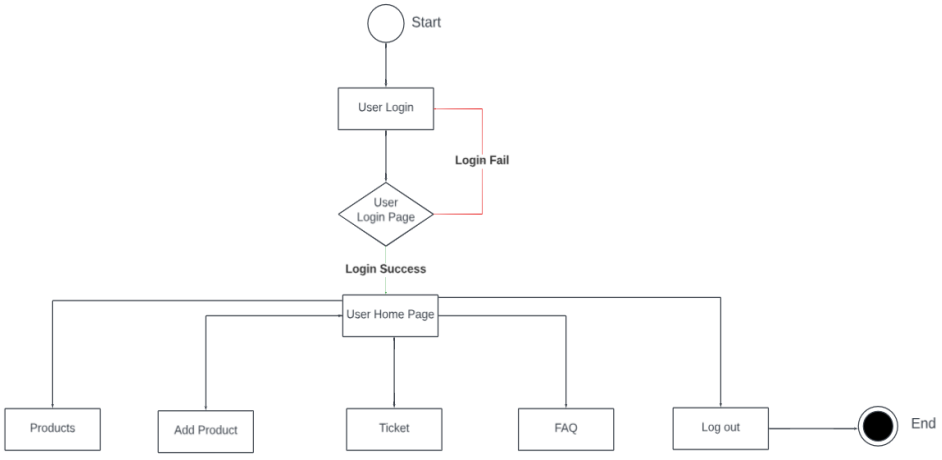


Fig: Activity Diagram for Login

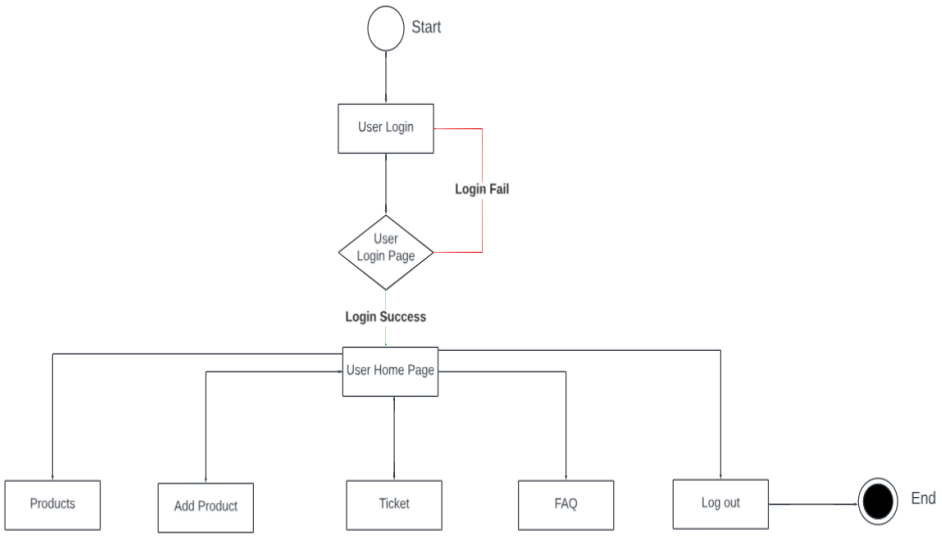


Fig: Activity Diagram for Admin

CHAPTER 5
SAMPLE CODE

SpringBoot Controller Code

Admin Controller:

```
package com.infinite.crm.controller;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.CrossOrigin;
import org.springframework.web.bind.annotation.PostMapping;
import org.springframework.web.bind.annotation.RequestBody;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RestController;

import com.infinite.crm.model.Admin;
import com.infinite.crm.model.LoginMessage;
import com.infinite.crm.repository.AdminRepository;

@RestController
@CrossOrigin("http://localhost:3000")
@RequestMapping("api/n2")
public class AdminController {

@Autowired
private AdminRepository adminRepository;

@PostMapping(path = "/admin/login")
```

```
public LoginMessage loginadmin(@RequestBody Admin admin) {
Admin email = adminRepository.findByEmail(admin.getEmail());
if (email != null) {
String password = admin.getPassword();
String userpass = email.getPassword();
if (password.matches(userpass)) {
return new LoginMessage("Login Success", true);
} else {
return new LoginMessage("Incorrect admin email or Password", false);
}
} else {
return new LoginMessage("adminname not exist", false);
}
}
```

User Controller:

```
package com.infinite.crm.controller;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.CrossOrigin;
import org.springframework.web.bind.annotation.PostMapping;
import org.springframework.web.bind.annotation.RequestBody;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RestController;

import com.infinite.crm.model.Admin;
import com.infinite.crm.model.LoginMessage;
import com.infinite.crm.repository.AdminRepository;
```

```
@RestController
@CrossOrigin("http://localhost:3000")
@RequestMapping("api/n2")
public class AdminController {

@Autowired
private AdminRepository adminRepository;

@PostMapping(path = "/admin/login")
public LoginMessage loginadmin(@RequestBody Admin admin) {
Admin email = adminRepository.findByEmail(admin.getEmail());
if (email != null) {
String password = admin.getPassword();
String userpass = email.getPassword();
if (password.matches(userpass)) {
return new LoginMessage("Login Success", true);
} else {
return new LoginMessage("Incorrect admin email or Password", false);
}
} else {
return new LoginMessage("adminname not exist", false);
}
}

}
```

React.js:

App.js

```
import "./App.css";
import "../node_modules/bootstrap/dist/css/bootstrap.min.css";
import Navbar from "./layout/Navbar";
import Home from "./pages/Home";
import { BrowserRouter as Router, Routes, Route } from "react-router-dom";
import AddUser from "./users/AddUser";
import EditUser from "./users/EditUser";
import ViewUser from "./users/ViewUser";


function App() {
  return (
    <div className="App">
      <Router>
        <Navbar />


        <Routes>
          <Route exact path="/" element={<Home />} />
          <Route exact path="/adduser" element={<AddUser />} />
          <Route exact path="/edituser/:id" element={<EditUser />} />
          <Route exact path="/viewuser/:id" element={<ViewUser />} />
        </Routes>
      </Router>
    </div>
```

```
  );
}
export default App;
```

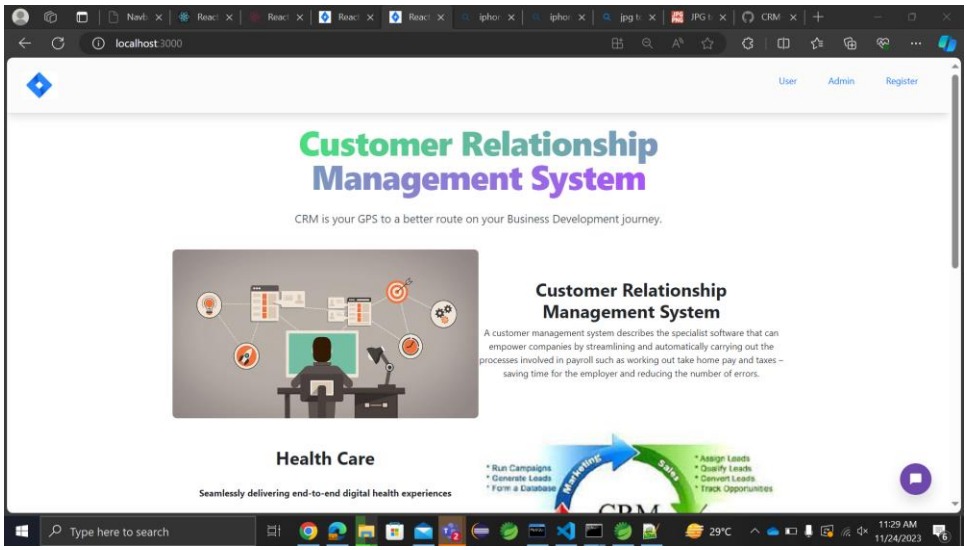
Navbar.js

```
import React from "react";
import { Link } from "react-router-dom";


export default function Navbar() {
  return (
    <div>
      <nav className="navbar navbar-expand-lg navbar-dark bg-primary">
        <div className="container-fluid">
          <Link className="navbar-brand" to="/">
            Full Stack Application
          </Link>
          <button
            className="navbar-toggler"
            type="button"
            data-bs-toggle="collapse"
            data-bs-target="#navbarSupportedContent"
            aria-controls="navbarSupportedContent"
            aria-expanded="false"
            aria-label="Toggle navigation"
          >
            <span className="navbar-toggler-icon"></span>
          </button>


          <Link className="btn btn-outline-light" to="/adduser">
```

```
            Add User
          </Link>
        </div>
      </nav>
    </div>
  );
}
```

CHAPTER 6

OUTPUT SCREENS



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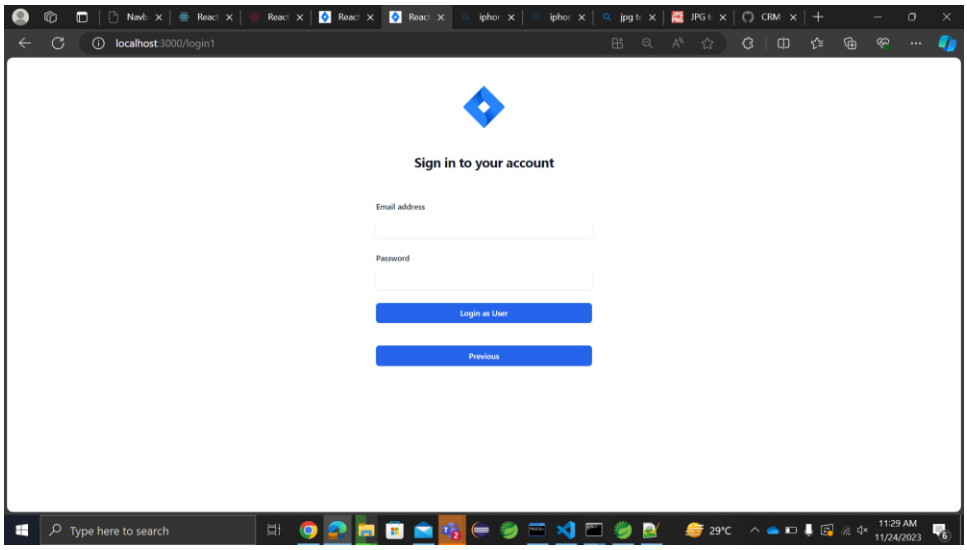

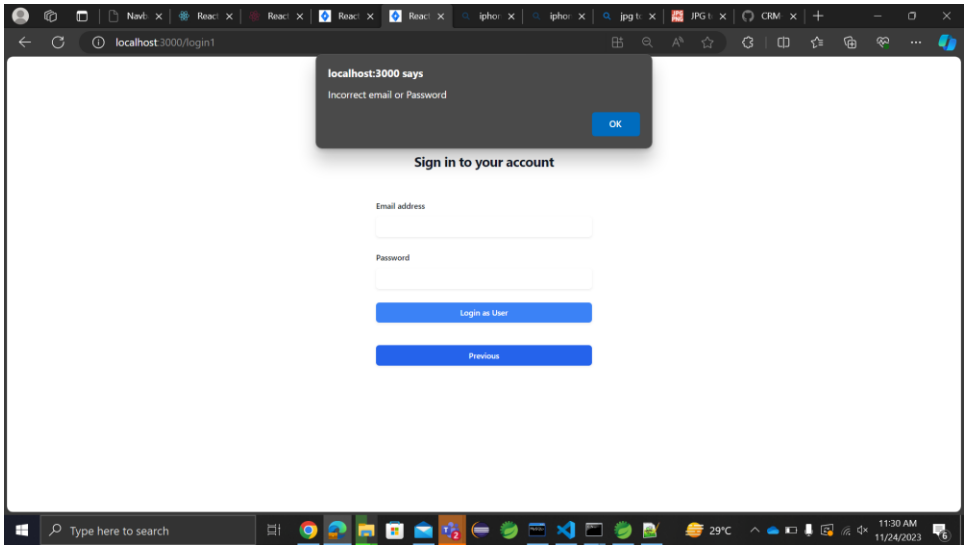

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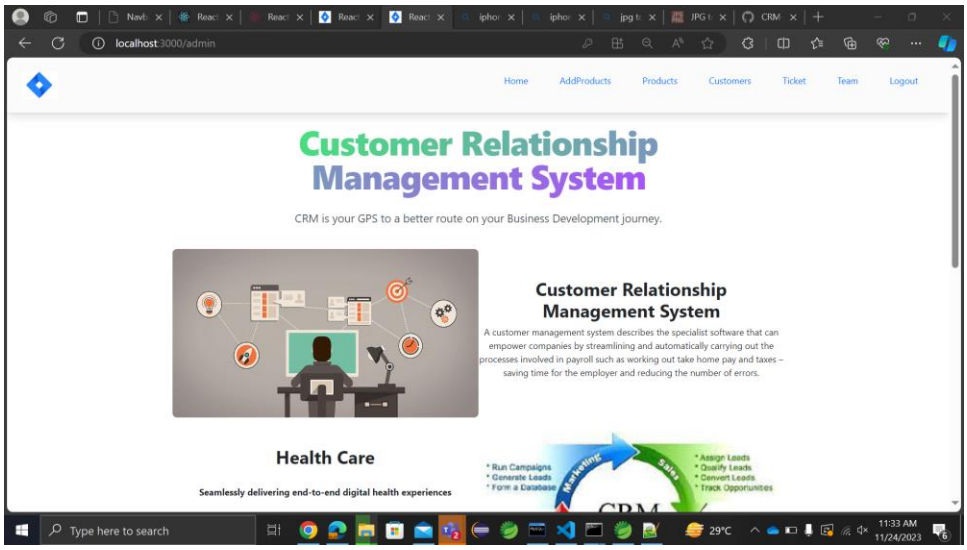

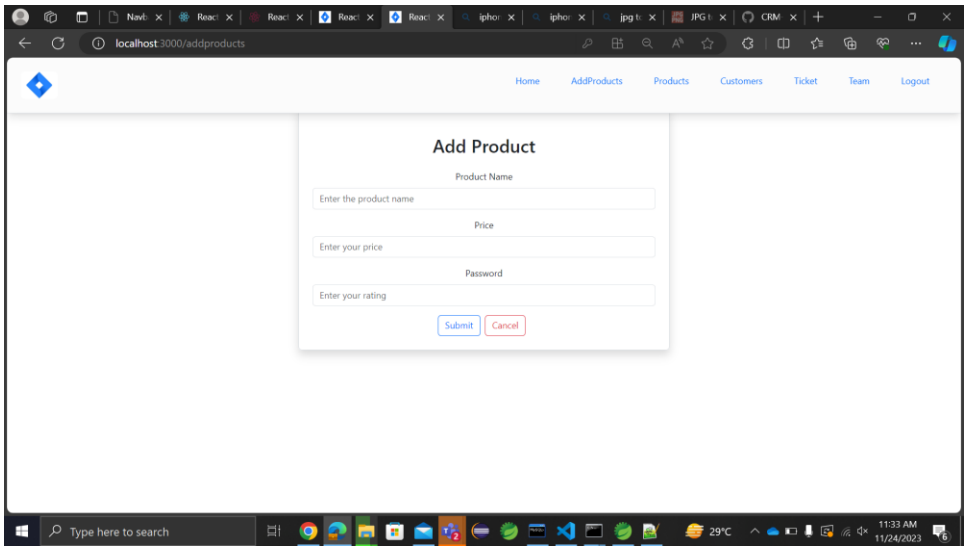

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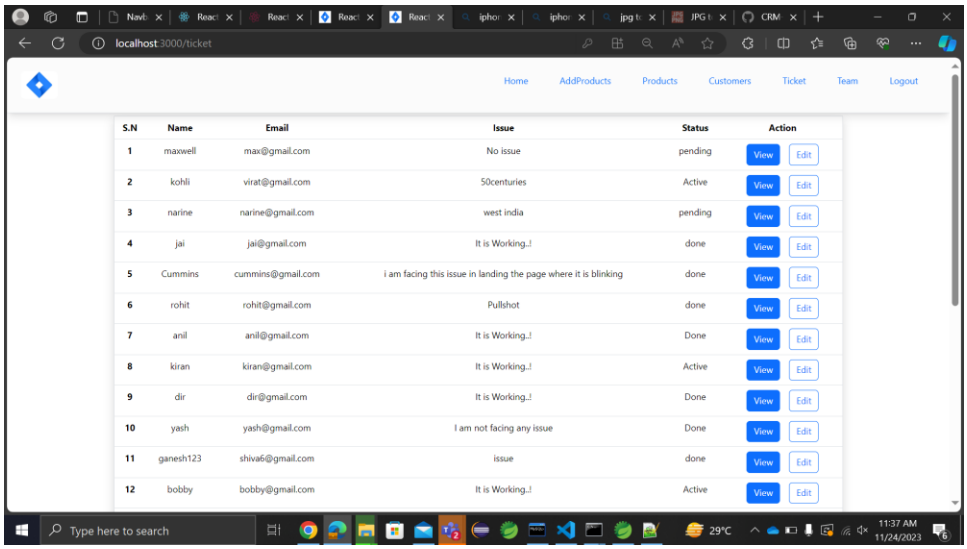

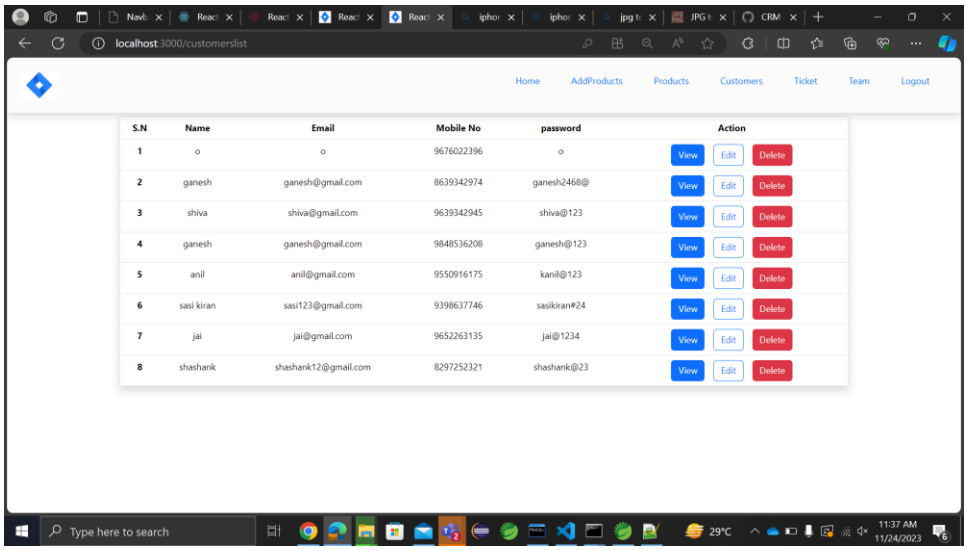

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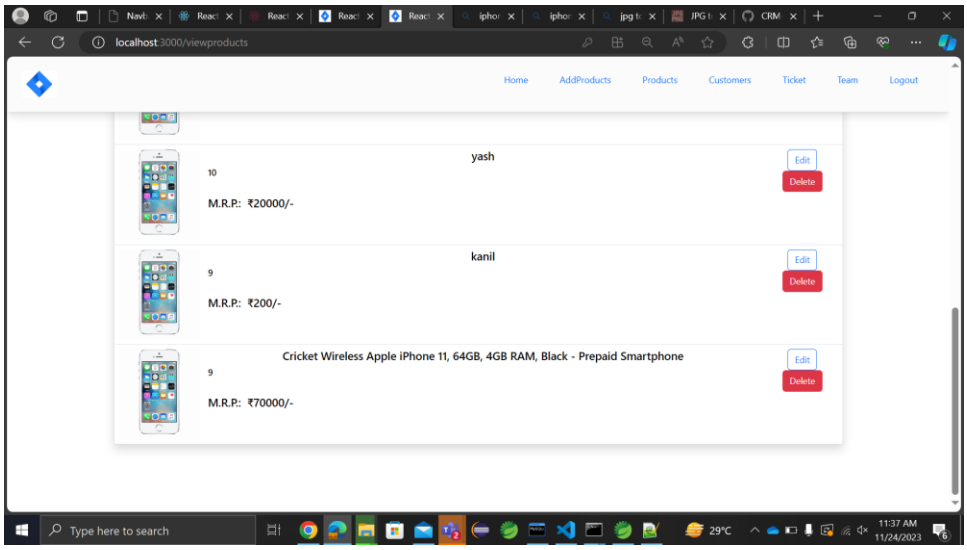

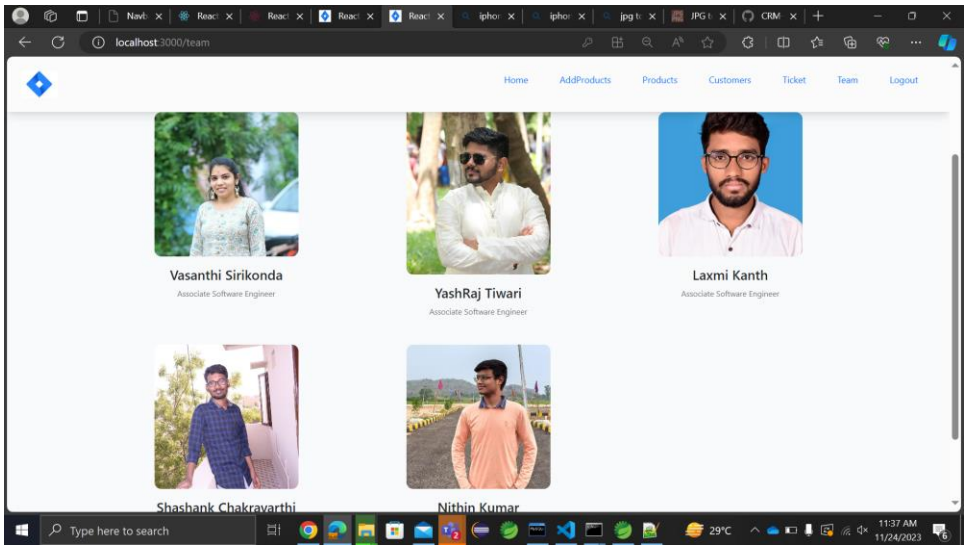

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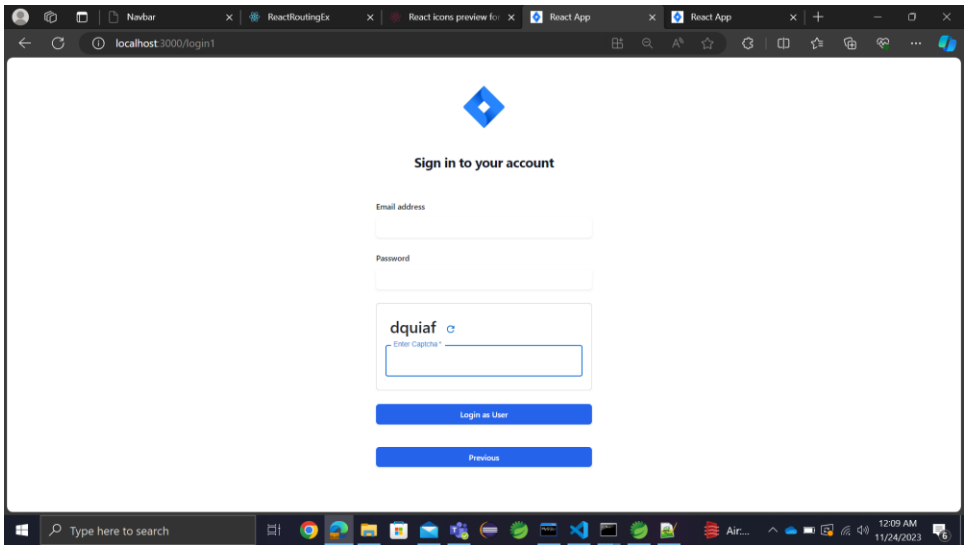

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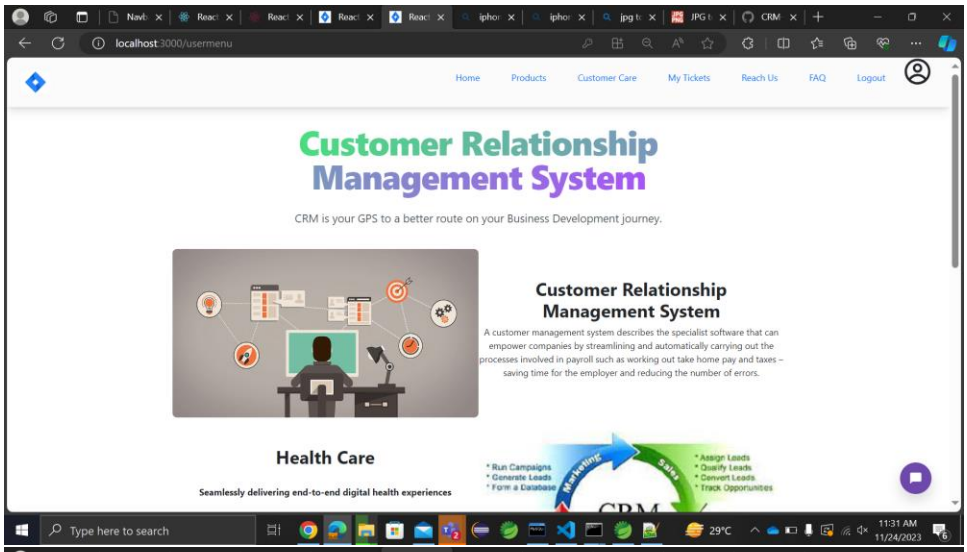

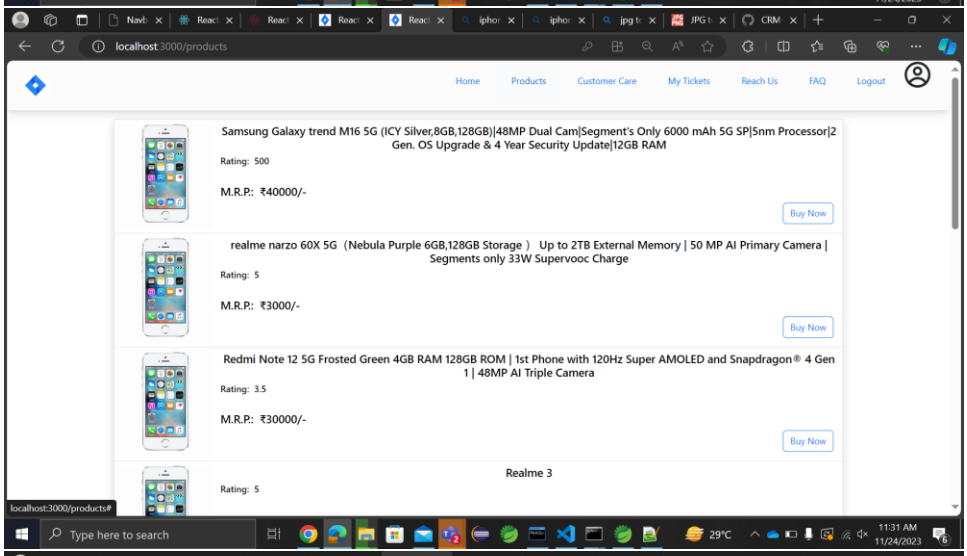

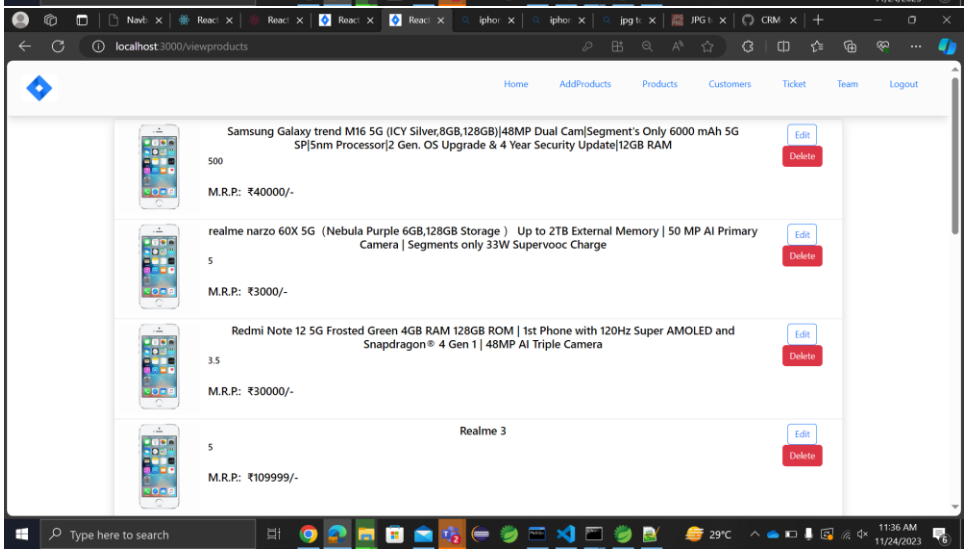

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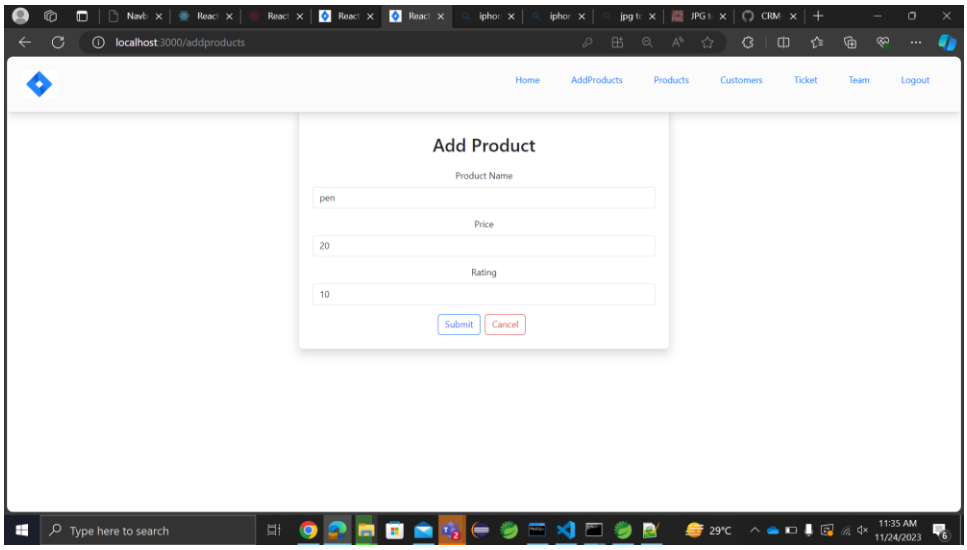

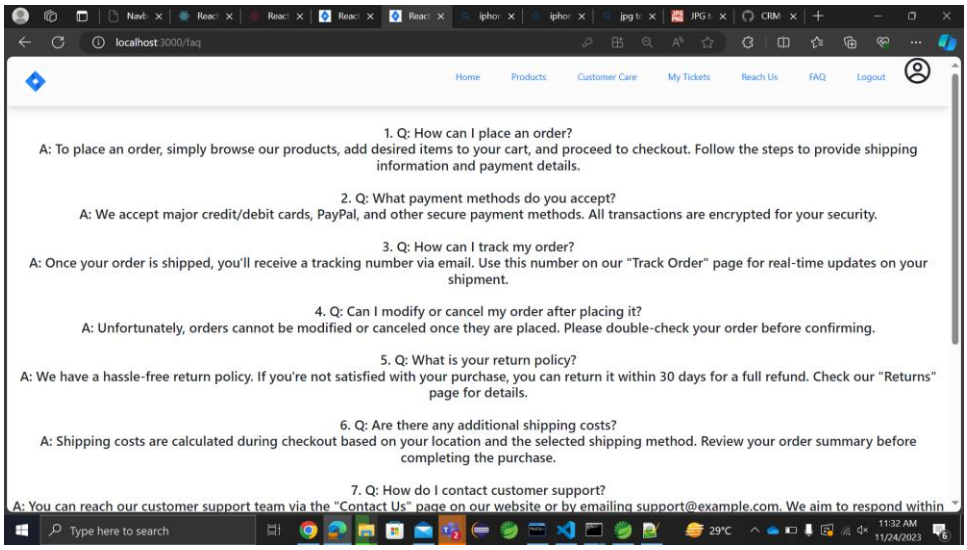

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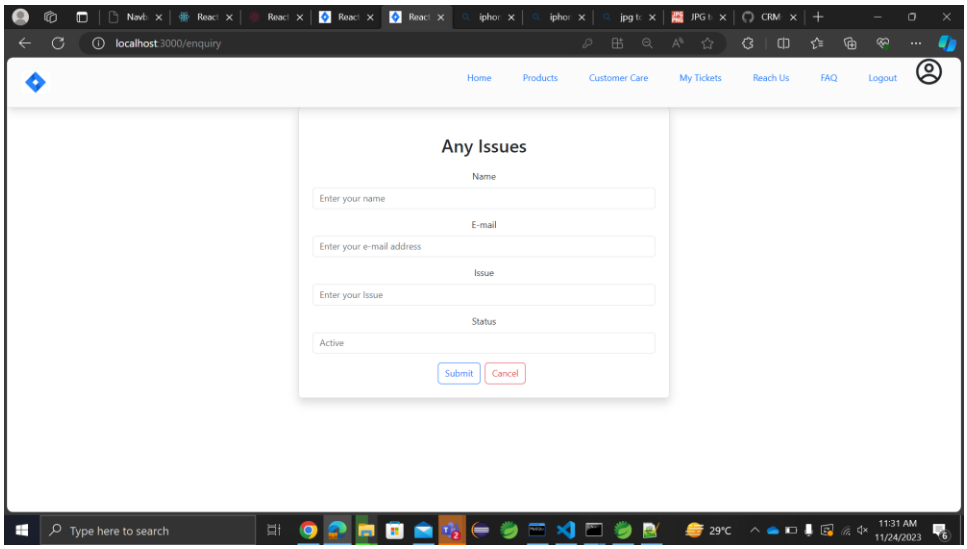
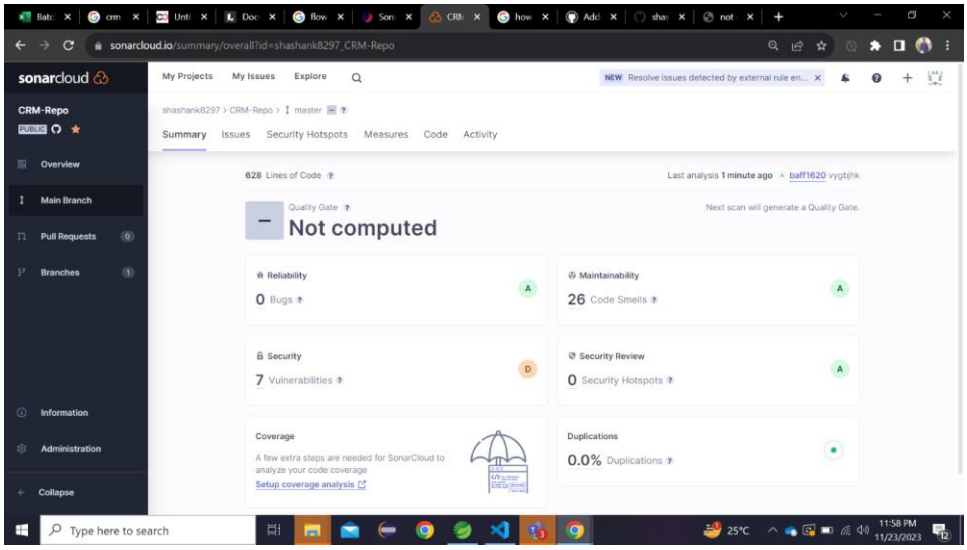


CHAPTER 7

SONARQUBE REPORT



CHAPTER 8
CONCLUSION AND FUTURE SCOPE

Customer Relationship Management (CRM) has become a pivotal strategy for businesses aiming to build and maintain strong relationships with their customers. The implementation of CRM systems has enabled organizations to streamline their processes, enhance customer interactions, and gain valuable insights into customer behaviors and preferences.

Key aspects of CRM include

Data Centralization: CRM systems centralize customer data, providing a comprehensive view of customer interactions across various touchpoints.

Improved Customer Service: Businesses can deliver personalized and efficient customer service by leveraging CRM data to understand individual needs and preferences.

Sales Growth: CRM systems assist in managing leads, opportunities, and sales pipelines, ultimately contributing to increased sales and revenue.

Marketing Effectiveness: Targeted marketing campaigns can be developed based on CRM insights, leading to more effective customer engagement.

Enhanced Collaboration: CRM facilitates better communication and collaboration among teams, ensuring a unified approach to customer interactions.

Data Analysis: CRM analytics help in identifying trends, forecasting, and making data-driven decisions for business improvement.

Future Scope:

The future of CRM holds several exciting possibilities:

AI and Automation: Integration of artificial intelligence (AI) and automation will further enhance CRM capabilities, allowing for predictive analytics, chatbots for customer support, and automated lead nurturing.

IoT Integration: The Internet of Things (IoT) will enable businesses to gather real-time data from connected devices, providing a more comprehensive understanding of customer behavior.

Personalization: Advanced personalization techniques will continue to evolve, delivering highly tailored customer experiences based on individual preferences and behaviors.

Cloud-Based Solutions: The widespread adoption of cloud-based CRM solutions will offer greater flexibility, scalability, and accessibility for businesses of all sizes.

Blockchain for Security: Blockchain technology may be employed to enhance the security and integrity of customer data, ensuring trust and transparency.

Omni-Channel Engagement: CRM systems will evolve to seamlessly integrate customer interactions across multiple channels, offering a true omni-channel experience.

Emphasis on Customer Experience: The focus on delivering exceptional customer experiences will remain a driving force, with businesses leveraging CRM to create personalized, memorable interactions.

In conclusion, CRM will continue to be a cornerstone of successful business strategies, adapting to technological advancements and evolving customer expectations. The future holds exciting possibilities for businesses that leverage CRM effectively to foster lasting and meaningful customer relationships.