HCL Project report 1

Customer Relationship Management (CRM) using Agile Methodology

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1. Abstract (300–400 Words)

Customer Relationship Management (CRM) is a strategic approach that helps organizations manage interactions with customers efficiently, improve customer satisfaction, and enhance business growth. In today's competitive business environment, maintaining strong and long-term relationships with customers is essential. This project focuses on the development of a Customer Relationship Management system using the Agile software development methodology to ensure flexibility, faster delivery, and continuous improvement.

The CRM system aims to centralize customer data, manage sales activities, track customer interactions, handle customer support requests, and generate analytical reports. Traditional software development models often face challenges such as changing requirements and delayed feedback. Agile methodology overcomes these challenges by dividing the project into small iterations called sprints, allowing continuous customer feedback and incremental improvements.

The proposed CRM system provides modules for customer registration, contact management, sales tracking, service management, and reporting. Agile methodology enables frequent testing, quick adaptation to changes, and close collaboration between developers and stakeholders. Each sprint results in a working feature that adds value to the system, ensuring better quality and reduced development risks.

The system is designed to be user-friendly, scalable, and secure. It allows organizations to store customer details, monitor communication history, manage leads, and analyze customer behavior. By implementing Agile practices such as sprint planning, daily stand-ups, sprint reviews, and retrospectives, the project ensures transparency and efficiency throughout the development lifecycle.

In conclusion, the CRM system developed using Agile methodology improves customer engagement, enhances operational efficiency, and supports informed decision-making. This project demonstrates how Agile principles can be effectively applied to develop a robust and flexible CRM solution that meets modern business needs and adapts easily to changing requirements.

2. Introduction

2.1 Introduction

In the modern digital era, customers are the most valuable assets of any organization. With the rapid growth of businesses and increasing competition, managing customer relationships effectively has become a critical challenge. Customer Relationship Management (CRM) is a technology-driven approach that helps organizations manage interactions with current and potential customers in an organized and systematic manner. A CRM system enables businesses to store customer data centrally, track communication history, manage sales activities, and improve customer service quality.

Traditional customer management methods such as manual records or spreadsheet-based systems are inefficient, time-consuming, and prone to errors. These methods fail to provide real-time insights and do not support effective decision-making. A CRM system overcomes these limitations by automating customer-related processes and providing accurate, up-to-date information.

This project focuses on the development of a Customer Relationship Management system using the Agile software development methodology. Agile is a modern and flexible approach that emphasizes iterative development, continuous feedback, and customer collaboration. Instead of delivering the complete system at once, Agile divides the project into small iterations called sprints, where each sprint produces a functional component of the system.

By combining CRM with Agile methodology, this project ensures faster development, improved quality, and adaptability to changing business requirements. The system is designed to be scalable, user-friendly, and secure, making it suitable for small and medium-sized organizations.

2.2 Problem Identification

Many organizations face difficulties in managing customer data due to the absence of an integrated system. Customer information is often scattered across multiple platforms, leading to data inconsistency and duplication. Lack of proper tracking of customer interactions results in poor communication and delayed responses to customer queries.

Sales teams struggle to monitor leads and conversions efficiently, while customer support teams face challenges in resolving service requests on time. Additionally, traditional development models do not easily accommodate changing business requirements, leading to project delays and increased costs. These challenges highlight the need for an efficient CRM system developed using a flexible methodology.

2.3 Need of the Project

The need for this project arises from the growing demand for efficient customer management solutions. An effective CRM system helps organizations build strong customer relationships, improve customer satisfaction, and increase revenue.

This project is required to:

 Centralize customer information in a single system

 Automate sales, marketing, and service processes

 Improve customer communication and response time

 Provide analytical reports for better decision-making

 Support continuous improvements through Agile methodology

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2.4 Project Scheduling

The project is developed using the Agile methodology, which follows an iterative and incremental approach. The entire development process is divided into multiple sprints, each lasting a fixed duration.

- **Sprint 1:** Requirement gathering and planning
- **Sprint 2:** Customer and user management module
- **Sprint 3:** Sales and service management module
- **Sprint 4:** Reporting and analytics module
- **Sprint 5:** System testing, feedback, and deployment

Each sprint includes planning, development, testing, review, and retrospective phases, ensuring continuous improvement and timely delivery.

2.5 Objectives

The main objectives of this project are:

- To design and develop an efficient CRM system
- To apply Agile methodology for flexible development
- To improve customer interaction and data management
- To ensure system scalability, security, and usability

- To deliver a high-quality software solution within minimal time

Software Requirements Specification
for
Customer Relationship Management (CRM) using Agile Methodology

Version: 1.0 Approved
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Date Created: January 2026

SRS Table of Contents

Revision History

Version	Date	Description	Author
1.0	Jan 2026	Initial creation of SRS document	Arushi

Overview

This SRS document provides a comprehensive overview of the CRM system, including system functionality, design constraints, interface requirements, and quality attributes. It follows a structured approach to ensure clarity and completeness.

Document Conventions

- Section headings are highlighted in bold
- Tabular format is used for structured data
- Bullet points are used for easy readability

Intended Audience and Reading Suggestions

This document is intended for:

- Software developers
- Software testers
- Project managers

- System analysts
- End users

Readers are advised to read the Introduction and Overall Description sections first to understand system scope and functionality.

II. Overall Description

Product Perspective

The CRM system is a web-based application developed using Agile methodology. It follows a client-server architecture where users interact with the system through a web browser. The system can operate independently or be integrated with other business applications such as accounting or inventory systems.

Product Functions

The major functions of the CRM system include:

- Customer registration and profile management
- Tracking customer interactions and communication history
- Sales lead and opportunity management
- Customer service and support request handling
- Report generation and data analysis
- User authentication and role-based access control

User Classes and Characteristics

- **Administrator:** Manages system configuration, users, and access rights
- **Sales Executive:** Handles customer leads, sales activities, and follow-ups
- **Support Staff:** Manages customer service requests and complaints
- **Manager:** Views analytical reports and monitors business performance

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Operating Environment

- Operating System: Windows or Linux
- Client Device: Desktop or Laptop
- Browser: Google Chrome, Mozilla Firefox
- Server Environment: Cloud-based or local server

Architectural Design, Use Case Model, and Diagrams

The CRM system follows a layered architecture consisting of presentation, business logic, and data layers. The system design includes:

- Use Case Diagram

- Class Diagram
- Sequence Diagram
- Database Design
- ER Diagram
- Database Schema

4. System Design

System design defines the overall architecture, components, data flow, and interaction of the CRM system. It provides a blueprint that guides developers during implementation and ensures that the system meets user and business requirements. The CRM system is designed using a modular and scalable approach to support future enhancements.

4.1 Data Dictionary

The data dictionary describes all important data elements used in the CRM system along with their meanings.

Data Item	Description
Customer_ID	Unique identification number for each customer
Customer_Name	Name of the customer
Email	Customer email address
Contact_No	Customer contact number
Address	Customer residential or business address
Lead_ID	Unique ID for sales lead
Lead_Status	Status of lead (New, In Progress, Converted)
Service_ID	Unique service request ID

4.2 ER Diagram

The Entity Relationship (ER) Diagram represents the relationship between different entities in the CRM system. The main entities include **Customer**, **User**, **Sales**, and **Service**.

- One customer can have multiple sales leads.
- One customer can generate multiple service requests.
- Users manage sales and service records.

Primary keys and foreign keys are used to maintain data integrity and consistency.

4.3 Data Flow Diagram (DFD)

The Data Flow Diagram illustrates how data moves through the CRM system.

- **DFD Level 0:**
  Shows interaction between users and the CRM system as a single process.
- **DFD Level 1:**
  Displays data flow between customer management, sales module, service module, and reporting module.

4.4 System Diagrams

The CRM system design includes the following diagrams:

- **Use Case Diagram:** Shows interactions between users and the system such as login, add customer, manage leads, and generate reports.
- **Class Diagram:** Represents system classes like Customer, User, Sales, and Service with attributes and methods.
- **Activity Diagram:** Describes the flow of activities such as customer registration and service request handling.
- **System Flow Chart:** Shows the overall logical flow of the system from login to report generation.

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5. Implementation

The CRM system is implemented using Agile methodology, where development is carried out in iterative sprints. Each module is developed, tested, and reviewed independently to ensure quality and flexibility.

5.1 Program Code

The system is developed using frontend technologies for user interaction and backend technologies for business logic and database operations. Modular programming practices are followed to improve maintainability and scalability. Each sprint delivers a functional part of the CRM system.

5.2 Output Screens

The major output screens of the CRM system include:

- Login Screen
- User Dashboard
- Customer Registration and Management Screen
- Sales Lead Management Screen

- Service Request Handling Screen
- Reports and Analytics Screen

Each screen is designed to be simple, intuitive, and user-friendly.

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6. Testing

Testing ensures that the CRM system functions correctly and meets all specified requirements. Both functional and non-functional testing are performed during each Agile sprint.

6.1 Test Data

Test data includes:

- Valid and invalid customer details
- Sample sales leads
- Service request records
- User login credentials

6.2 Test Result

All test cases were executed successfully. The system handled valid inputs correctly and displayed appropriate error messages for invalid inputs. No critical defects were found after final testing.

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7. User Manual

The user manual provides step-by-step guidance to help users operate the CRM system efficiently.

7.1 How to Use Project Guidelines

1. Open the CRM application in a web browser
2. Login using valid username and password
3. Add, update, or view customer details
4. Manage sales leads and service requests
5. Generate reports as required

6. Logout after completing work

7.2 Screen Layouts and Description

Each screen contains clear labels, buttons, and navigation menus. The dashboard provides quick access to important features such as customer management, sales, services, and reports.

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8. Project Applications and Limitations

Applications

- Customer data management
- Sales and lead tracking
- Customer service and support management
- Business analysis and reporting

Limitations

- Requires continuous internet connection
- Limited advanced analytics
- Dependent on accuracy of user-entered data

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9. Conclusion and Future Enhancement

The Customer Relationship Management system developed using Agile methodology successfully fulfills the objectives of managing customer data, improving communication, and enhancing business efficiency. Agile development ensured flexibility, faster delivery, and continuous improvement through feedback.

Future Enhancements:

- Integration of AI-based customer analytics
- Mobile application support
- Cloud-based deployment
- Advanced data visualization dashboards

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10. Bibliography & References

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