

Customer Relationship Management System Using Agile Methodology

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1. Abstract

Customer Relationship Management (CRM) is a strategic approach that helps organizations manage customer interactions, improve customer satisfaction, and enhance business growth. With increasing competition and rapidly changing customer expectations, organizations require flexible and efficient systems to manage customer data and relationships. This project focuses on the design and development of a CRM system using Agile methodology. Agile enables iterative development, continuous customer feedback, faster delivery, and adaptability to changing requirements. The proposed CRM system provides functionalities such as customer data management, sales tracking, interaction history, reporting, and analytics. The use of Agile methodology ensures high-quality software, better stakeholder collaboration, and continuous improvement throughout the development lifecycle.

2. Introduction

In the modern digital era, customers are the most valuable assets of any organization. Businesses must maintain strong relationships with customers to survive and grow in a competitive market. Customer Relationship Management (CRM) systems help organizations manage customer information, track interactions, and improve communication between customers and business teams.

A CRM system integrates sales, marketing, and customer support processes into a single platform. Traditional CRM systems developed using rigid software development models often fail to adapt to changing business needs. Agile methodology provides a flexible and iterative approach that allows continuous improvement and faster response to customer feedback.

This project aims to develop a CRM system using Agile methodology to ensure scalability, adaptability, and improved customer satisfaction.

3. Objectives of the Project

The primary objectives of this project are:

- To design and develop an efficient CRM system.
- To manage customer data in a centralized and secure manner.
- To implement Agile methodology for flexible and iterative development.
- To improve communication between sales, marketing, and support teams.
- To enhance customer satisfaction and retention.
- To deliver high-quality software through continuous testing and feedback.

4. Scope of the Project

The scope of the CRM system includes:

- Managing customer profiles and contact details.
- Tracking sales leads and opportunities.
- Maintaining interaction and communication history.
- Generating reports and analytics for decision-making.
- Providing reminders and notifications for follow-ups.
- Ensuring data security and access control.

The system is scalable and can be enhanced with additional features such as artificial intelligence, automation, and mobile application support in the future.

5. Overview of Customer Relationship Management (CRM)

Customer Relationship Management is a combination of strategies, technologies, and practices used by organizations to manage customer interactions. CRM systems help businesses understand customer needs, personalize services, and improve customer loyalty.

Types of CRM

1. **Operational CRM** – Focuses on automation of sales, marketing, and service processes.
2. **Analytical CRM** – Analyzes customer data to gain insights and improve decisionmaking.
3. **Collaborative CRM** – Facilitates communication between different departments and customers.

6. Agile Methodology Overview

Agile methodology is an iterative and incremental approach to software development. It focuses on delivering small, functional components of software in short development cycles called sprints. Agile encourages collaboration, adaptability, and continuous improvement.

6.1. Agile Principles

- Customer satisfaction through early and continuous delivery.
- Welcoming changing requirements.
- Frequent delivery of working software.
- Collaboration between developers and stakeholders.
- Continuous attention to technical excellence.

6.2. Agile Framework Used – Scrum

Scrum is one of the most popular Agile frameworks. It divides development work into fixed-length iterations called sprints, typically lasting 2–4 weeks.

Scrum Roles

- **Product Owner** – Defines requirements and prioritizes features.
- **Scrum Master** – Facilitates Agile practices and removes obstacles.
- **Development Team** – Designs, develops, and tests the product. **Scrum**

Artifacts

- Product Backlog
- Sprint Backlog
- Increment

6.3. Why Agile for CRM Development

CRM systems require frequent updates due to changing customer expectations and business strategies. Agile methodology is ideal for CRM development because:

- Requirements can change frequently.
- Continuous customer feedback improves system usability.
- Faster delivery of features.
- Reduced project risks.
- Improved collaboration among teams.

7. System Architecture

The CRM system follows a three-tier architecture:

1. **Presentation Layer** – User interface for customers and employees.
2. **Business Logic Layer** – Handles application logic and workflows.
3. **Database Layer** – Stores customer data, transactions, and reports.

This architecture ensures scalability, security, and ease of maintenance.

8. Functional Requirements

- User registration and authentication.
- Customer profile management.
- Sales and lead tracking.
- Interaction and communication history.
- Task and reminder management.
- Report generation and analytics.
- Role-based access control.

9. Non-Functional Requirements

- High performance and responsiveness.
- Data security and privacy.
- Scalability to handle growing users.
- Reliability and availability.
- User-friendly interface.
- Maintainability and extensibility.

10. Tools and Technologies Used

- **Frontend:** HTML, CSS, JavaScript
- **Backend:** Java / Spring Boot
- **Database:** MySQL • **Agile Tools:** Jira, Git
- **Server:** Apache / Cloud Infrastructure

11. Testing Strategy

Testing is integrated throughout the Agile development process:

- **Unit Testing** – Testing individual modules.
- **Integration Testing** – Testing interaction between modules.

- **System Testing** – Testing the complete system.
- **User Acceptance Testing (UAT)** – Validating system with users.

Continuous testing ensures early defect detection and high-quality software.

12. Advantages of CRM System

- Improved customer satisfaction.
- Better customer retention.
- Enhanced sales performance.
- Centralized data management.
- Improved decision-making through analytics.
- Increased operational efficiency.

13. Limitations of the System

- Initial development and setup cost.
- Training required for users.
- Dependency on data accuracy.
- Integration challenges with existing systems.

14. Future Enhancements

- Integration of AI and machine learning.
- Chatbots for customer support.
- Automation of business workflows.
- Mobile application development.
- Advanced analytics and prediction models.