SE Report

E-Mart Using Agile

Niraj Kothawade – 24
Aryan Patankar – 34
Vaishnal Mali – 27
Manorath Ital - 19

1. Introduction

The purpose of this project was to develop a basic e-commerce website using the Agile software development model. The project aimed to provide a platform for users to browse products, add them to a cart, and make purchases securely. The Agile approach was chosen to facilitate iterative development and continuous feedback.

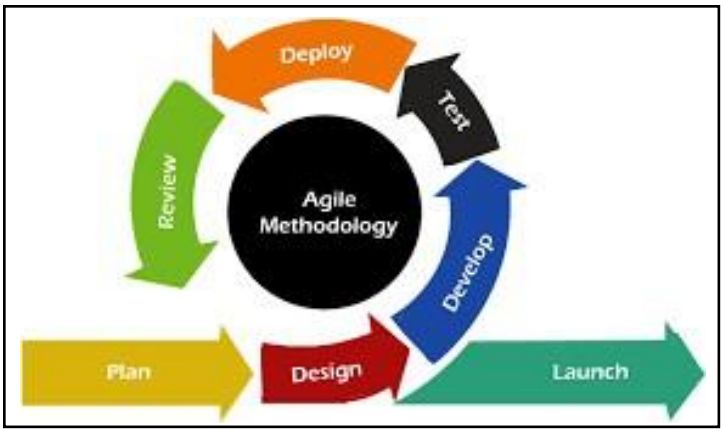
2. Project Objectives

Develop a user-friendly interface for product browsing and purchasing.
Ensure the website is responsive and accessible on various devices.
Implement features like Group Shopping and Social Activity
Use Agile practices to iterate and improve the website based on feedback.

3. Agile Methodology Overview

Agile is an iterative and incremental approach to software development. It emphasizes flexibility, collaboration, and customer satisfaction. Key Agile practices used in this project include:

Sprints: Short, time-boxed periods to complete specific tasks.
Daily Stand-ups: Regular meetings to discuss progress and challenges.
Sprint Reviews: Demonstrations of completed work and gathering feedback.
Retrospectives: Reflection on the sprint to identify improvements.



4. Project Planning

4.1 Initial Requirements Gathering

Initial requirements were gathered through brainstorming sessions and discussions with peers and instructors. Key features identified included:

Product catalog
Shopping cart
User authentication
Group Shopping

4.2 Backlog Creation

A product backlog was created, listing all features and tasks needed to develop the website. Tasks were prioritized based on their importance and dependencies.

5. Sprint Details

5.1 Sprint 1: User Interface Design

Goals: Design the main pages (home, product, cart, checkout).
Tasks: Create wireframes and prototypes.
Outcome: Completed design mockups reviewed with stakeholders.

5.2 Sprint 2: Backend Development

Goals: Set up the server, database, and API.
Tasks: Implement database schema, product management, and user authentication.
Outcome: Basic backend functionality implemented and tested.

5.3 Sprint 3: Frontend Integration

Goals: Integrate backend with frontend UI.
Tasks: Develop dynamic pages using React.
Outcome: Functional frontend with dynamic data display.

5.4 Sprint 4:Group Shopping Features

Group shopping deals and discounts
Group invitations and management
Group checkout process

5.5 Sprint 5: Social Activity Features
Giveaway Events: Implement functionality to manage giveaways for events like World Environment Day and World Reading Day.

- **Application Process:** Allow users to apply for giveaways.
- **Limit Participation:** Limit giveaways to the first 100 applicants.
- **Notification System:** Notify users about their application status (accepted, waitlisted, or rejected).

User Profiles: Create user profiles with activity feeds.

SRS for E-Commerce Website

1. Introduction

- **1.1 Purpose**:
  This SRS describes the functional and non-functional requirements of an e-commerce website that facilitates group shopping and social activities, such as donating books or saplings. The goal is to provide a platform where users can shop, engage in collaborative buying, and participate in socially responsible activities.
- **1.2 Scope**:
  The website allows users to create or join shopping groups, collaborate on purchases, and participate in social activities. Social activity features include

donating saplings or books on special occasions like World Environment Day.

- **1.3 Definitions, Acronyms, and Abbreviations**:
  - **Group Shopping**: A feature that allows multiple users to form a group and make collaborative purchases.
  - **Social Activity**: Initiatives related to donating saplings and books.
- **1.4 References**:
  IEEE Std 830-1998, IEEE Recommended Practice for Software Requirements Specifications.
- **1.5 Overview**:
  This document outlines the system's overall description, functional requirements, and non-functional requirements to guide development.

2. Overall Description

- **2.1 Product Perspective**:
  The e-commerce website integrates group shopping and social responsibility features, enhancing both the shopping experience and user engagement through environmental and educational contributions.
- **2.2 Product Functions**:
  - Standard e-commerce functionalities (user registration, product browsing, checkout, etc.).
  - Group shopping feature: Create or join groups, invite friends, add products to a shared cart, and collaboratively complete purchases.
  - Social activity feature: Option to donate saplings or books on special occasions.
  - Notifications for special events related to social activities.
- **2.3 User Characteristics**:
  The users will include:
  - **General Shoppers**: Looking for products and group shopping.
  - **Socially Active Users**: Interested in participating in social activities.
- **2.4 Operating Environment**:
  The website will be hosted online and accessible via all major web browsers (Chrome, Firefox, Safari, etc.), with both desktop and mobile compatibility.
- **2.5 Constraints**:

    - Group shopping limited to a maximum of 5 users per group.
    - Social activities capped based on availability (e.g., first 100 users can donate saplings/books).
- **2.6 Assumptions and Dependencies**:
    - The system depends on external APIs for WhatsApp integration to invite friends to group shopping.

3. Specific Requirements

3.1 Functional Requirements

- **User Registration & Authentication**:
  Users must be able to register, log in, and manage their profiles.
- **Product Browsing & Search**:
  Users can search and browse products, apply filters, and view details.
- **Group Shopping**:
    - **Create Group**: Users can create shopping groups.
    - **Invite Friends**: Invite up to 4 friends using WhatsApp or email.
    - **Shared Cart**: A group cart where all members can add products.
    - **Approval Mechanism**: All group members must approve items in the cart before proceeding to checkout.
- **Social Activity**:
    - **Participate in Social Events**: On specific dates, users can participate in campaigns like sapling or book donations.
    - **Track Participation**: Users can view their history of donations.
- **Checkout Process**:
  Standard checkout process including payment gateway integration.
- **Notifications**:
  Users receive notifications for group approvals, social activity events, and special offers.

3.2 Non-Functional Requirements

- **Performance**:
  The website should load within 3 seconds for standard use cases.

- **Scalability**:
  The system should be able to handle up to 10,000 concurrent users.
- **Security**:
  All user data must be encrypted during transit and stored securely. Two-factor authentication for login is recommended.
- **Usability**:
  The user interface must be intuitive and accessible on both mobile and desktop devices.
- **Reliability**:
  Uptime of 99.9% must be maintained.
- **Compliance**:
  Must comply with relevant data protection regulations (GDPR, CCPA, etc.).

4. Requirement Elicitation

- **Interviews with stakeholders**: Discussions with business owners and users to understand group shopping needs.
- **Questionnaires**: Gather user expectations for social activity involvement.
- **Observation**: Analyze similar e-commerce sites for feature gaps and improvements.

5. Requirement Analysis

- **Feasibility Study**:
  Analysis shows the group shopping and social activity features are technically feasible within the platform constraints.
- **Use Case Diagrams**:
  Develop use case diagrams for key functionalities like creating groups, adding products, and completing social donations.

6. Requirement Specification

A detailed list of all functional and non-functional requirements will be documented and maintained in this section. Requirements will be organized based on priority and necessity.

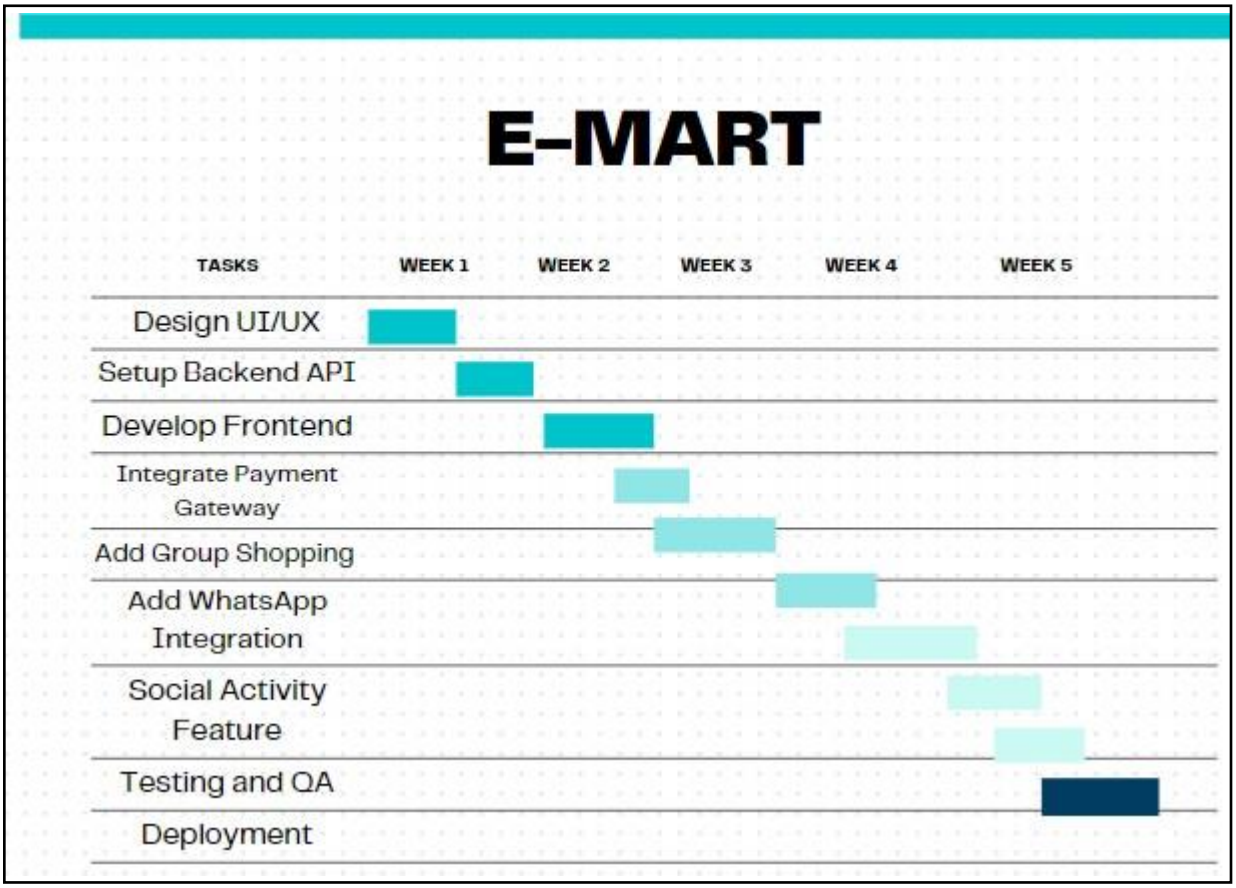
7. Requirement Validation

- **Peer Review**:
  Review requirements with key stakeholders for accuracy and completeness.
- **Prototyping**:
  Develop prototypes to ensure the group shopping and social activities meet the expectations of end-users.

8. Requirement Management

- **Version Control**:
  Maintain version control of requirements documentation.
- **Change Management**:
  Implement a formal process to request, review, and approve changes to the requirements.

Gantt Chart



Risk Management, Mitigation, and Monitoring (RMMM) Plan for E-Commerce Website with Group Shopping and Social Activity Features

1. Introduction

This RMMM plan is prepared for an e-commerce website that incorporates advanced features like group shopping, social activity integrations, and real-time communication tools (e.g., WhatsApp). The document outlines potential risks, mitigation strategies, and monitoring approaches to ensure the smooth operation of these features.

2. Identified Risks and Mitigation Strategies

2.1. Risk 1: Security and Privacy Vulnerabilities

Description: Integrating group shopping and social features (e.g., inviting users, sharing group carts) introduces security risks such as unauthorized access, data breaches, and privacy issues. Users may inadvertently expose personal data while interacting with social features.

Impact: High

Likelihood: Medium

Mitigation Strategy:

- Implement role-based access control (RBAC) to manage permissions.

- Use end-to-end encryption for social features and secure communications.

- Apply strict data validation and input sanitization across all user interfaces.

- Perform regular security audits and vulnerability testing.

Monitoring Plan:

- Continuous monitoring for suspicious activities and failed login attempts.

- Regular penetration tests and vulnerability assessments to check for exploitable flaws.

- Monitor server logs for unusual traffic spikes, indicative of possible attacks.

2.2. Risk 2: Poor User Experience (UX) in Group Shopping

Description: Group shopping, where users invite others to a shared cart, can become complicated due to synchronization issues, poor UI, or delays in updates (e.g., someone leaving a group, items being removed).

Impact: Medium

Likelihood: High

Mitigation Strategy:

- Implement real-time updates using technologies like WebSockets or Server-Sent Events (SSE) to ensure group members see cart changes instantly.

- Optimize UI for mobile and desktop platforms, ensuring a smooth experience across devices.

- Offer clear visual cues when a group member modifies the cart (e.g., notifications, color changes).

- Test the group shopping flow with real users to identify pain points early.

Monitoring Plan:

- Use analytics to track session times and behavior during group shopping interactions.

- Gather user feedback actively to detect recurring complaints or UX issues.

- Monitor performance metrics (load time, real-time updates) to ensure fluidity in group activities.

3. Monitoring and Control Process

- Regular Risk Reviews: Every quarter, risks will be reassessed based on new data from monitoring logs, user feedback, and security audits.

- Continuous Improvement: The development team will review real-time analytics and make iterative improvements to mitigate new risks.

- User Feedback Loop: Incorporate a mechanism for users to report bugs or UX issues directly from the platform, helping the team act promptly on reported risks.

4. Conclusion

The RMMM plan aims to proactively identify and address risks inherent in an e-commerce website with advanced group shopping and social activity features. The mitigation and monitoring strategies focus on maintaining security, delivering a seamless user experience, and ensuring long-term success for the platform.

Risk Identification Sheet(RIS)

Risk ID	Risk Description	Likelihood	Impact	Mitigation Strategy	Monitoring Strategy
R1	Security vulnerabilities due to social activity features and data sharing	Medium	High	Role-based access, encryption, regular audits, data sanitization	Monitor traffic for anomalies, regular penetration testing, analyze security logs
R2	Poor UX in group shopping due to synchronization or UI design flaws	High	Medium	Use WebSockets for real-time updates, improve UI, gather user feedback	Track user sessions, gather feedback, monitor cart changes and performance metrics