Online E-Commerce Website

Using Agile Methodology

Name : Disha Gujar

Branch : AIDS

College : TIT, Bhopal

Semester : 7th

1. Abstract

Online E-Commerce websites have transformed the traditional buying and selling process by providing a digital platform where customers can purchase products anytime and from anywhere. This project focuses on the development of an Online ECommerce Website using Agile methodology. The system allows users to browse products, add items to the cart, place orders, make secure online payments, and track deliveries. Agile methodology supports iterative development, continuous feedback, and flexibility to adapt to changing business requirements. The proposed system aims to deliver a scalable, reliable, and user-friendly e-commerce solution that enhances customer satisfaction and business efficiency.

2. Introduction

The rapid advancement of internet technologies and digital payment systems has led to the widespread adoption of online shopping platforms. An Online E-Commerce Website acts as a virtual marketplace where businesses can sell products and customers can shop conveniently without geographical limitations. These platforms simplify business operations such as inventory management, order processing, and customer support.

Traditional software development models are rigid and slow to accommodate changing requirements. Agile methodology addresses these limitations by promoting incremental development, close collaboration among stakeholders, and continuous improvement. This project uses Agile methodology to develop an Online E-Commerce Website that is flexible, scalable, and responsive to customer needs.

3. Objectives of the Project

The main objectives of this project are:

- To design and develop an Online E-Commerce Website.
- To provide a smooth and user-friendly shopping experience.
- To implement Agile methodology for flexible and iterative development.
- To ensure secure payment processing and data protection.

- To improve customer satisfaction and engagement.
- To deliver high-quality software through continuous testing and feedback.

4. Scope of the Project

The scope of the Online E-Commerce Website includes:

- User registration and authentication.
- Product listing and categorization.
- Product search and filtering.
- Shopping cart and checkout functionality.
- Secure online payment integration.
- Order tracking and order history.
- Admin module for managing products, users, and orders.

The system is scalable and can be enhanced in the future with features such as AIbased recommendations, mobile application support, and advanced analytics.

5. Overview Travel Booking Systems

An E-Commerce system is an online platform that facilitates buying and selling of goods and services over the internet. It automates business processes such as product management, order processing, and payment handling. **Types of E-Commerce Systems**

1. **Business to Consumer (B2C)** 2. **Business to Business (B2B)** 3. **Consumer to Consumer (C2C)** 4. **Consumer to Business (C2B 6. Agile Methodology Overview**

Agile methodology is an iterative and incremental approach to software development that emphasizes flexibility, collaboration, and continuous delivery of working software. Development is divided into small time-bound iterations called sprints, with each sprint delivering a functional part of the system.

6.1 Key Agile Principles

- Early and continuous delivery of valuable software.
- Welcoming changing requirements.
- Frequent collaboration with stakeholders.
- Continuous testing and improvement.
- Customer satisfaction as the highest priority.

6.2. Agile Framework Used – Scrum

Scrum is a widely used Agile framework suitable for dynamic projects like e-commerce platforms.

Scrum Roles

- **Product Owner:** Defines and prioritizes requirements.
- **Scrum Master:** Ensures Agile practices are followed.
- **Development Team:** Designs, develops, and tests the system. **Scrum Artifacts**
- Product Backlog
- Sprint Backlog
- Product Increment

6.3. Why Agile for Travel Booking Platform

E-Commerce platforms require frequent updates due to changing customer preferences, pricing strategies, and market trends. Agile methodology is suitable because:

- Requirements change frequently.
- Faster delivery of new features.
- Continuous user feedback improves usability.
- Reduced development risks.
- Better collaboration among teams.

7. System Architecture

1. The Online E-Commerce Website follows a multi-tier architecture:
2. **Presentation Layer:** User interface for customers and administrators.
3. **Application Layer:** Business logic for product management, cart, and orders.
4. **Database Layer:** Stores user data, product details, and transaction records.
5. **External Services:** Payment gateways and notification services.
6. This architecture ensures scalability, security, and maintainability.

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8. Functional Requirements

- User registration and login.
- Product browsing, search, and filtering.
- Shopping cart management.
- Order placement and cancellation.
- Online payment processing.
- Order tracking and notifications.

- Admin management of products and orders.

9. Non-Functional Requirements

- High system performance.
- Secure transactions and data storage.
- Scalability to handle large user traffic.
- Reliability and availability.
- User-friendly interface.
- Easy maintenance and upgrades.

10. Tools and Technologies Used

- **Frontend:** HTML, CSS, JavaScript
- **Backend:** Java / Spring Boot
- **Database:** MySQL
- **Payment Gateway:** Razorpay / PayPal
- **Agile Tools:** Jira, Git
- **Deployment:** Cloud-based server

11. Testing Strategy

Testing is conducted continuously throughout the Agile lifecycle:

- **Unit Testing:** Testing individual modules.
- **Integration Testing:** Testing interactions between modules.
- **System Testing:** Testing the complete system.
- **User Acceptance Testing (UAT):** Validating functionality with end users.

12. Advantages of CRM System

- 24×7 shopping availability.
- Wider market reach.
- Reduced operational costs.
- Faster order processing.
- Improved customer satisfaction.
- Better inventory and order management.

13. Limitations of the System

- Dependence on internet connectivity.
- Security risks if not properly managed.

- Initial development and infrastructure cost.
- Logistics and delivery challenges.

14. Future Enhancements

- AI-based travel recommendations.
- Dynamic pricing models.
- Mobile application development.
- Chatbots for customer support.
- Multi-language and multi-currency support.

15. Conclusion

The Online E-Commerce Website developed using Agile methodology provides a secure, scalable, and user-friendly platform for online shopping. Agile practices ensure continuous improvement, faster delivery, and adaptability to changing business requirements. The system enhances customer experience while supporting business growth, making it suitable for real-world deployment.