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**Wollo University**

**Kombolcha Institute of Technology**

**College of Informatics**

**Department of Information System**

Title:Web-Based Kombolcha Textile Online Shopping Platform

prepared by:

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**Approval sheet**

We, the undersigned, members of the Board of Examiners of the final open defense by List of students listed above, have read and evaluated their project entitled “**Kombolcha Textile Online Shopping Platform**” and examined the candidates. This is, therefore, to certify that the project has been accepted in partial fulfillment two-month ago in

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# ABSTRACT

In today’s fast-paced business environment, it’s essential to meet client needs efficiently and effectively. Customers expect businesses to be available online, with instant access to products and services.

**Kombolcha Textile Online Shopping Platform** is an e-commerce web application that allows customers to browse and purchase a variety of textile products, including garments and fabrics. Registered users can make purchases conveniently using the **Tele Birr payment processor (Instant Pay)** for fast and secure transactions.

Developing an e-commerce website requires knowledge of various technologies. This project incorporates a multi-tiered architecture, server and client-side scripting, and implementation technologies like **Next.js** and **React**, along with relational databases such as **MySQL**. The platform's main objective is to provide a seamless shopping experience through a user-friendly cart system while utilizing modern technologies to build a reliable and scalable solution.

# Acknowledgement

First and foremost, we would like to thank Almighty God for giving us the strength to complete this project. We are also deeply grateful to our mother, Covenant of Mercy, for her unwavering love, support, and constant prayers, which have been a pillar of strength throughout this journey.

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# CHAPTER ONE : INTRODUCTION

## 1.1Overview/ Background

The project is a **“Kombolcha Textile Online Shopping Platform”**, providing a dedicated platform for buying and selling textile products, such as garments, fabrics, and accessories. As part of this platform, users can sign up and log in using their email address. Once logged in, users can browse various textile products, add items to their cart, and proceed to checkout for final purchase and shipping. Users can also provide reviews for products they’ve purchased to help guide future buyers. Additionally, they can search products based on categories and be notified of special discount offers.

Our primary objective is to develop an exceptional online marketplace that serves three distinct user groups, each with unique roles and experiences:

* **Admin**: The admin manages the entire system, ensuring smooth operation and platform maintenance.
* **Clients**: These are everyday shoppers seeking a convenient and personalized shopping experience. The platform makes it easy for them to browse and purchase textile products that fit their needs.
* **Merchants**: The platform provides a space for textile producers, from small businesses to large companies, to showcase and sell their products in a user-friendly environment.

This proposal introduces an inclusive online marketplace tailored specifically for **Kombolcha Textile Share Company**. The platform is designed for three key roles: **clients** (shoppers), **merchants** (individuals selling on behalf of Kombolcha Textile), and **admin** (system management). The goal goes beyond just buying and selling—our platform simplifies the entire process with user-friendly navigation for shoppers, easy product management for merchants, and seamless system oversight for admins.

The integrated communication system and real-time updates ensure smooth collaboration between all user groups, while built-in analytics provide valuable insights to help improve operations and sales. This proposal aims to create a thriving online marketplace where all participants can engage successfully and benefit from the platform’s tools and features.

1.2. Statement of the Problem  
Ethiopia's eCommerce sector is still in its early stages, facing several challenges that hinder the growth of online shopping, particularly in the textile industry. One major issue is that many local businesses, including Kombolcha Textile Share Company, rely on traditional selling methods, limiting their ability to reach a wider audience and capitalize on online opportunities.

Key challenges include limited access to modern payment systems, inadequate internet penetration in rural areas, and low trust in online transactions. Additionally, the existing infrastructure is often insufficient to support large-scale eCommerce operations. As a result, many textile businesses struggle to transition from brick-and-mortar models to online marketplaces, missing the potential benefits of digital sales channels.

Consumers also encounter difficulties in accessing a diverse range of textile products conveniently. Furthermore, the absence of a comprehensive platform that integrates merchants and provides robust support for logistics creates a significant gap in the market.

This project aims to fill that gap by providing a localized eCommerce solution that addresses these challenges, supports all stakeholders—including merchants, customers, and service providers—and fosters a trustworthy online shopping environment. By transitioning to an online platform, Kombolcha Textile Share Company can enhance its market reach and provide a more convenient shopping experience for consumers.

## 1.3 Objective of the project

### 1.3.1 General objective

The main objective of this project is to build an efficient and user-friendly Kombolcha Textile Online Shopping Platform tailored to the local market. The platform will aim to bridge the gap between textile merchants, clients, and intermediaries by providing a secure, reliable, and scalable solution that enables online transactions, product showcasing, and service facilitation in a convenient way.

### 1.3.2. Specific Objectives

1. Integration with Local Payment Systems:

**Seamless Integration:** Ensure the platform integrates seamlessly with popular local payment methods like M-Pesa, CBE Mobile, and other relevant options to provide a convenient and familiar payment experience for Ethiopian customers.

* **Security and Reliability:** Prioritize the security and reliability of payment transactions, adhering to industry best practices and local regulations to protect customer data and maintain trust.

2. Localization and Cultural Sensitivity:

* **Language and Currency:** Support the use of Amharic language and Ethiopian Birr currency throughout the platform to cater to the local preferences and enhance user experience.
* **Cultural Nuances:** Consider cultural nuances and customs when designing the platform's user interface and features to ensure it resonates with the local market.

3. Mobile Optimization:

* **Responsive Design:** Develop a mobile-responsive platform that adapts to different screen sizes and devices, allowing users to access the platform conveniently from their smartphones and tablets.
* **Offline Functionality:** Explore the possibility of incorporating offline functionality or caching mechanisms to improve user experience in areas with limited internet connectivity.

4. Community Building and Engagement:

* **Social Features:** Implement social features like reviews, ratings, and forums to foster community engagement and encourage customer interaction.
* **Loyalty Programs:** Consider implementing loyalty programs or reward systems to incentivize repeat purchases and build customer loyalty.

5. Scalability and Performance:

* **Infrastructure:** Design the platform with scalability in mind to accommodate future growth and increased traffic.
* **Performance Optimization:** Optimize the platform's performance to ensure fast loading times and a smooth user experience.

6. Data Analytics and Insights:

* **Reporting Tools:** Provide comprehensive reporting tools to track key performance indicators (KPIs) and gain valuable insights into customer behavior, product performance, and market trends.
* **Data-Driven Decision Making:** Utilize data analytics to inform business decisions and identify opportunities for improvement.

## 1.4. Feasibility Analysis

### ****1.4.1 Operational Feasibility****

* **User-Centric Design:** The proposed Kombolcha Textile Online Shopping Platform is operationally feasible due to its user-friendly interface, designed to simplify the buying and selling processes for clients, merchants, and agents.
* **Streamlined Processes:** Clients can easily search for textile products, add them to their carts, and securely check out. Merchants benefit from streamlined product management, order processing, and integration with local payment gateways.
* **Efficient Administration:** Administrators will maintain the system, manage users, and oversee critical aspects like promotions and product reviews, ensuring smooth operations.
* **Scalability and Communication:** The platform's scalability and built-in communication tools will enable seamless interactions between all user groups, supporting real-time notifications and updates.

### ****1.4.2 Technical Feasibility****

* **Technology Stack:** A careful evaluation of the programming languages, frameworks, and databases will be conducted to ensure the platform's scalability, security, and compatibility with local payment gateways like Telebirr.
* **Development Team:** The necessary resources, including skilled developers and experienced project managers, will be assessed to ensure the successful implementation of the project.
* **Technical Challenges:** Potential technical hurdles, such as integrating various functionalities or ensuring secure data storage, will be identified and addressed proactively.

### ****1.4.3 Economic Feasibility****

* **Market Demand:** The Kombolcha Textile Online Shopping Platform is economically feasible due to the growing demand for online shopping in Ethiopia, particularly for textile products.
* **Risk Mitigation:** The platform addresses the risks associated with traditional buying and selling by connecting merchants with clients and ensuring product quality through agent oversight.
* **Revenue Generation:** The investment in development and operations is expected to be justified by the revenue generated from merchant fees, agent commissions, and transaction-based earnings.
* **Job Creation and Market Expansion:** The platform's success will contribute to job creation and expand market access for textile merchants.

#### ****1.4.3.1 Cost-Benefit Analysis****

* **Cost Identification:** The cost-benefit analysis will identify various costs associated with the project, including platform development, infrastructure, logistics integration, marketing, and ongoing maintenance.
* **Benefit Assessment:** Potential benefits such as revenue from merchant fees, client transactions, and agent commissions will be evaluated.
* **Return on Investment:** The expected benefits will be compared to the costs to determine the platform's profitability and sustainability.

#### ****1.4.3.2 Cost of the Project****

* **Initial and Ongoing Costs:** The overall cost will include initial development expenses and ongoing costs for infrastructure, marketing, and maintenance.
* **Investment Justification:** The investment will be justified by the platform's potential to generate revenue, create jobs, and contribute to the local economy.

### ****1.4.4 Schedule Feasibility****

* **Phased Approach:** The project will be divided into two main phases: documentation and implementation.
* **Timeline:** The documentation phase is estimated to take 2 months, while the implementation phase will last up to 4 months.
* **Successful Rollout:** This timeline allows for a comprehensive approach to building the platform, ensuring that all necessary features are developed, rigorously tested, and effectively launched.

## ****1.5 Scope and Limitations of the Project****

### ****1.5.1 Scope of the Project****

The Kombolcha Textile Online Shopping Platform will focus on the following key areas:

**Core Functionality:**

* + Development of a comprehensive e-commerce platform with features for clients, merchants, and agents.
  + Integration of secure payment gateways, including local options like Telebirr.
  + Implementation of a robust communication system for messaging and notifications.
  + Incorporation of analytics and reporting tools to track performance and gain insights.
  + Design of a user-friendly interface that is intuitive and accessible to all user types.

**Target Market:**

* + The platform will primarily target the local market in Kombolcha and surrounding areas, focusing on textile merchants and consumers within Ethiopia.

**Product Focus:**

* + The platform will initially focus on showcasing and selling textile products, such as fabrics, clothing, and accessories.

**Future Expansion:**

* + While the initial scope is focused on the textile market, the platform may consider expanding to include other product categories or regions in the future, depending on market demand and feasibility.

### ****1.5.2 Limitations of the Project****

* **Geographical Focus:** The platform will primarily serve the Ethiopian market, and its reach may be limited to regions with reliable internet connectivity.
* **Language and Cultural Barriers:** While the platform will be designed with local language and cultural considerations, there may be limitations in catering to a diverse range of users.
* **Technical Constraints:** The project may be subject to technical challenges, such as infrastructure limitations or compatibility issues with certain devices or browsers.
* **Resource Constraints:** The availability of financial resources, human capital, and technological capabilities may influence the project's scope and timeline.
* **Market Competition:** The platform will face competition from other online marketplaces, both local and international, which may impact its market share and growth.

## 1.6. Methodology

### ****1.6.1 Waterfall Model****

The Waterfall model, a linear and sequential approach, was selected for this project due to its structured phases and clear deliverables. Each phase must be completed before the next one begins, ensuring a systematic and organized development process.

**Key Phases:**

* **Requirement Analysis:** Gather and document detailed requirements from stakeholders, including clients, merchants, and agents.
* **System Analysis:** Analyze the collected requirements to understand the system's functionalities and design constraints.
* **System Design:** Develop detailed design specifications, including data structures, algorithms, and user interface elements.
* **Implementation:** Develop the system's code based on the design specifications.
* **Testing:** Conduct thorough testing to identify and fix defects.
* **Deployment:** Deploy the system into the production environment.
* **Maintenance:** Provide ongoing support, updates, and maintenance to ensure the system's continued operation.

### ****1.6.2 Data Collection Methods****

To gather accurate and relevant data, the development team will employ the following methods:

* **Interviews:** Conduct face-to-face, phone, or video interviews with customers, merchants, and agents to gain in-depth insights into their needs, preferences, and experiences.
* **Surveys and Questionnaires:** Distribute online surveys and questionnaires to collect quantitative and qualitative data from stakeholders.
* **Customer Feedback:** Gather feedback through post-purchase surveys to understand customer satisfaction and identify areas for improvement.
* **Direct Observation:** Observe customer behavior in real-time to gain insights into how they interact with the platform and identify potential usability issues.

### 1.6.3. Tools will use in the system

|  |  |  |
| --- | --- | --- |
| Tool catagory | Tool name | Description |
| Server-side programming | Php with frame work | A widely-used server-side scripting language for web  development. |
| Client-side  Programming | HTML | A standard markup language for creating the structure of web pages. |
| CSS | A style sheet language used to describe the presentation of a document written in a markup language like HTML. |
| JAVASCRIPT | A high-level, dynamic, and interpreted programming  language for creating interactive web pages. |
| Databasa management | MYSQL | A popular open-source relational database management system. |
| Code editor | Visual Studio code | A free and open-source code editor with support for  various programming languages. |
| Documentation | Microsoft Office  Word 2016 | A word processing software for creating and editing  documents. |
| Presentation | Microsoft office power point 2016 | A presentation software for creating and delivering  slide-based presentations. |
| Diagramming | EdrawMax | A comprehensive diagramming software for creating  various types of diagrams, such as use case diagrams,  activity diagrams, sequence diagrams, and class  diagrams. |
| Web Server | XAMPP | A free and open-source cross-platform web server  solution stack package, which includes Apache,  MySQL, PHP, and Perl. |

## 1.7 Significance of the project

### ****1.7.1 Significance for Clients****

* **Enhanced Shopping Experience:** Provides a user-friendly interface with advanced search and filter options, making it easy to discover and purchase textile products.
* **Informed Purchasing Decisions:** Offers secure payment gateways, ratings, and reviews to help clients make informed decisions.
* **Time and Cost Savings:** Eliminates the need for physical shopping trips, saving time and potential transportation costs.
* **Convenience and Accessibility:** Allows clients to shop from the comfort of their homes or devices, anytime and anywhere.

### ****1.7.2 Significance for Merchants****

* **Online Visibility:** Enables merchants to establish an online presence and reach a wider customer base.
* **Efficient Sales Management:** Provides tools for product management, order processing, and inventory tracking.
* **Expanded Market Reach:** Targets a broader audience through the online platform.
* **Marketing and Promotional Opportunities:** Offers features to promote products, increase visibility, and drive sales.
* **Data-Driven Decision Making:** Provides analytics dashboards to track sales performance, identify trends, and make informed business decisions.

### ****1.7.3 Significance for Admins****

* **Efficient Platform Management:** Provides tools for managing the platform, including user accounts, product listings, and system settings.
* **Monitoring and Analysis:** Enables admins to monitor platform performance, track key metrics, and identify areas for improvement.
* **Security and Compliance:** Helps admins ensure the platform's security and compliance with relevant regulations.

### ****Overall Significance****

The Kombolcha Textile Online Shopping Platform will contribute to the local economy by:

* **Promoting local businesses:** Providing a platform for textile merchants to sell their products online.
* **Creating job opportunities:** Supporting the growth of the e-commerce sector and related industries.
* **Enhancing customer satisfaction:** Offering a convenient and efficient shopping experience for clients.
* **Stimulating economic growth:** Contributing to the development of the e-commerce sector in Kombolcha and the wider region.

## 1.8. Budget and time schedule of the system

### 1.8.1. Budget of the system

estimated budget for this project, including tools and papers.

|  |  |
| --- | --- |
| Budget item | Estimated Cost |
| Tools and software | Open source |
| Descktop, Laptop | 50,0000 |
| Integrated Development  Environment (IDE) | Open source |
| Version Control System (e.g., Git) | Open source |
| Database Management System | 10,000 |
| Web Server and Application Server | 10,000 |
| Payment Gateway Integration | 10,000 |
| Total |  |

|  |  |
| --- | --- |
| Budget item | Estimated cost |
| Papers and Documetation | 2,000 ETB |
| System architecture and Design Documents | 1,500 ETB |
| User stories and Requirements specification | 1,000 ETB |
| Test plans and test cases | 1,000 ETB |
| Operation and maintenance manual | 2,000 ETB |
| Total |  |

### **1.8.2. Time schedule of the project**

brief overview of the typical time schedule for an e-commerce project

Table 4: Time schedule

|  |  |  |
| --- | --- | --- |
| program | Time line | description |
| Planning and Design | 2-4 weeks | Define project requirements, conduct market research, and design the user experience. |
| Development | 4-6 weeks | Set up the e-commerce platform and build the website, integrating with payment and other services. |
| Content Creation | 2-4 weeks | Create product descriptions, images, and other website content. |
| Deployment and  Launch | 1-2 weeks | Finalize hosting, testing, and staff training before rolling out the live website. |
| Ongoing Maintenance | continuous | Monitor performance, update content,and optimize the site over time. |

**Objective:** To establish clear communication channels and protocols to ensure effective information flow among all stakeholders involved in the Kombolcha Textile Online Shopping Platform project.

## 1.9 . Communication plan

**Objective:** To establish clear communication channels and protocols to ensure effective information flow among all stakeholders involved in the Kombolcha Textile Online Shopping Platform project.

**Key Communication Channels:**

* **Weekly Progress Meetings:** Regular meetings will be held to discuss project progress, address any challenges, and ensure alignment among stakeholders.
* **Email Summaries:** Detailed email summaries will be sent after each meeting to recap key points, action items, and next steps.
* **Project Management Tool:** A dedicated project management tool will be used to facilitate collaboration, document sharing, and task tracking.
* **Centralized Communication Platform:** A platform (e.g., online forum, help desk) will be provided for stakeholders to ask questions, seek support, and engage in discussions.

**Communication Protocols:**

* **Regular Updates:** Stakeholders will receive regular updates on project progress, including project milestones, timelines, and any significant changes.
* **Open Communication:** A culture of open and transparent communication will be fostered, encouraging stakeholders to share information and raise concerns.
* **Response Timeframes:** A clear response time for inquiries and support requests will be established to ensure timely assistance.
* **Feedback Mechanism:** A feedback mechanism will be in place to gather input from stakeholders and continuously improve communication processes.

**Stakeholder Engagement:**

* **Merchants:** Regular communication will be maintained to address their specific needs and concerns related to product listings, sales, and platform features.
* **Clients:** Clear communication channels will be provided to address customer inquiries, provide support, and gather feedback on the shopping experience.
* **Admins:** Regular updates and communication will be provided to keep admins informed about project progress, technical issues, and platform maintenance.

## 1.10 .Team composition of the project

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Task no. | Task list | Accomplished by | | | |
| Habtamu | Eyerusalem | Dainel | Etsube |
|  | Project organization and progress controlling |  |  |  |  |
|  | Database designing |  |  |  |  |
|  | content development |  |  |  |  |
|  | Graphic designing |  |  |  |  |
|  | Document analyzing |  |  |  |  |
|  | Communicating anddecision making |  |  |  |  |
|  | Presenting and giving orientation to advisor and department staff member |  |  |  |  |
|  | preparing documentation |  |  |  |  |
|  | Preparing report |  |  |  |  |
|  | Gathering requirement |  |  |  |  |
|  | Analyzing and specifying requirement |  |  |  |  |
|  | Receiving feedbacks |  |  |  |  |

# CHAPTER TWO BUSINESS AREA ANALYSIS

**Definition**

System Analysis is the detailed study of the various operations performed by the system and their relationships within and outside the system. Analysis is the process of breaking something into its parts so that the whole may be understood. System analysis is concerned with becoming aware of the problem, identifying the relevant and most decisional variables, analyzing and synthesizing the various factors and determining an optimal or at least a satisfactory solution. During this a problem is identified, alternate system solutions are studied and recommendations are made about committing the resources used to design the system.

## 2.1 DESCRIBING THE EXISTING SYSTEM

The existing system refers the manual system that is available currently.

In this chapter we deeply describe the existing system in order to have a better understanding and a massive knowledge about the existing. And we will have the concept of why describing the existing system, hierarchical organization of existing system, work flow of the existing system, the problems in the existing system, alternative solutions and the proposed system.

### 2.1.1 WHY DESCRIBE THE EXISTING SYSTEM

The main reason why the existing system describing is:-

* To know the back ground of the existing system.
* To identify which of these problems could be solved by the current project.
* To determine the essential business practice to be preserved if any.
* To identify problem of the existing system.
* To know the statement of the problem and challenge of the system and to come up with the perfect solution.
* Generally, we are describing the existing system to know or to have a detailed understanding with the overall work flow of the existing system.

### 

### 2.1.2 HIERARCHICAL STRUCTURE OF THE ORGANIZATION

### IMG_256

### 2.1.3 WORKFLOW OF THE EXISTING SYSTEM

## ****2.1.4 Problems of the Existing****

### ****Performance Issues****

* **Slow Response Time:** Manual systems often suffer from slow response times due to the need for manual data retrieval and processing.
* **Inefficiency:** Manual processes can be time-consuming and resource-intensive, leading to inefficiencies in operations.

### ****Security and Control Concerns****

* **Lack of Security:** Manual records are vulnerable to unauthorized access, modification, or loss.
* **Limited Control:** Manual systems lack proper authentication and authorization mechanisms, making it difficult to control access to sensitive information.

### ****Economic Disadvantages****

* **High Costs:** Manual operations can be costly due to the consumption of resources such as paper, time, and manpower.
* **Inefficient Resource Allocation:** Manual systems may not optimize resource allocation effectively.

### ****Data Storage and Management Challenges****

* **Accessibility Issues:** Data stored in manual systems can be difficult to access, especially when records are scattered in different locations.
* **Data Integrity:** Manual data entry and storage can lead to inconsistencies, errors, and data redundancy.
* **Limited Flexibility:** Making changes or edits to manual records can be cumbersome and time-consuming.

## ****2.2 Alternative Options****

Given the limitations of the manual purchasing system, the team proposes the following alternative options:

1. **Desktop Application:** Develop a dedicated desktop application to automate purchasing processes.
2. **Web-Based Platform:** Create a web-based platform that can be accessed from anywhere with an internet connection.

**Analysis and Selection:**

After careful analysis of both options, the team has selected the **web-based platform** as the preferred alternative due to its:

* **Accessibility:** A web-based platform can be accessed from various devices and locations, improving accessibility for all stakeholders.
* **Efficiency:** Web-based systems can streamline processes, reduce manual tasks, and improve overall efficiency.
* **Scalability:** A web-based platform can be easily scaled to accommodate growth and changing requirements.
* **Integration:** Web-based platforms can integrate with other systems and tools, enhancing functionality and data sharing.

By transitioning to a web-based platform, the organization can address the challenges of the manual purchasing system and improve its overall operations, efficiency, and security.

## 2.3 The PROPOSED SYSTEM

**Objective:** To develop a comprehensive e-commerce platform that addresses the limitations of the existing system and provides a seamless experience for all stakeholders.

**Key Features:**

### ****For Merchants:****

* **Centralized Product Management:** A user-friendly interface for managing product listings, inventory, and pricing.
* **Real-Time Inventory Tracking:** Accurate and up-to-date information on product stock levels.

### ****For Clients:****

* **Enhanced Shopping Experience:** Intuitive search, filtering, and browsing features.
* **Personalized Recommendations:** Tailored product suggestions based on customer preferences.
* **Secure Checkout:** A safe and reliable payment process.

### ****For Admins:****

* **Comprehensive Dashboard:** A centralized dashboard for overseeing the entire platform.
* **Analytics:** Detailed analytics on sales, customer behavior, inventory levels, and other key metrics.
* **Regulatory Compliance:** Ensuring adherence to relevant regulations and standards.

### ****Additional Features:****

* **Integrated Logistics:** A seamless integration with logistics providers for efficient delivery.
* **Customer Support:** A dedicated customer support team to address inquiries and resolve issues.
* **Marketing Tools:** Features to promote products and attract customers.

## 2.4. Specific Requirements

This section details the functional and non-functional requirements for the web-based e-commerce application. Functional requirements specify what the system should do, while non-functional requirements define how the system should perform those functions.

### 2.4.1. Functional Requirements

#### 2.4.1.1. User Registration and Authentication

* **Registration Process**: Users must be able to create an account by providing essential information, such as name, email address, and password. An email verification step should be included to confirm the registration.
* **Login/Logout**: Users should be able to log in using their registered email and password, with options for password recovery and "remember me" functionality.
* **Role Management**: The system must differentiate between customers, merchants (who represent Kombolcha Textile), and administrators, providing appropriate access and functionalities based on the user type.

#### 2.4.1.2. Product Catalog Management

* **Product Listings**: Merchants must be able to add, edit, and remove products from the catalog, including product details such as name, description, price, images, and stock levels.
* **Categories and Tags**: The system should allow categorization of products for easy navigation and searching. Merchants can assign tags to products for better discoverability.

#### 2.4.1.3. Shopping Cart and Checkout Process

* **Cart Functionality**: Users should be able to add products to a shopping cart, view cart contents, and modify item quantities or remove items as needed.
* **Persistent Cart**: The system must retain the user's cart contents between sessions, allowing for a seamless shopping experience.
* **Checkout Process**: The checkout process must be streamlined, guiding users through entering shipping information, selecting shipping methods, and reviewing orders before finalizing purchases.

#### 2.4.1.4. Payment Processing

* **Payment Gateway Integration**: The application must support a payment method like Telebirr.
* **Order Confirmation**: Upon successful payment, users should receive an immediate confirmation email with order details and tracking information.

#### 2.4.1.5. Order Management

* **Order Tracking**: Users should be able to track the status of their orders through the application, receiving notifications for order updates (e.g., shipped, delivered).
* **Order History**: The system must allow users to view their past orders and re-order items easily.

#### 2.4.1.6. Search Functionality

* **Search Bar**: The application must include a prominent search bar that allows users to search for products by name, category, or tags.
* **Filters and Sorting**: Users should be able to filter search results by price, availability, and other criteria. Sorting options should include relevance, price (low to high and vice versa), and newest arrivals.
* **Auto-suggestions**: As users type in the search bar, the system should provide auto-suggestions for products and categories.

#### 2.4.1.7. Reporting and Analytics

* **Sales Reports**: Merchants must have access to detailed sales reports, including total sales, average order value, and sales trends over time.
* **User Analytics**: The system should track user behavior, such as product views, purchase history, and abandoned carts, to generate insights for improving marketing strategies.
* **Dashboard**: A user-friendly dashboard should be provided for merchants and administrators, summarizing key metrics and performance indicators.

## 2.9 Essential Use Cases

Use cases describe interactions between users and the system, illustrating how the application fulfills functional requirements. Below are some essential use cases for the web-based e-commerce application.

**E-commerce**

**Merchant**

**New user**

**Registered user**

**Register**

**product search and view item**

**checkout**

**submit review**

**access order**

**make purchase**

**add new product**

**Reply feedback**

**post feedback**

**add and reject user**

**admin**

**add merchant**

**view report**