

SOFTWARE REQUIREMENT ANALYSIS DOCUMENT



CSE3112: SOFTWARE ENGINEERING LAB

App Name

Swapno - An Ecommerce App

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1 Introduction

1.1 Purpose of the System

The Swapno e-commerce app endeavors to revolutionize the online shopping experience by providing a dynamic platform that seamlessly connects buyers and Admin. Our goal is to create a robust ecosystem that fosters trust, convenience, and efficiency, ultimately enhancing the overall e-commerce landscape.

1.2 Scope of the System

The scope of the Swapno system encompasses two primary components: a user-facing mobile application developed using Flutter and a sophisticated web-based admin panel, also built with Flutter. These components collectively aim to facilitate a comprehensive e-commerce solution, spanning product browsing, purchasing, order management, searching the product by category and product name, and administrative oversight.

1.3 Objective and Success Criteria of the Project

1.3.1 General Objective

Our overarching objective is to develop a state-of-the-art e-commerce platform that sets new standards for user experience and operational efficiency.

1.3.2 Specific Objectives

- Design and implement intuitive user interfaces for both the mobile app and web admin panel.
- Integrate secure and reliable payment gateways to facilitate seamless transactions.
- Ensure scalability and flexibility to accommodate future growth and technological advancements.

1.3.3 Success Criteria

- Achieve high levels of user engagement, reflected in metrics such as active user counts and conversion rates.

- Maintain stable system performance with minimal downtime, ensuring a seamless shopping experience.
- Garner positive feedback from users and administrators, indicating satisfaction with the platform’s functionality and usability.

1.4 Definitions and Acronyms and Abbreviations

- **Swapno:** The name of the online platform for buying and selling product.
- **Buyers:** Users who purchase books on the Swapno platform.
- **Sellers:** Users who offer books for sale on the Swapno platform.
- **Administrators:** Users with system-level access to manage the Swapno platform.
- **UI:** User Interface.
- **API:** Application Programming Interface.

1.5 References

- Flutter documentation: <https://docs.flutter.dev/>
- Industry-standard e-commerce best practices
- Market research reports on e-commerce trends and consumer behavior

1.6 Overview

This document serves as a comprehensive guide for recruitment efforts related to the development of the Swapno e-commerce app. By outlining the project’s objectives, scope, and success criteria, it provides a solid foundation for identifying and acquiring the talent necessary to bring this vision to life.

2 Overall Description

2.1 Product Perspective

The Swapno e-commerce app represents a groundbreaking addition to the digital marketplace, offering a unique blend of user-centric features and pow-

erful administrative tools. As a standalone platform, it serves as a centralized hub for buying and selling goods, with the user app providing a seamless frontend experience and the admin panel facilitating efficient backend operations.

2.2 Product Functions

2.2.1 User App Functions

- Browse products across various categories
- Add products to cart and manage cart contents
- Securely complete transactions via integrated payment gateways
- Track order status
- Rate and review purchased products to share feedback with the community
- Searching Feature
- Suggested Specific Product for Specific User
- Notification
- Contact to Admin

2.2.2 Admin Panel Functions

- Manage product listings, including additions, modifications, and removals
- Monitor and fulfill orders, with features for tracking order status and managing inventory
- Administer user accounts, including user registration, authentication, and account management
- Access comprehensive analytics and reporting tools to gain insights into user behavior, sales performance, and market trends

2.3 User Profiles

- **Users:** A diverse group of consumers (Different Categories) seeking to purchase products online .
- **Admins:** Skilled professionals responsible for managing various aspects of the e-commerce platform, including product listings, order fulfillment, and user management.

2.4 Constraints

- Development timeline: The project must adhere to a predefined schedule to meet launch deadlines.
- Large Scale limitations.
- Payment processing limitations

2.5 Assumptions and Dependencies

2.5.1 Assumptions

- Users possess basic familiarity with mobile and web applications, minimizing the need for extensive onboarding processes.
- Stable internet connections are readily available to users, facilitating seamless access to the e-commerce platform.

2.5.2 Dependencies

- The project relies on the Flutter framework for both mobile app and web development, necessitating expertise in Flutter and associated technologies.
- Backend services, including databases and APIs, are essential for supporting core functionalities such as user authentication, payment processing, and data management.
- The project is dependent on the availability of the third-party payment gateway to process the online transactions.


3 Specific Requirements

3.1 Overview

- **User Registration:** The system will allow users to register with their basic information, including their name, email address, and a password.
- **User Login:** The system will provide a login page for registered users to access their accounts.
- **Product Search:** The system will provide a search functionality for users to search for product by title, name, or category.
- **Product Details:** The system will display book details such as the title, name, price, and availability.
- **Order Placement:** The system will allow users to place orders for product by adding them to their shopping cart and providing their shipping address and payment information.
- **Order Tracking:** The system will provide users with the ability to track their order status, including the estimated delivery date and shipping carrier information.
- **Payment Gateway:** The system will integrate with a payment gateway to securely process online payments for orders.
- **User Reviews:** The system will allow users to write and view reviews for products.
- **Admin:** The system will enable admins to manage product listings, orders, users, and reviews.
- **Security:** The system will implement industry-standard security measures to protect user data and prevent unauthorized access.

3.2 Functional Requirement

ID	3.2.1
Name	User Authentication
Description	The system must allow users to create an account and log in to access the platform. Authentication must be secure and use strong password policies, and the system must ensure that only registered users can purchase products.
Priority	High

ID	3.2.2
Name	Search Function
Description	The system must have a search function that allows users  search for products according to names or category. The search function should return results that are relevant to the user's query and sort them by relevance.
Priority	High

ID	3.2.3
Name	User Profile Management
Description	Once logged in, users must be able to edit their profiles, update their personal information, and add a profile picture. The system must also allow users to delete their accounts if desired.
Priority	Low


ID	3.2.4
Name	Payment Gateway
Description	The system must implement payment gateways to provide payment methods to users.
Priority	High

ID	3.2.5
Name	Notification System
Description	The system must have a notification system that alerts buyers about the confirmation of their orders and about new products. It must notify the sellers about new orders so that they can confirm them. The system must also allow users to customize their notification settings.
Priority	High

ID	3.2.6
Name	Review
Description	The users must be able to review books and rate them. They can also read other people's reviews.
Priority	Low

ID	3.2.7
Name	Contacting
Description	Buyers and admin must be able to contact each other in case of any queries.
Priority	Low

ID	3.2.8
Name	Reporting Function
Description	The system must have a reporting function that allows users to report technical issues of the platform. The system must have a clear process for handling reports and enforcing platform guidelines.
Priority	Low

ID	3.2.9
Name	Order Status
Description	The system should give the buyers the current status of th  orders, such as, if the order is accepted by the buyers or it is shipped. It also shows information about whether the payment is accepted or not.
Priority	Low

ID	3.2.10
Name	Order and customer information
Description	The system should give the sellers information about what orders have been placed and necessary information like the location of the customer and the payment method.
Priority	High

3.3 Non Functional requirement

3.3.1 Usability

- Intuitive user interface
- Minimal training required for users
- Customizable user experience
- Clear and concise documentation
- Consistency in design and functionality
- Compliance with usability standards
- Clear error messages and recovery options
- Fast response times and minimal downtime
- Handling concurrent users without performance decrease

3.3.2 Reliability

- Intuitive user interface
- Defined uptime percentage
- Consistent performance
- Reliable payment and delivery methods
- Effective error handling

- Fault tolerance
- Recoverability with minimal data loss
- Scalability without performance degradation

3.3.3 Performance

- Maximum page load time
- Handling concurrent users
- Search functionality response time
- Order processing time
- Scalability to accommodate growth
- Efficient error handling

3.3.4 Supportability

- Maximum page load time
- Modular design
- Comprehensive documentation
- Error logging and reporting
- Scalability
- Compatibility with different platforms
- Accessible support channels
- Upgradability

3.3.5 Security

- User authentication and data encryption
- Secure payment processing
- Protection of user data
- Clear privacy policy
- Password complexity requirements

3.3.6 Testability

- Test case management
- Automated testing
- Performance testing
- Security testing
- User acceptance testing

3.4 System Model

3.4.1 Scenarios

3.4.1.1 User Registration Users create an account by providing necessary information such as name, email, and password.

3.4.1.2 Searching for Products Users can search for products by entering keywords or browsing through categories.

3.4.1.3 Placing an Order Users select desired products, add them to the cart, proceed to checkout, and complete the order by providing shipping and payment details.

3.4.1.4 Tracking an Order Users can monitor the status and location of their orders through the order tracking feature.

3.4.1.5 Managing User Accounts Users can update their personal information, change passwords, and view order history.

3.4.1.6 Admin Login and Management Admins log in to their accounts to manage product inventory, process orders, and handle other aspects related to their store.

3.4.1.7 Adding Products to Inventory Sellers can add new products to their inventory by providing product details and uploading images.

3.4.1.8 Setting Prices and Discounts Sellers can set prices for products and apply discounts or promotional offers as needed.

3.4.1.9 Managing Orders Sellers can view and manage incoming orders, including confirming, processing, and fulfilling orders, as well as handling cancellations or returns.

3.4.2 UseCase

Name	Creating a User Account
Actor	Customer, Admin
Flow of events	The users will be able to create an account. While creating the account, the users will need to give necessary information like their delivery location and payment information.
Entry Condition	Users will give information to create the account
Exit Condition	The account will be created and the information will be saved in the Firebase database

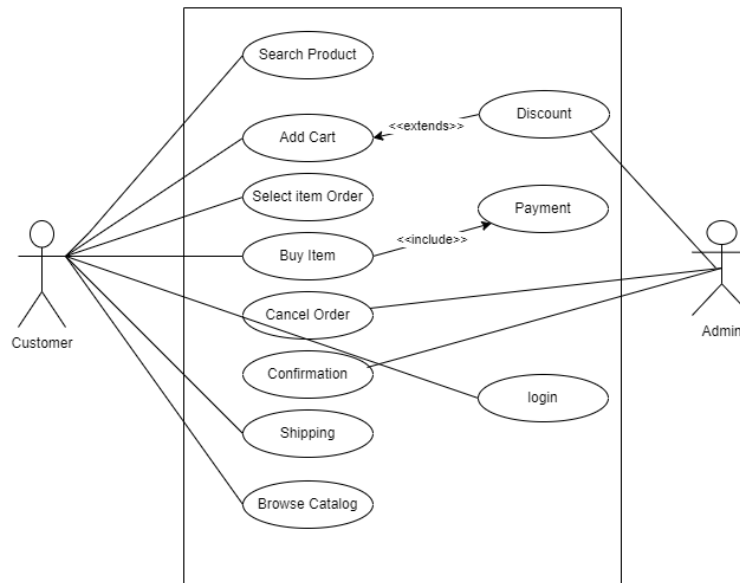
Name	Searching for Product
Actor	Customer, Admin
Flow of events	The users will be able to search Product based on the name, author, publishers or genres
Entry Condition	Users will give the name or product description in the searchbar
Exit Condition	The system will retrieve the information about the product and display it

Name	Add Product to the cart
Actor	Customer, Admin
Flow of events	The users will be able to add their desired product to the cart and continue shopping or finish shopping by confirming the order.
Entry Condition	Users will click add to cart and confirm the order by giving necessary information
Exit Condition	The system will retrieve the information and send the order to admin to customer for confirmation

Name	Buy Item
Actor	Customer, Admin
Flow of events	The users will be able to buy their desired which is store in the cart also he or she gets discount
Entry Condition	Users will click confirmation and give Payment
Exit Condition	The system will retrieve the information and Accept the order and place it for user

Name	Cancel Order
Actor	Customer, Admin
Flow of events	The users will be able cancel their order .
Entry Condition	Users will click cancel button and give some information for requesting cancel ortder
Exit Condition	The system will retrive information from the user and check it and cancel particular user request

3.4.3 Use Case Model



3.4.4 Sequence Diagram

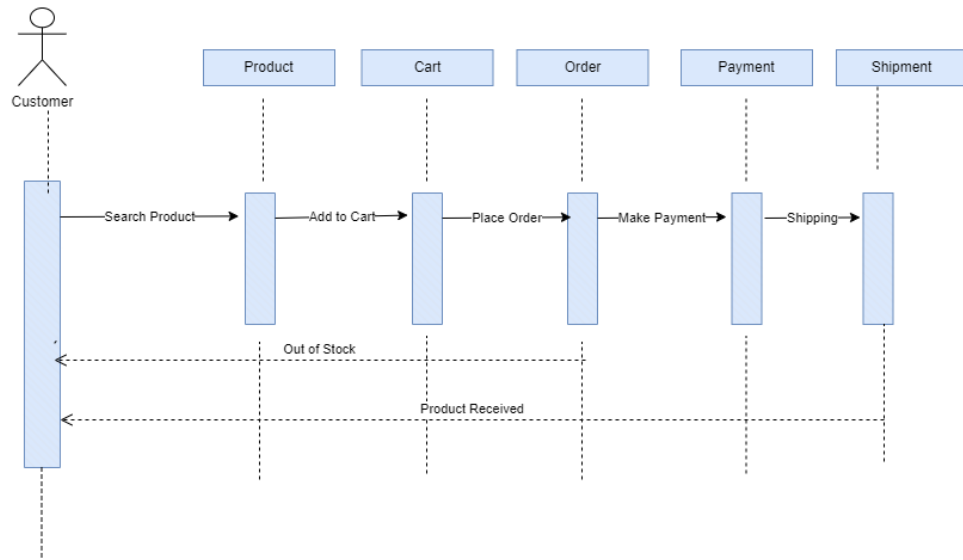


Figure 2: Sequence Diagram

3.4.5 Activity Diagram

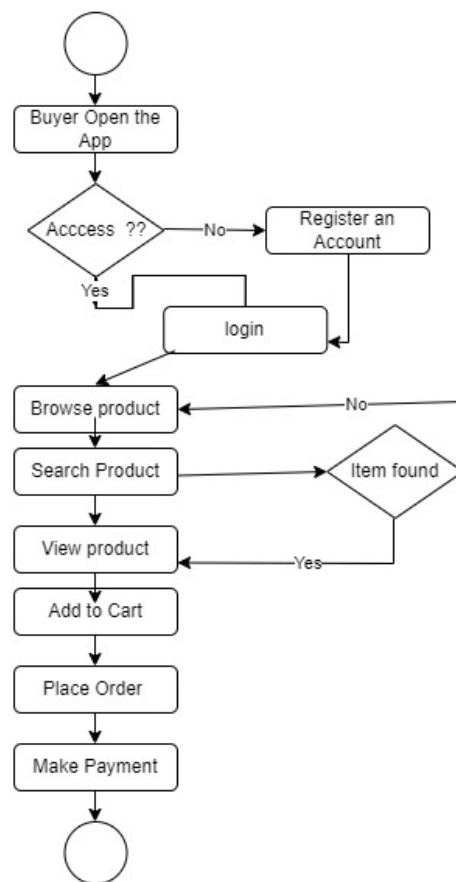


Figure 3: Activity Diagram

3.4.6 Class Diagram

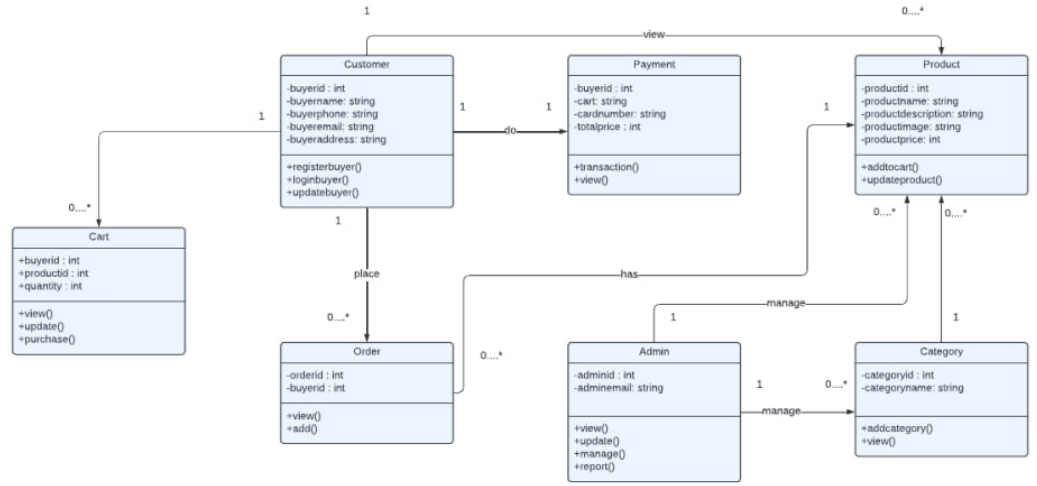


Figure 4: Class Diagram

3.4.7 Interfaces

3.4.7.1 User Interface

- **Main Page:** The main page shows all the options for the system. It includes everything from browsing products, search functionality, product categories, etc. Users will be able to navigate to all of these pages. The interface should be intuitive and easy to navigate to allow users to access the desired functionalities without confusion. A well-organized navigation bar with links to different pages of the application should be available on every page.
- **Search functionality:** The interface should have a search bar that allows users to search for products based on various criteria such as product name, category, brand, and keywords.

- **Product details page:** The product details page should contain all the relevant information about the product, including the title, description, price, images, specifications, reviews, and related products.
- **Shopping cart:** The interface should include a shopping cart that allows users to keep track of the products they intend to purchase, view the total cost of their orders, and modify or remove items from their cart.
- **Checkout process:** The checkout process should be streamlined and user-friendly to enable users to complete their purchases without any hassle. The interface should include a secure payment gateway that accepts various payment methods.
- **User profile:** The interface should allow users to create and manage their profiles, view their order history, manage their addresses and payment methods, and track their orders.
- **Feedback:** This section is for providing feedback to the developers over possible improvements to the platform.

3.4.7.2 Software Interface The project is mainly a Android application. The project will need to connect to a firebase database to store and retrieve product information, user profiles, and order details. We use flutter for android Application and also we have a admin webbased admin panel .

3.4.7.3 Hardware Interface Any device with a modern Android App should be sufficient to access the eCommerce platform. It must have a working and stable Internet connection in order to browse and make purchases.

4 Supporting Information

As of this moment, we do not have any supporting information that needs to be documented. If we face such an information, we will update it with the necessary information.