# Online Shopping System (SRS Report)

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# Online Shopping System
## (SRS Report)


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# 1.ABSTRACT

The Online Shopping System Software requirements Specification (SRS) report outlines the essential specifications and requirements needed to develop a dependable and user-friendly online shopping platform. In the current digital era, e-commerce has become an essential part of the retail environment. This SRS document offers the framework for creating an efficient and user-friendly online purchasing experience for both administrators and customers.

This project's main goal is to design, develop, and implement an online shopping system that satisfies the diverse demands of modern consumers. This system will offer a wide range of products, user-friendly interfaces, secure payment options, and efficient order management for clients. It will also give administrators access to comprehensive inventory and sales administration tools.

# 2.0bjective

l. Offer a User-Friendly Shopping Experience: The main goal of this online shopping system project is to develop a platform that, by being simple to use and intuitive, makes online purchasing easier for customers. This has a lot of features, like easy-to-use product searches, straightforward checkout processes, and straightforward navigation. Abstraction makes things easy for the user.

2. Secure Transactions: Implement robust security measures to protect client information, financial data, and online transactions. This objective is crucial in order to increase consumers' self-assurance and perception of trustworthiness.

3. Effective Order Management: Make it easier for administrators to update stocks, handle client data, and handle orders by streamlining the administrative processes.Detailed User Documentation: To help users and administrators alike comprehend and utilize the system efficiently, provide an in-depth user manual.

2. Scalability and Future-Proofing: Build the system with expansion and improvements in mind, making it simple to include new features and technological advancements as the e-commerce industry changes.

3. Quality Assurance and Testing: To find and fix any problems or faults in the system and ensure a high-quality final result, do extensive testing, including unit testing, integration testing, and user acceptability testing.

4. Project Completion and Schedule Adherence: Follow the project timeline and milestones to ensure that the project is completed on time and within budget.

5. Customer happiness: The project's ultimate goal is to achieve high levels of customer happiness by offering a simple and safe online shopping experience, which promotes customer loyalty and repeat business.

By achieving these goals, the Online Shopping System project will improve the satisfaction of customers, help the platform expand and survive in the fiercely competitive online retail market, and assist the success of the e-commerce industry.

# 3.1ntroduction

## 3.1.Purpose:

In an attempt to serve as both a guide for programmers and an example of high-quality software for prospective users, this article lists the features of open source software. The Online Shopping System (OSS) seeks to provide vendors and customers with all-inclusive solutions through a single online access point. Suppliers will be able to establish online storefronts where clients may browse the stock and make purchases without having to visit the business. Requests for new shops can be approved or rejected by a system administrator, who can also keep different lists of store categories.

## 3.2.Scope:

This system enables customers to keep their carts for future additions or take down the merchandise over the internet.

## 3.3.Definitions:

OSS: Online Shopping System

SRS: Software Requirements Specifications

GUI: Graphical User Interface

Stakeholder: The person who will participate in the system

For example, visitor, administrator, and customer

## 3.4.Overview:

Using this strategy, customers may simply purchase things without physically visiting the store, and shop owners can effortlessly sell products.
Even the most novice users can benefit from this recommended approach, which doesn't call for any formal schooling, professional experience, or advanced computer knowledge. But those who are adept at using computers will find it most useful.

# 4.1Which SDLC models can be used?

Several Software Development Life Cycle (SDLC) models can be taken into consideration for an Online Shopping System contingent on the needs, schedule, and unique features of the project. A few SDLC models that are frequently used for these kinds of projects are listed below, along with benefits and drawbacks:

## Waterfall Model: Advantages:

1)Methodical and unambiguous, appropriate for clearly defined projects.
2)Simple to oversee and monitor advancement.
3)Phases that are thoroughly documented are easier for stakeholders to comprehend.

## Disadvantages:

1 )Less able to adjust to shifting needs, which can be problematic in a market for ecommerce that is constantly changing.
2)Long project duration might not be compatible with the need for frequent feature additions and updates.

## Agile Framework:

## Advantages:

1 )incredibly flexible in response to shifting needs, which is typical in e-commerce.
2)Continuous improvement is made possible by frequent iterations and releases.
3)Feedback from customers can be included.

## Disadvantages:

1)Calls for cooperation and active participation from stakeholders, which can be difficult.
2)May not have as thorough of documentation as other models, which could raise issues with compliance or legal requirements.

# Which SDLC models can be used?

## Iterated Waterfall Model: Advantages:

1 )Allows for the system to be gradually improved through numerous iterations.
2)Lowers the possibility of a major project failing.
3)Ideal for projects whose needs are ambiguous or constantly changing.

## Disadvantages:

1)Can result in scope creep if improperly handled.
2)Needs to be carefully planned and monitored to make sure that every iteration brings value

## Spiral Model:

## Advantages:

1) Focuses on risk management and can assist in early detection and resolution of problems.

2)Focuses on risk management while combining incremental and iterative development.

### Disadvantages:

1 )Intricate and could necessitate a large amount of risk analysis work.
2)Ineffective management of risk analysis might lead to an increase in project expenses.

## Rapid Development of Applications (RAD):

Advantages:

1 )Use prototypes and pre-built parts to expedite development. 2)Ideal for work that need to be completed quickly.

Disadvantages:

1 )May not be appropriate for tasks requiring special or intricate requirements.
2) Can result in worse quality if quick cuts are made during the development phase.

# 4.2 SDLC Diagram

Below is the SDLC Diagram for Waterfall Model.

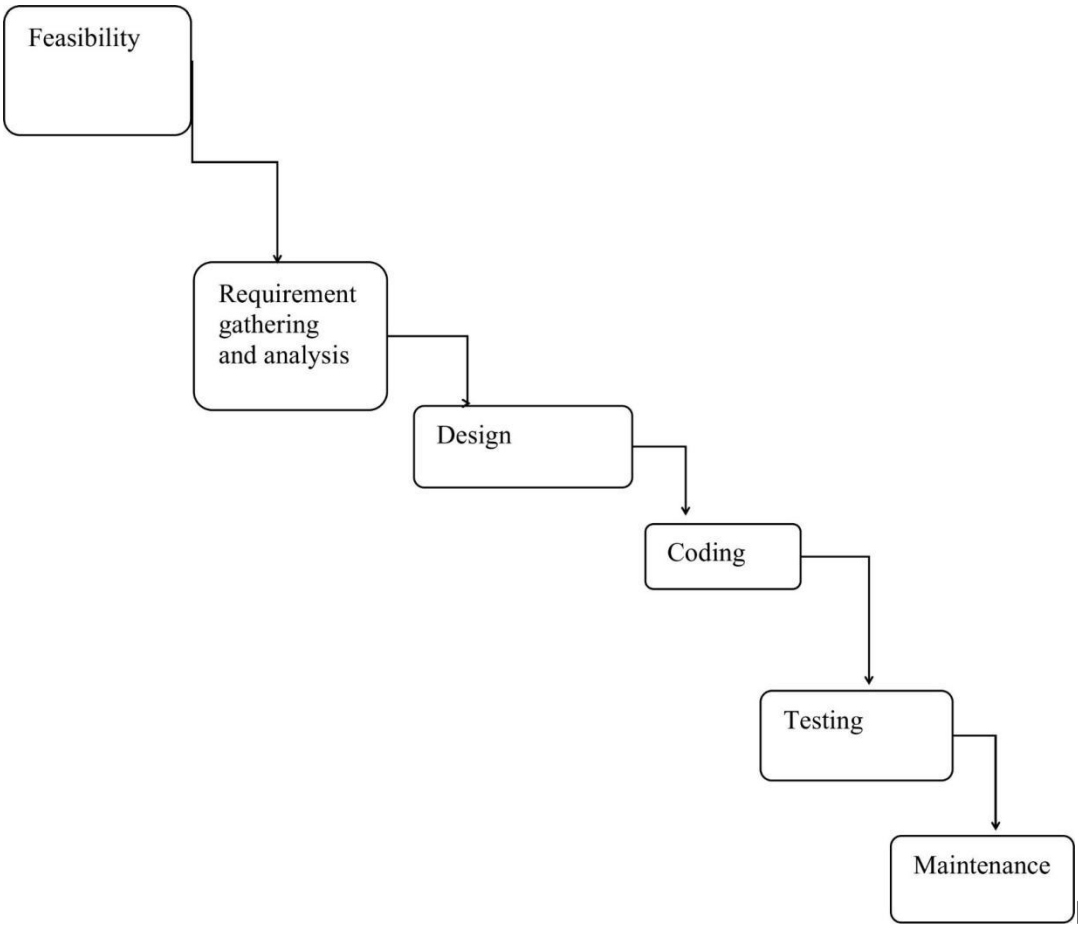


Fig 4.1

Below is the SDLC Diagram for Spiral Model.

1.0bjectives determination and identify alternate solutions

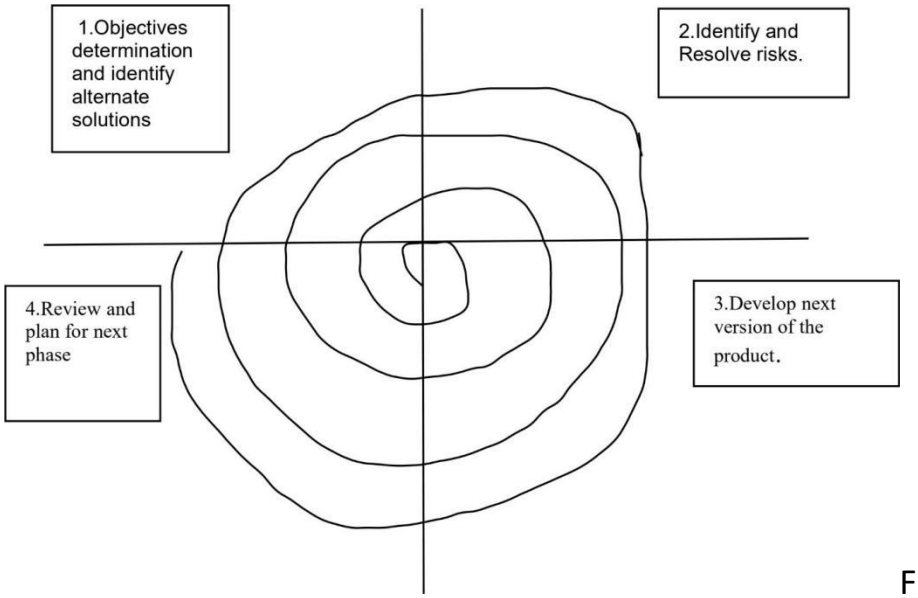


Fig 4.2

# 4.2 SDLC Diagram

Below is the SDLC Diagram for Iterative Waterfall Model.

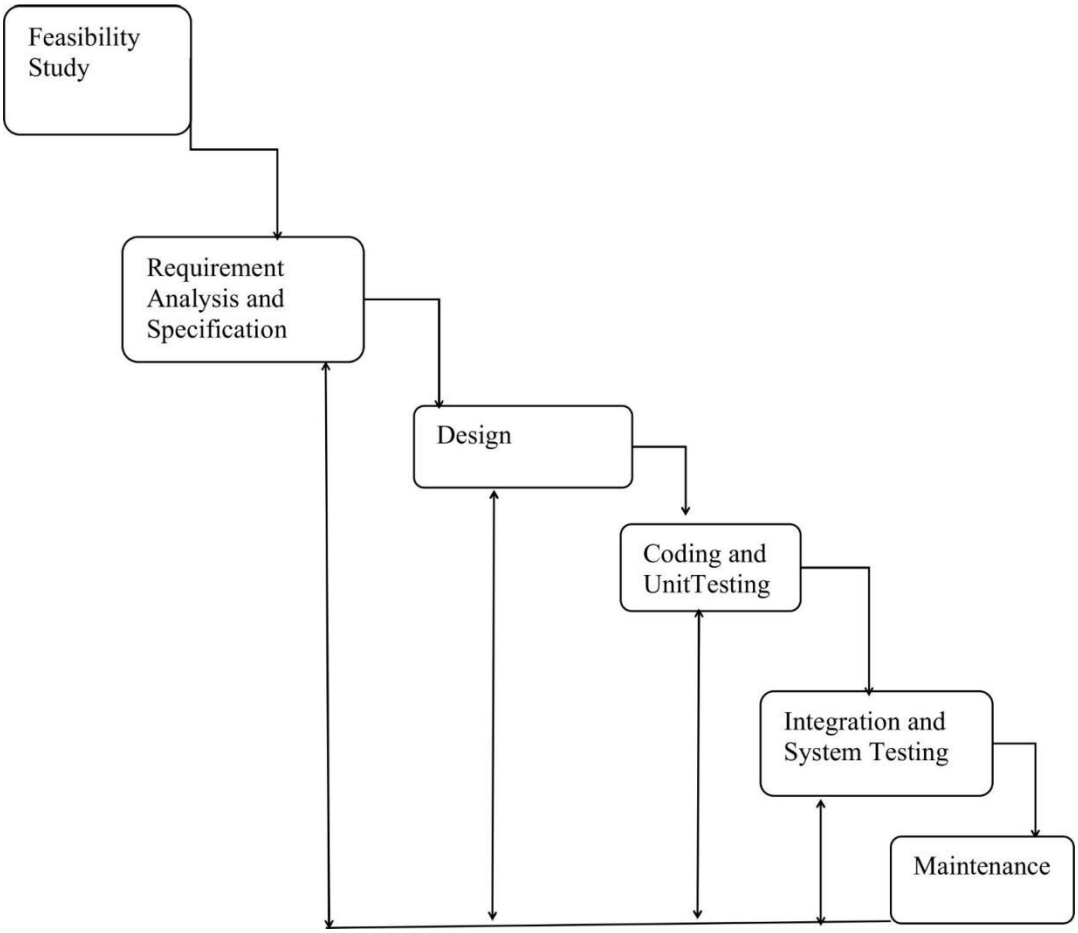


Fig 4.3

# 4.2.1 SDLC Phases for OSS

The steps of the SDLC for an online shopping system are listed below:

## Study of feasibility and requirements Compiling:

1) Specify the functional and non-functional requirements for the online commerce system.
2) Communicate with pertinent stakeholders, including customers, regulators, and administrators.

## System Design:

1) Create a high-level system architecture that enumerates the necessary components of the online commerce platform.
2) Offer thorough design specifications that address the user interface, data flow, and database structure.

## Put into Practice:

1) Using the design requirements as a reference, create the online retail platform.
2) Incorporate features such as user registration, shopping cart, product catalog, and payment processing.

## Testing:

1) Conduct comprehensive testing, encompassing unit, integration, and system testing. 2) Ascertain which defects or issues with the system require repair.

## Deployment:

1 )Install the online shopping system in a production setting after it has been thoroughly tested and approved.
2)Make that the system is safe and user-accessible.

## User Instruction:

1 )Offer user manuals and training to help users and administrators alike make efficient use of the technology.
2)Respond to any queries or worries that users may have.

## Maintenance and Operations:

1 )Keep an eye on the system's functionality and take care of any problems that occur in the production setting.
2)Based on user input and changing requirements, implement the appropriate changes and improvements.

## Record-keeping and Reporting:

1 )Keep complete documentation of the architecture, design, and implementation of the system.
2)Provide reports on the usage, performance, and any issues or outages of the system.

## Project Closure:

1 )Review the project to ensure all requirements have been met.
2)Conduct a final evaluation and gather feedback from stakeholders.
3)Officially close the project, ensuring that all project documentation is archived.

## Post-Implementation Review:

1 )Evaluate the system's performance and effectiveness after it has been in use for a period of time.
3) Address any issues that have emerged since deployment and make necessary improvements.

# 5.0verall Description

## 5.1 Product Perspective:

This product is intended for those who don't want to visit the store since they may not have the time or may not want to deal with the many formalities involved in going there.

## 5.2 Product Functions:

### User: Administrator

•Functions: As the super user, the Administrator has total authority over every action that may be taken. All requests for shops to be created are notified by the application to the administrator, who has the option to accept or deny them. Additionally, the list of possible product categories is managed by the administrator. Additionally, the guestbook entries can be viewed and removed by the administrator.

### User: Shop Owner

•Functions: Through the program, any user can request the development of a shop. The requester receives notification and is then assigned the role of Shop Owner once the request is granted by the Administrator. The store owner is in charge of organizing and maintaining the establishment. Managing the shop's item subcategories is part of the job. The shop owner can also change the things that are in his store. The store owner has access to various reports that include information on orders and sales that are unique to his store. Additionally, the shop owner has the option to close the store and take it down from the internet.

### User: Customer/Guests

- Functions: A Customer can browse through the shops and choose products to place in a virtual shopping cart. The shopping cart details can be viewed and items can be removed from the cart. To proceed with the purchase, the customer is prompted to login. Also, the customer can modify personal profile information (such as phone number and shipping address) stored by the application. The customer can also view the status of any previous orders, and cancel any order that has not been shipped yet.

### User: Employees

- Functions: Purchase department under a Purchase manager to overlook purchasing activities if warehousing needs arise.
- Functions: Sales department under a Sales manager who will look after the sale of products and services, the most important activity.

- Functions: Accounts department under an Accounts manager to look after the accounting activities of the enterprise

## 5.3 User Characteristics:

- The user must to be knowledgeable about the Shopping
- Terminology used at malls, such as "shopping cart", "checking out", "transaction" etc.
- Internet familiarity is a must for the user.

## 5.4 Constraints:

- Because the backup is unmaintainable, availability will suffer.
- Restricted to HTTP and HTTPS.
- No real-world banking system or credit card validation is in place.
- Absence of multilingual help

## 5.5 Operating Environment:

The OFS website is designed to function in all popular browsers; Microsoft Internet Explorer versions 7.0, 8.0, and 9.0 are used as a model.

## 5.6 Assumption and Dependencies:

Working of OSS needs stable Internet Connection.

## 5.7 Software Interfaces:

Operating System: Windows 7 Ultimate or above which supports networking.
JDK:JAVA Development Toolkit

## 5.8 Hardware Interface:

Hardware requirements for insurance on internet will be same for both parties which are as follows:

Minimum Requirements

Processor:Dual Core

RAM:2 GB

Hard Disk:320 GB NIC: For each

party

## 5.9 Communication Interface:

The two parties should be connected by LAN or WAN for the communication purpose.

# 6. Specific Requirements

## 6.1 Functional Requirements:

6.1.1 Database management: Keep database control and keep track of all employee and customer information records. This is the responsibility of the DBA (Database Administrator).

Reaching out to vendors and obtaining their consent: Get in contact with the merchants and give them authorization to sell their products on the website after evaluating the quality of the product. See every detail: Gain complete control over the website and see each employee's details.

In charge of making site advertisements is Site Advertising.

### 6.1.2 Customer:

Login: In order to use the site, users must have a working login ID.

Registration: New users can register by making a new ID.

See and modify Own Specifics:possesses the capacity to see and amend his service details, personal information, and payment information.

Choosing and contrasting items: capable of comparing and evaluating every product on offer and selecting the ones to purchase.

Buying: A valid credit card can be used to purchase any item.

Giving Customer Care input: Customer Care Service accepts input around-the-clock.able to share their opinions regarding the website and services.

Logout: Users are advised to exit the website after completing a purchase.

### 6.1.3 Guests

Accessing the Website: Access to the website is restricted to those who have not registered.

Register: If new to the site,register with your details for new account to proceed with shopping.

### 6.1.4 Shop Owner:

Getting Administrator authorization: Vendors must have Administrator authority in order to sell their products on the website. The administrator will assess the product's quality in light of its going rate in order to grant the vendor permission to sell it.
Speaking with the Administrator: You can speak with the Administrator about the caliber of the product and its advertisements.
Product Promotion of Vendor Own Products: The website won't be in charge of any other kind of product promotion; the vendor is in responsibility of making product advertisements.

### 6.1.5 Sales Manager:

View client details: View the customer's personal information.

Managing Sales to Customers: This includes ensuring that the chosen product is appropriately allocated based on the customer's preferences and that the product is delivered to the consumer.

View Product Stocks: For the purpose of selling, keep track of the stocks of each product item.

Communicating with the Administrator: You must notify the administrator whenever the supply of any product item falls below a certain threshold.

### 6.1.6 Purchase Manager:

Consulting with Administrator: Obtaining the Administrator's consent before making a vendor purchase of the product.

Product Stock Management: is charge of overseeing the inventory of every product item.

### 6.1.7 Accounts Manager:

Regulating Payments: Maintain a record of each customer payment transaction and update the payment details.

Consultation with Banks: Responsible for contacting banks to confirm the account number provided by consumers for purchases and to carry out the transaction using that account.
Speaking with the Administrator: Discuss the payment details of the clients with the Administrator in order to update the database.

### 6.1.8 Customer Service:

Receiving Customer Feedback: Answers questions, handles concerns, and gathers customer feedback.

Offering Clients Solutions: Give customers workable answers to their grievances and questions.



## 6.2Non-FunctionalRequirements

### 6.2.1 Performance Requirements:

l)ln two seconds or less, the system should react to user input for routine activities.

2)The system should be able to maintain reaction times of less than 5 seconds even under heavy loads.

3)At least 10,000 people should be able to access the system simultaneously.

### 6.2.2 Scalability Requirements:

1)Within six months, the system ought to be able to handle a 50% rise in users.

2)Expandable database capacity is required to support a minimum of one million goods.

### 6.2.3 Security Requirements:

1)User data must be encrypted using industry-standard encryption algorithms, including payment information and personal data.

2)Only authorized workers should be able to access the administrative panel.

3)The system ought to offer defense against widespread online vulnerabilities like cross-site scripting (XSS) and SQL injection.

## 6.2.4 Usability Requirements:

1 )User experience (UX) design best practices should be adhered to by the user interface.

2)The system must to meet accessibility guidelines,including WCAG 2.0, so that those with disabilities can utilize it.

## 6.2.5 Interface Requirements:

## Multiple product interfaces could include:

1 .Login Page

2.Form of Registration

3.There will be a screen with information on the goods the store sells.

4.A new shopping cart screen will open if the customers click the "buy" button.

5.The system will email the consumer a copy of the bill after they place an order for the product.

## 6.3 Technical Issues

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The architecture of this system is client-server. An internet server with PHP application functionality is necessary. Mozilla Firefox, Chrome, Internet Explorer, and other widely used browsers should all be supported by the system.

## 6.4Interfaces Possible Scenarios

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## 1)Customer's Interface:

Loqin:There will be two required fields on this interface: \User Name= and \Password=. Additionally, there will be a <Forgot Password= option in the event that a user forgets their password and an option for \New User9s Registration=, which will send users to the
\Registration= page. The Main User Interface appears if the password entered is accurate; if not, an error message is shown.

Registration Interface: The user will provide his name, username, password, birth date, address, type of registration, and other personal information. Validation remarks and error messages will alert users to any errors in data format or other limitations. The server will notify the user if the username or email address is already taken when they click the "save" button. A new user will be created if all the information is entered accurately and saved.

Personal Data Editinq: Any member can access his profile by clicking on his name in the upper right corner of the homepage, which will take him to the page where he can alter his personal information.

Search: The consumer can click on <Search= after entering the kind of item and the specs he is interested in. For further possibilities, the user can also use advanced search. For example, the user can sort the product display according to their preferences (popularity, relevancy, price in ascending or descending order, and material, size, color, and brand), and they can filter the results based on these criteria as well.

Add to favorites: For future usage, the user can create a list of his or her top picks.

Cart: The customer will be able to store the things they wish to purchase in this area. Before checking out, the consumer can also remove goods from their cart. The user is taken to the payment page to complete the transaction once they choose to purchase the items in their cart.

Payment: The user selects one of several options with multiple payment methods (online credit/debit card payments, net or mobile banking, or cash on delivery). Therefore, the selected method of transaction is carried out through accurate bank detail verification and authentication.

Support: The customer service can be reached by phone or through messages from the user. Users have the option to provide input on a specific topic or to seek for help.



## 2)Shop Owner's Interface:

The shop owner will have a unique login ID to access his account, which has a control panel that lets him set up and operate the shop, communicate with the administrator and more.

The store owner will be able to perform the following tasks with this control panel

- Ask the administrator for authorization to open a store.
- Prepare his shop's catalog and upload it so the website administrator can see it.
- Insert/Delete things: The administrator will make the necessary modifications to the database.
- Produce commercials promoting his goods.
- Create a report on sales.
- Stop operating the store.

## 3)Sales Manager's Interface:

- With the use of his special login ID, the sales manager can access his account and monitor sales as well as communicate with the administrator via a control panel.

- This control panel will enable the sales manager to carry out the following duties: • Maintain an accurate record of similar or different product kinds with their unique IDs by updating the product database. In this manner, the same product is assigned anytime a consumer places an order without disrupting database consistency.

- Create the shipment status of the current order, upload it periodically, and indicate when delivery is anticipated. If a user cancels an order, the sales manager handles it and the correct order status is updated and reported back.

- Increase sales by linking products to deals and promotions
- Talk to the administrator.

## 4)Accounts Manager's Interface:

The account manager will have a unique login ID that he uses to access his account, which has a control panel that lets him communicate with the administrator and handle different accounts and transactions.

The following actions will be possible for the accounts manager with this control panel: • Monitor payment transactions, distinguishing them with a unique ID linked to the relevant user, and update payment details.

- Speak with the Administrator.
- Request account validation from the bank.

## 5)Purchase Manager's Interface:

The buy manager will have a unique login ID that he uses to access his account, which has a control panel that lets him communicate with the administrator and oversee different warehouse purchases. The Purchase Manager will be able to perform the following tasks with this control panel: • The system notifies the purchase manager when the warehouse's stock falls below a certain threshold, and he then gets in touch with the administrator to ask for approval to buy from a specific vendor. • Get in touch with a seller to make a purchase.

## 6)Customer Care's Interface:

A customer service representative will have a unique login ID that he uses to access his account, which has a control panel that lets him interact with the administrator and handle different consumer inquiries and feedback.

An employee in customer service will be able to perform the following tasks with this control panel:

- Examine a specific customer's comments and inform the administrator of it.
- Get in touch with the administrator.
- Respond to the customer's questions.

## 7)DBA's Interface:

The administrator will be able to access his account, which has a control panel that gives him access to every part of the system, with a different login ID.

The administrator will be able to do the following actions with this control panel:

- Obtain and examine the client database
- Browse and access the vendor database, review the requests made by vendors to create shops, and respond to them by either accepting or rejecting their requests.
- Manage them and gain access to the personnel database.
- Create the catalog (visible to customers), keeping in mind the corresponding store owners' designs.
- Whether to approve or deny the buying manager's request.
- Control employee pay.
- Speak with workers.

# 7.Design

## 7.1 Decision Tree :

User trying to buy in the most cost effective manner

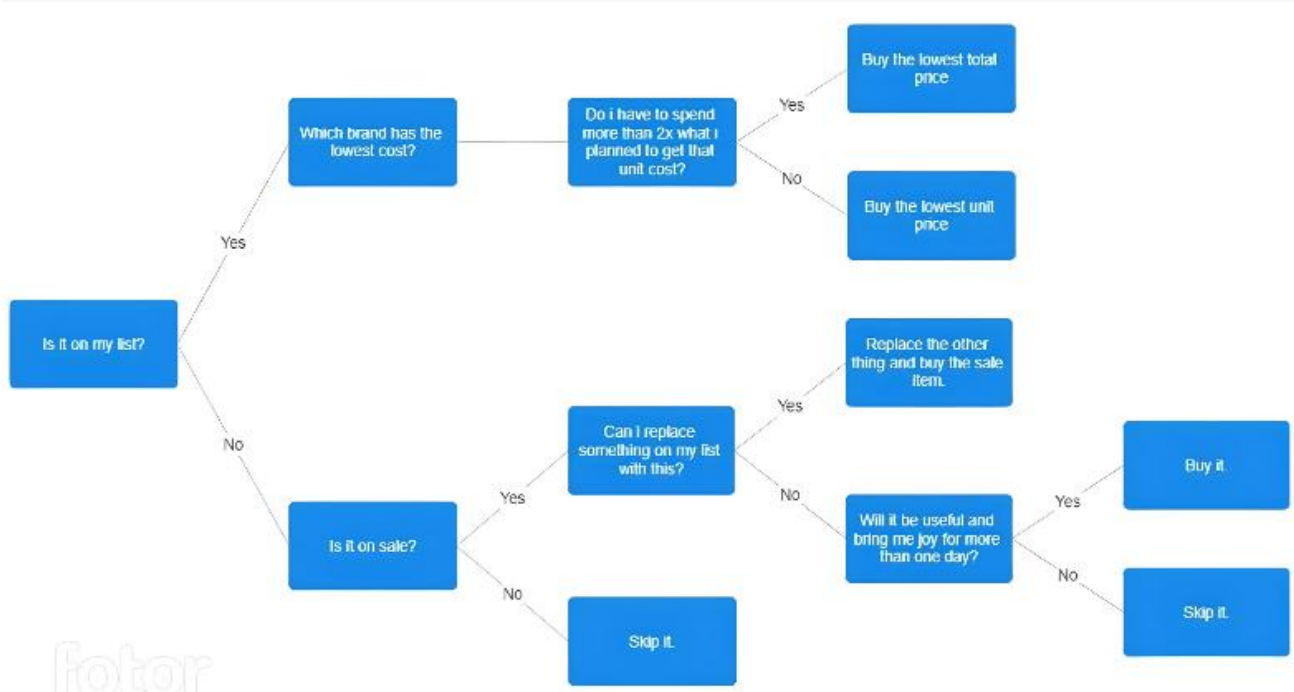


Fig 7.1.1

## 7.2 DFD Level-O:


Fig 7.2

## 7.2 DFD Level-I:

For Admin:

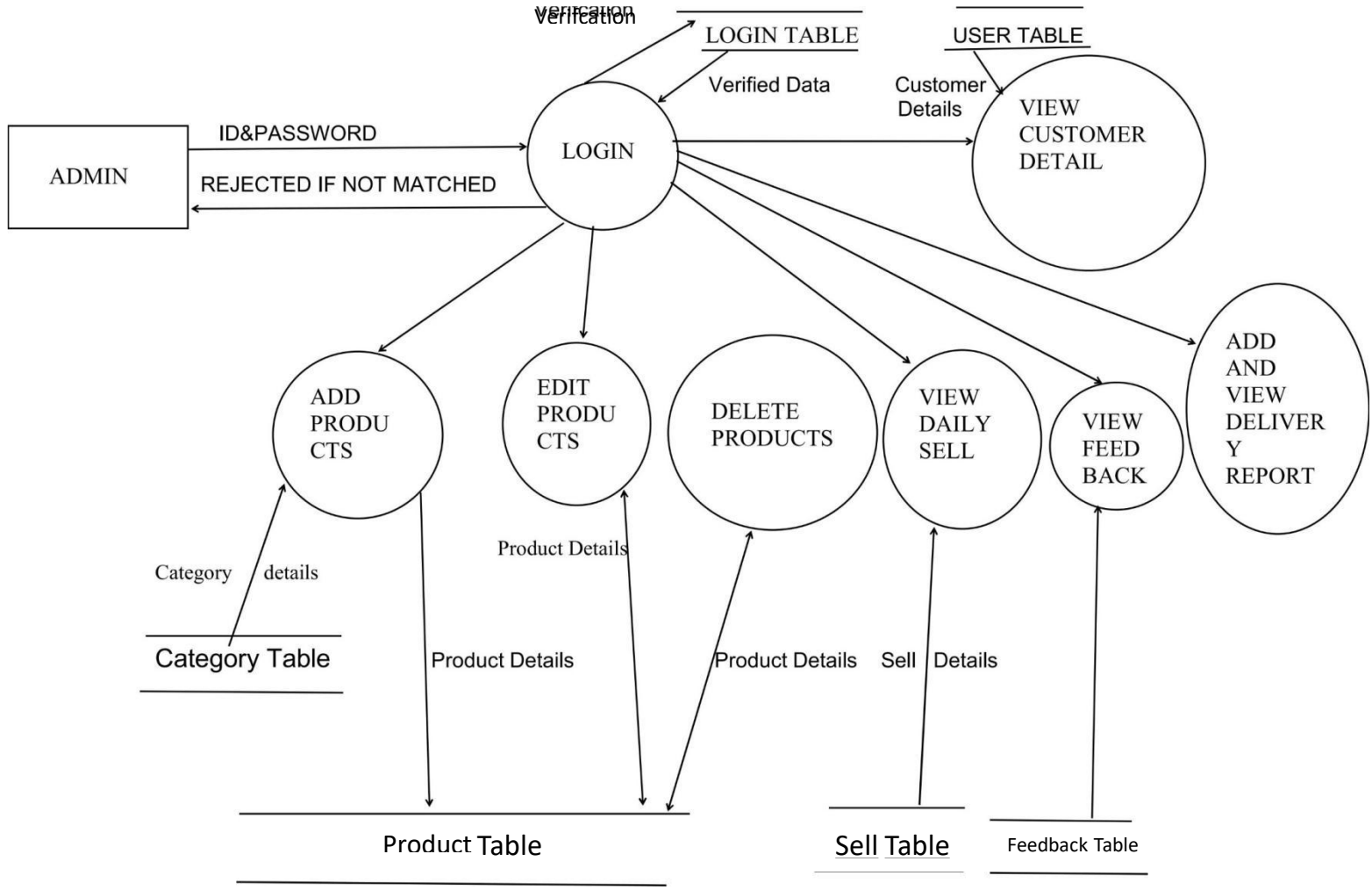


Fig 7.3

## 7.2 DFD Level-I:

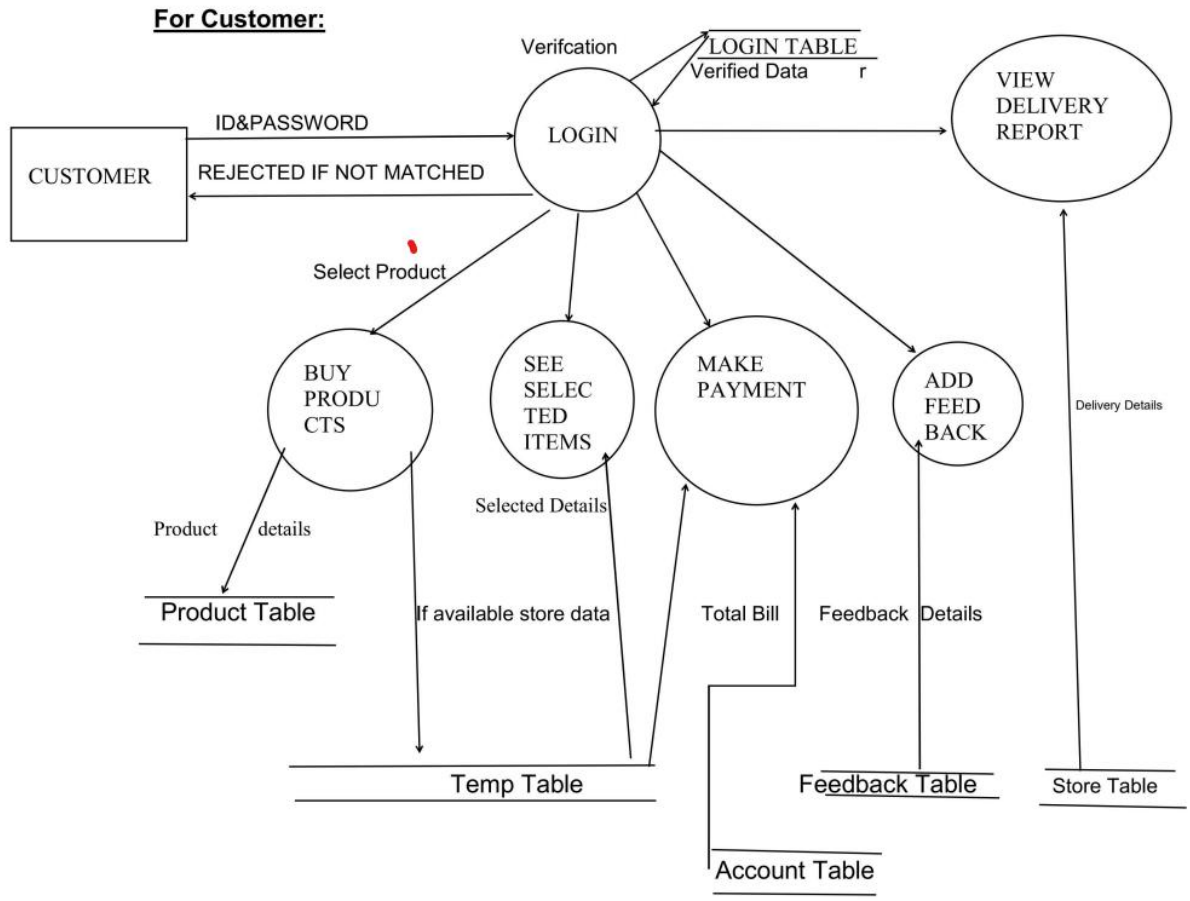


Fig 7.4

## 7.3 Structured Chart

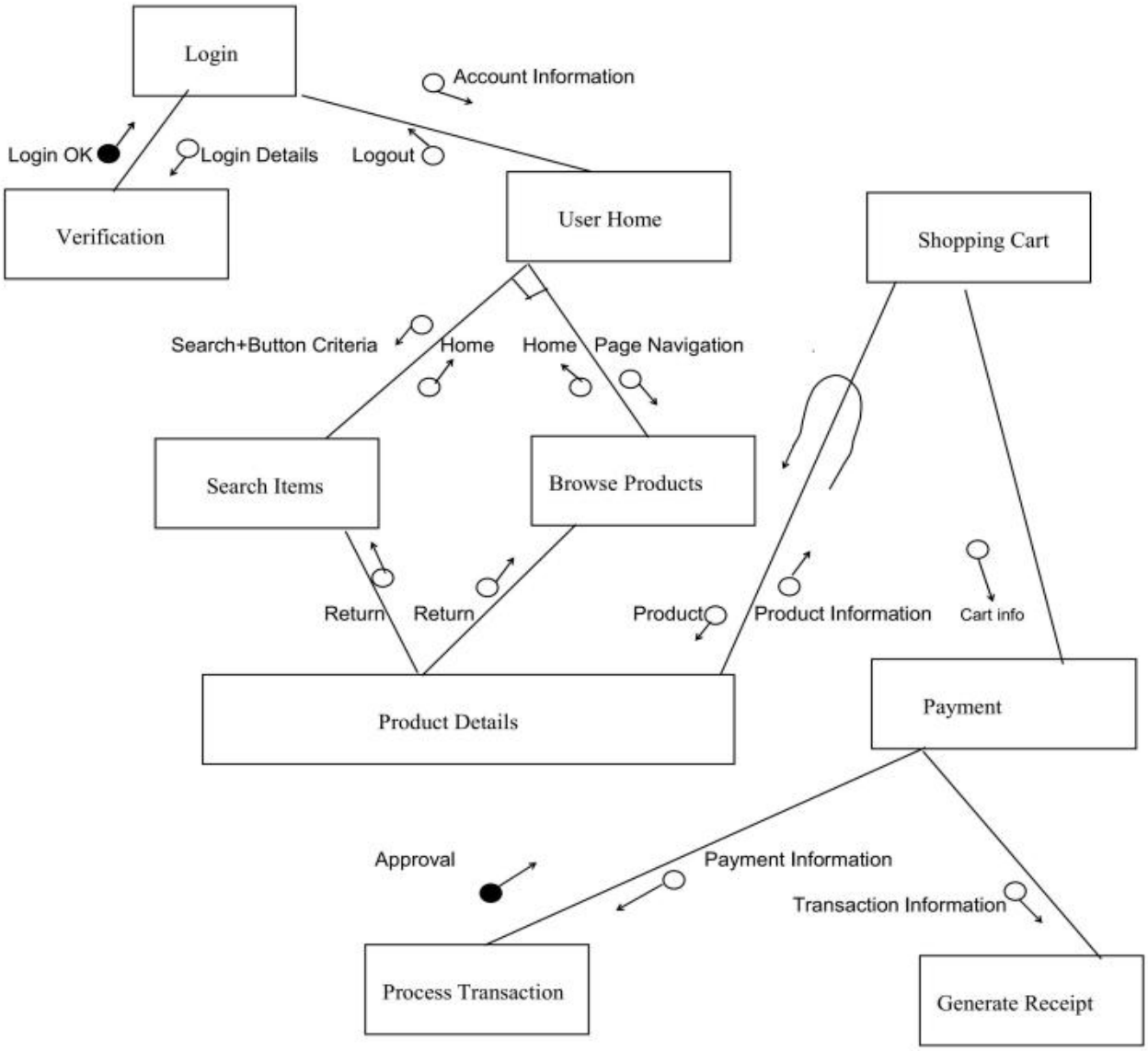


Fig 7.5

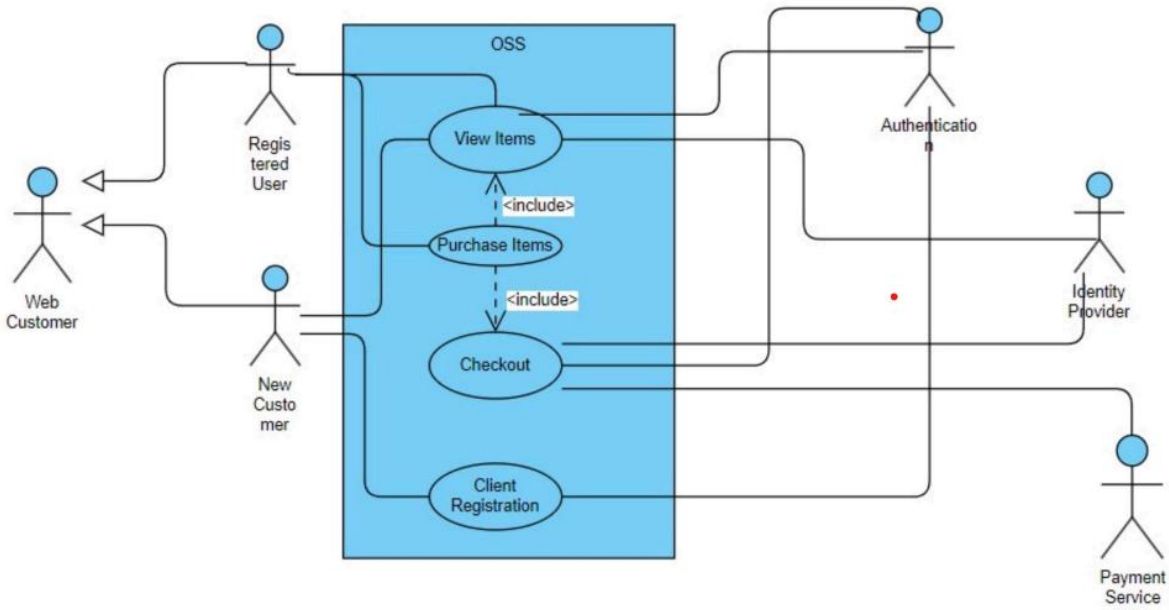


Fig 7.6

## 7.4 USE Case Diagram:

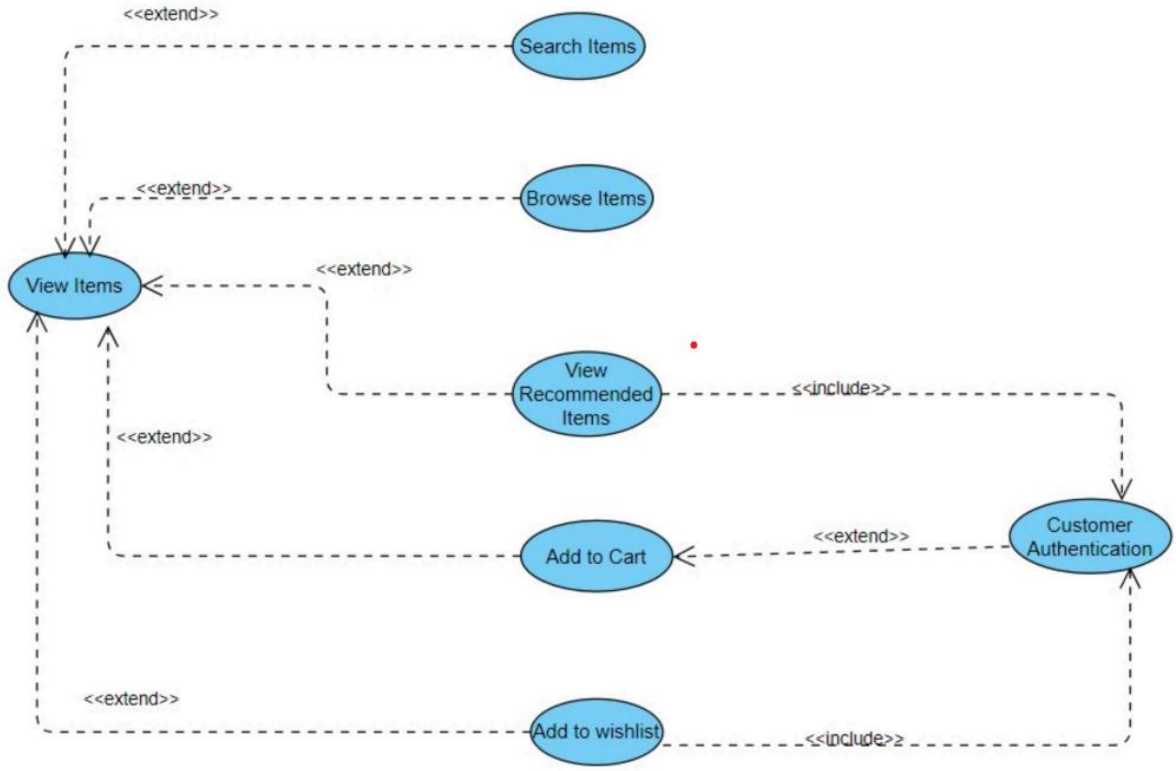


Fig 7.7

## 7.4 USE Case Diagram:

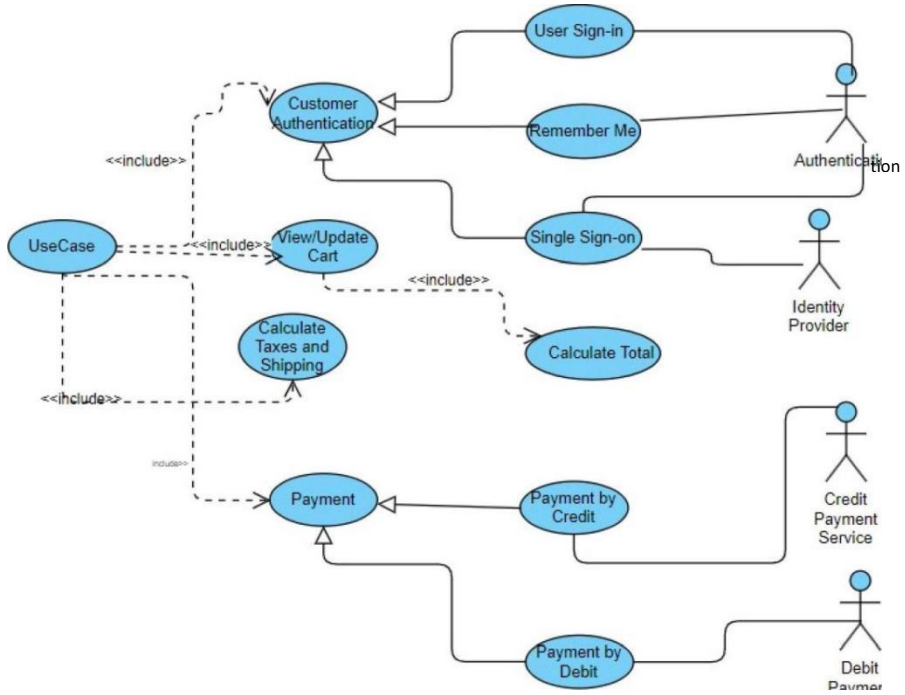


Fig 7.8

## 7.5 State Chart Diagram:

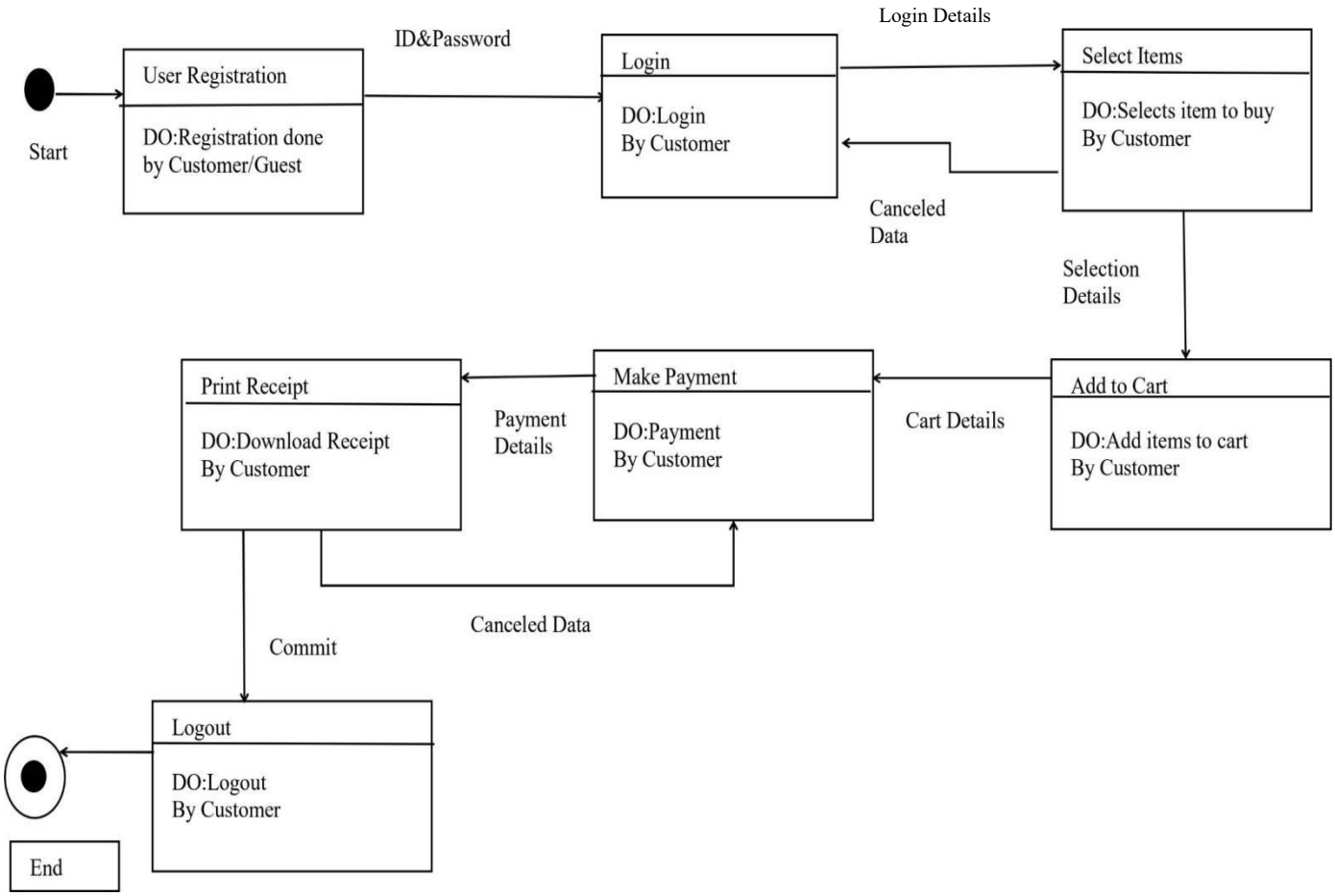


Fig 7.10

## 7.6 Class Diagram:

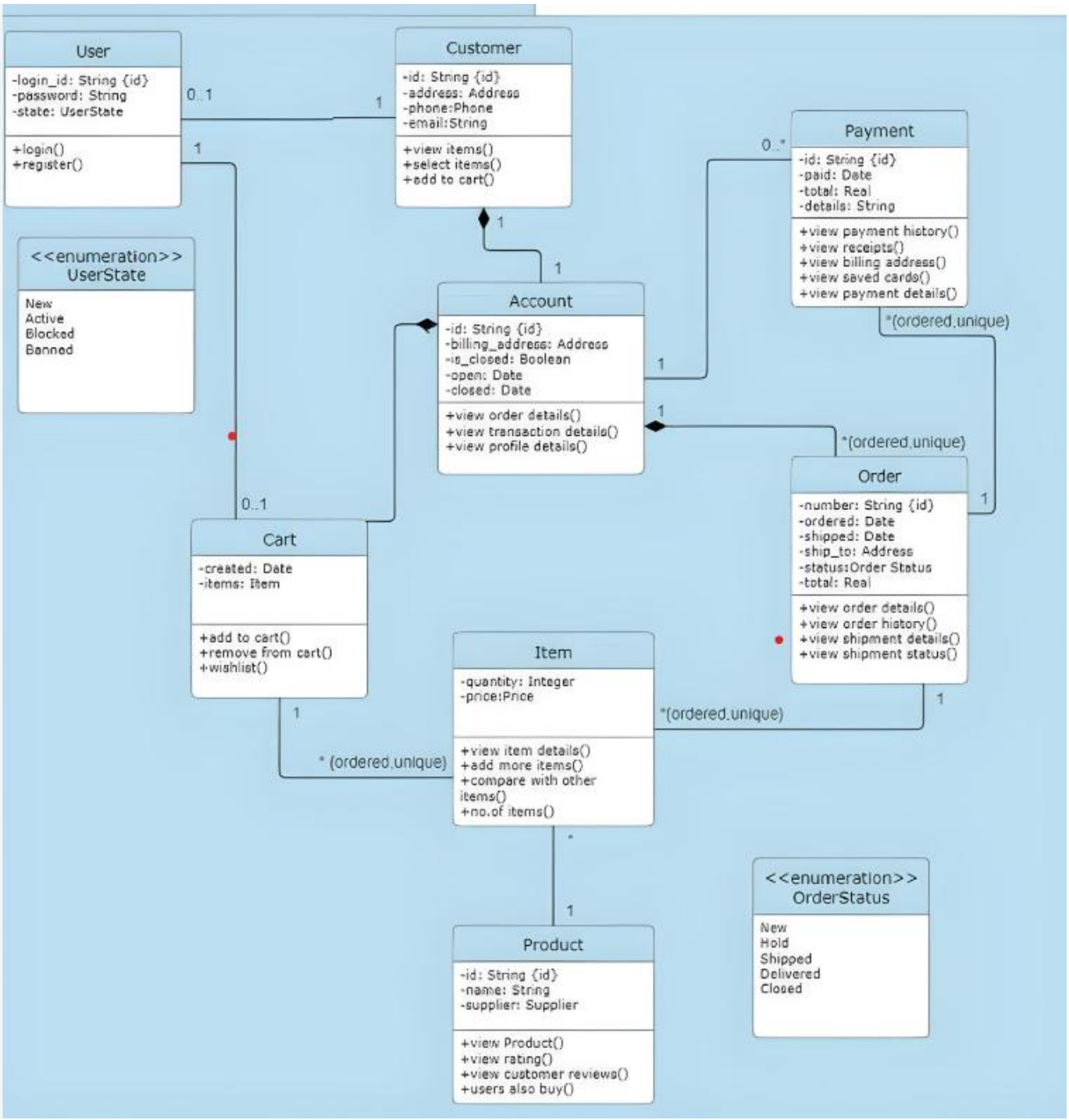


Fig 7.11

# 8.Database Design(ER Diagram)

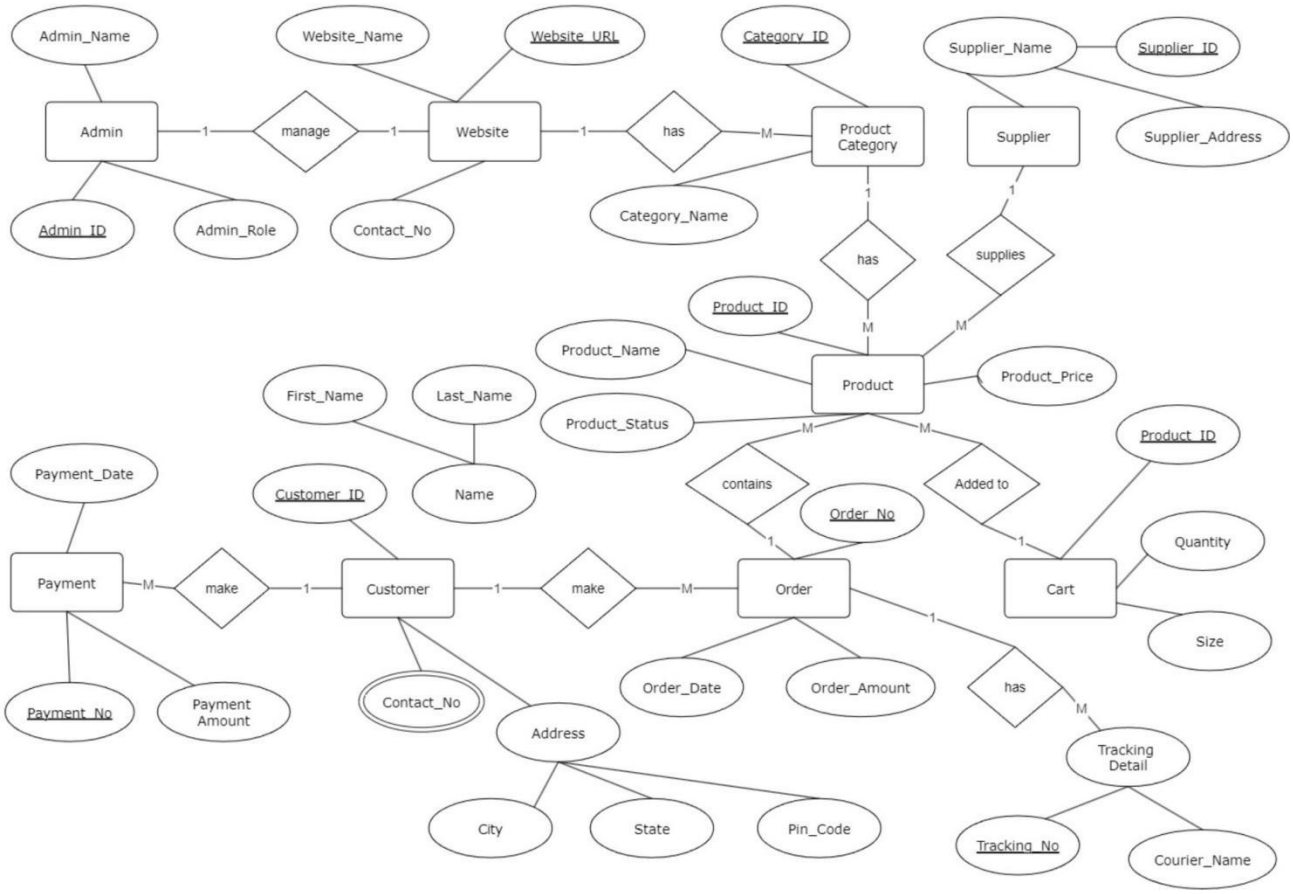


Fig 8.1

# 9. Testing

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1. Requirements Testing:

Functional Testing:

Verify that all specified functionalities (product browsing, account creation, cart management, order placement, etc.) work as expected.
Test the search functionality for accuracy and efficiency.
Validate user registration and authentication processes.
Ensure secure login/logout procedures.

Non-functional Testing:

Confirm system responsiveness under various network conditions.
Test the system's compatibility with different browsers and devices.
Validate that the system adheres to security requirements (SSL encryption, secure payment gateways).

2. User Interface Testing:

Check the user interface for consistency and ease of use.
Verify that all buttons, links, and navigation elements work as intended.
Test the responsiveness and layout on different screen sizes.

3. Performance Testing:

Conduct load testing to ensure the system can handle multiple users simultaneously.
Test the response time of critical functions under normal and peak loads.
Validate that the system can handle a large number of products and users in the database.

4. Security Testing:
Check for vulnerabilities such as SQL injection, cross-site scripting (XSS), and other security threats.
Ensure that sensitive user data is stored securely.
Test the system's resistance to unauthorized access.

5. Database Testing:
Validate that the database schema aligns with the specified requirements.
Test data integrity and consistency.
Verify that the system properly handles database transactions.

6. Compatibility Testing:
Test the system on various operating systems and ensure compatibility.
Verify compatibility with different web browsers (Chrome, Firefox, Safari, etc.).
Ensure compatibility with different device types (desktops, laptops, tablets, smartphones).

7. Usability Testing:
Evaluate the overall user experience.
Obtain feedback from potential users about the system's intuitiveness.
Check if the system complies with accessibility standards.

8. Regression Testing:
Perform regression testing after each software update or modification to ensure existing functionalities are not affected.
Ensure that new features or bug fixes do not introduce new issues.

9. Acceptance Testing:
Conduct acceptance testing with stakeholders to ensure the system meets their expectations.
Obtain feedback on the overall user experience and any additional requirements.

10. Scalability Testing:

Verify that the system can scale to accommodate future growth in terms of users, products, and transactions.
Test the system's ability to handle increased load without performance degradation.

11. Recovery Testing:
Test the system's ability to recover from failures, such as server crashes or unexpected shutdowns.
Validate that user data is not lost during system failures.

12. Documentation Verification:
Ensure that all documentation, including user manuals and system documentation, is accurate and up-to-date.

13. Cross-Browser Testing:
Verify that the system functions correctly on different web browsers, including Chrome, Firefox, Safari, and Edge.

14. Mobile App Testing (if applicable):
If there's a mobile app, conduct testing on various mobile devices to ensure functionality and responsiveness.

15. Localization and Internationalization Testing:
Test the system's adaptability to different languages and regions.
Verify that currency and date formats are displayed correctly based on the user's locale.

16. User Feedback Integration:
Actively seek user feedback during and after testing phases to identify areas for improvement.

17. Legal and Compliance Testing:
Ensure that the system complies with relevant legal requirements, such as data protection laws.
18. Interoperability Testing:

Verify that the online shopping system can integrate seamlessly with other systems or third-party services, such as payment gateways.

19. API Testing (if applicable):
If the system includes APIs, ensure that they function correctly and provide the expected data.

20. Continuous Testing:
Implement continuous testing practices to ensure ongoing quality as the system evolves.

# 10.Future Scope and Conclusion

## Future Scope:

Al-Powered Recommendations: By utilizing machine learning and artificial intelligence, product recommendations are generated that are tailored to the tastes and behavior of the customer, thereby improving their overall shopping experience.

AR(Augmented Reailty Shopping): Shoppers can now visually try on apparel and accessories and see how furniture and décor will look in their homes before making a purchase thanks to augmented reality (AR) technologies.

Voice Commerce: Including voice-activated shopping features that allow customers to use virtual assistants like Google Assistant or Amazon Alexa to make purchases and communicate with the system via voice commands.

Sustainable shopping: Including tools that let customers search and filter for sustainable and eco-friendly products and get details on how each item affects the environment.

Global Expansion: Including multilingual assistance and local payment choices, this entails growing the online shopping system to cater to a larger worldwide audience.

## Conclusion:

To sum up, the Online Shopping System's Software Requirement Specification (SRS) outlines the basic components and technological requirements needed to develop an effective and user-friendly e-commerce platform. The online shopping system's creation and effective deployment are based on this SRS document, which offers customers a seamless and safe shopping experience and administrators easy access to inventory and order management tools.

# 11.References


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