

الجامعة الإسلامية للتكنولوجيا
UNIVERSITE ISLAMIQUE DE TECHNOLOGIE
ISLAMIC UNIVERSITY OF TECHNOLOGY
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ORGANISATION OF ISLAMIC COOPERATION



Department of Computer Science and Engineering

Spectrum

SWE 4404: Software Project Lab

Submitted By	Submitted To
Maliha Zaman (200042114)	Md. Rafid Haque
Mohammod Ittehad Rahman Sami(200042131)	Lecturer
Nazia Karim Khan Oishee(200042137)	Department of Computer Science and Engineering
	Islamic University of Technology

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Introduction

Spectrum is a website portal for different small and large pages and brands to sell their respective products.

Spectrum holds the basic properties of an e-commerce website along with an additional built-in chat system that allows the customers to communicate with the respective business owner.

Purpose

The purpose of this document is to provide a brief overview of Spectrum's Software Requirement Specification. It includes functional, non-functional, and supporting requirements that will establish a baseline for developing the system. The main objective of the SRS is to serve as an official method of communication between users, developers, and stakeholders. The SRS will continue to develop over time as users and developers collaborate to validate, clarify, and expand its contents.

Intended Audience

The SRS report is created for multiple audiences and serves different purposes. After discussing with all the stakeholders involved, this SRS provides a clear set of guidelines and documentation for:

- The users and admins who will refer to this SRS to ensure that the product developed by the developer team meets their requirements.
- The project managers of the developer team who will use this SRS to plan project milestones and delivery dates, and monitor the development progress.
- The designers who will use this SRS to create the system's design and refer back to it throughout the design process to ensure it meets the customer's needs.

- The developers who will use this SRS to develop the system's functionality and link the requirements defined in this SRS to the software they create.
- The testers who will use this SRS to derive test plans and test cases for each requirement and ensure that the software developed meets all the documented requirements. The idea is to essentially carry out unit tests and acceptance tests of the different components.
- The testers who will run their tests on the completed portions of the software to ensure that they meet the requirements documented in this SRS, and again on the entire system when it is complete to verify that all the requirements have been fulfilled. The idea is to carry out integration tests and acceptance tests of the different QFDs.

Conclusion

We were able to systematically identify stakeholders and requirements through our study. We were able to target the users who will use our product particularly thanks to this procedure. The generated document will help all parties engaged in the software's development by allowing convenient usage and providing a clear knowledge of the software's purpose. Developers and testers will have a better awareness of their duties and development will proceed more smoothly with properly established guidelines. The ongoing evolution and improvement of the software will be facilitated by effective communication between all stakeholders and developers.

Inception

Identifying stakeholders

- **Who do you think I should talk to?**

Ans: You can talk to our business analyst first. Then we will head to talk to our developer.

- **Who will use the solution?**

Ans: People who will buy from our website and people who will upload their products on our platform to sell.

Identifying Business value

- **What will be the economic benefit of a successful solution?**

Ans: We would gain a percentage of profit from the sellers earned through selling products from our website.

Existing Solution

- **Is there another source for the solution that you need?**

Ans: Yes, there is a multiple platform like Amazon which is a close solution to our project. But it only allows us to sell and purchase products. Our website will also provide a chat system

Defining the Problem

- **What problem are you solving in the project you have chosen?**

Ans: For our project we are going to make an ecommerce website with a built in chat system. Often in other e-commerce websites, customers lack the opportunity to communicate with the seller. Our website aims to fulfill the lack.

- **Why did you choose this project?**

Ans: To make the communication process a bit easier between a seller and a purchaser while deriving economic benefits from it.

Feasibility

- **Is it possible to solve the problem?**

Ans:.Yes, it is feasible to solve the problem. There are many existing chat systems. We need to merge the attributes of a chat system and those of an ecommerce system.

Elicitation

A statement of need and feasibility-

This platform will be needed to facilitate online shopping and enhance customer support for businesses. It will provide a convenient and seamless shopping experience for customers, allowing them to browse and purchase products from various retailers in one place. The built-in chat system will enable communication between customers and sellers, improving customer service and resolving queries or concerns promptly.

A bounded statement of scope for the system or product-

The scope of the platform is bound to customers and sellers. It aims to provide a comprehensive online shopping experience with enhanced communication capabilities.

The platform will support a wide range of products from various categories. Customers will be able to browse, select, and purchase items.

Sellers will have the ability to list and manage their products and process orders.

The built-in chat system will enable communication between customers and sellers, facilitating inquiries, order updates, and customer support.

The platform will focus on facilitating transactions and interactions within the eCommerce system itself.

Customers will be able to engage in conversations with sellers, ask product-related questions, and receive assistance throughout the purchasing process.

Sellers will have access to chat logs and be able to respond to customer inquiries promptly.

The chat system will not support external messaging platforms or integration with social media platforms.

The platform will not provide offline access to products or support sharing of products with other platforms.

The search functionality of the platform will enable customers to search for products using relevant keywords in English. This will enhance the user experience and allow users to find their desired products easily.

A list of customers, users, and other stakeholders who participated in the requirements-gathering phase-

1. Customer/User
2. Seller
3. Developers
4. Business Analyst
5. CTO

A description of the system's technical environment-

REACT Native, Express, Node and MongoDB

A description of the domain constraints-

In the real world, there are already existing eCommerce platforms with a variety of features and established customer bases. This presents a significant challenge for our platform to differentiate itself and attract customers in a highly competitive market. The platform may need to integrate with external payment gateways or other third-party systems. Ensuring seamless integration and compatibility with these external systems can be a challenge due to technical constraints, differing APIs, and compatibility issues.

Overall, the eCommerce system with a built-in chat system must overcome

challenges related to competition, customer perception of value, software quality and integration with external systems. By addressing these domain constraints effectively, the platform can strive to provide a compelling and reliable online shopping experience.

A set of usage scenarios that provide insight into the use of the system or product under different operating conditions-

Customer Searching and Purchasing:

- A customer visits the platform, searches for a specific product, and explores different options.
- They add selected items to their shopping cart and proceed to checkout.
- After the checkout process, the customer can choose to initiate a chat with the seller to clarify any doubts or seek assistance with the purchase.

Seller Product Management:

- A seller logs into their account and uploads information regarding product details, prices, and availability.

Seller-Customer Communication:

- A customer has a specific question about a product and starts a chat with the respective seller.
- The seller promptly responds, providing detailed information and addressing any concerns.
- The chat system enables efficient and direct communication between customers and sellers, fostering trust and building customer satisfaction.

These usage scenarios illustrate how the eCommerce system with a built-in chat system facilitates seamless communication, enhances customer support, and ensures a smooth shopping experience for both customers and sellers

Quality Function Deployment

In Customer's Perspective:

1. Easy Product Search:
2. User-Friendly Interface:
3. Reliable and Secure Transactions:
4. Built-in chat system for efficient communication with sellers.

In Seller's Perspective:

1. Easy Product Uploading
2. Communication with Customers:

Normal Requirements:

1. The ability to search for products.
2. Efficient and accurate filtering of search results.
3. Clear product descriptions, images, and pricing information.
4. Fast and secure payment processing through multiple payment methods.
5. Built-in chat system for communication with sellers.

Expected Requirements:

1. Authentication and security.
2. Easy login system.
3. User-friendly interface for an enjoyable shopping experience.

Exciting Requirements:

1. Trial version of an account for customers to explore features.
2. Customizable filtering criteria.
3. Offline storage of app data to prevent unauthorized sellers of upload content.
4. Secure and convenient payment information storage for future purchases.

Usage Scenario

Buyers

The customer visits the eCommerce platform and clicks on the JOIN button. They are redirected to the sign-up page where they enter their personal information, such as name, email address, and password, country, image, phone, description, is seller or not

After submitting the required information, the customer's account is created, and they receive a verification email to activate their account.

The customer verifies their email and proceeds to log in to their newly created account.

Once logged in, the customer starts browsing the eCommerce platform's products. They can explore different categories, filter products based on their budget and read product descriptions, reviews, and ratings.

The customer finds a product of interest and clicks on it to view detailed information, including price and previous reviews.

If satisfied, the customer adds the product to their cart. The customer navigates to their cart, which displays the selected products and quantities.

They can review the cart contents, make changes such as remove items. Once the cart is finalized, the customer proceeds to the checkout process.

At the checkout page, the customer enters their shipping information. After confirming the accuracy of the information, they click on the " Order" button to complete the purchase.

After that, the customer has the opportunity to communicate with the sellers. They can access the product's page and submit their feedback, ratings, or comments.

It's important to note that in this scenario, the customer's communication with the seller is not possible until after the purchase has been made. This ensures that the customer has a smooth checkout process without distractions.

Sellers

The seller visits the eCommerce platform and clicks on the "Join" button. They are redirected to the sign-up page where they enter their business information, such as business name, contact details, and preferred username/password for their seller account.

After submitting the required information, the seller's account is created, and they receive a confirmation email to verify their account. The seller verifies their email and proceeds to log in to their newly created seller account.

They click on the "Add New Product" button to start listing their products. The seller provides detailed information about each product, including title, description, pricing and images.

As customers browse and make purchases, the seller receives order notifications. They access the order management section of their seller account to review and process incoming orders. After the payment process there will be a payment_intent for each order.

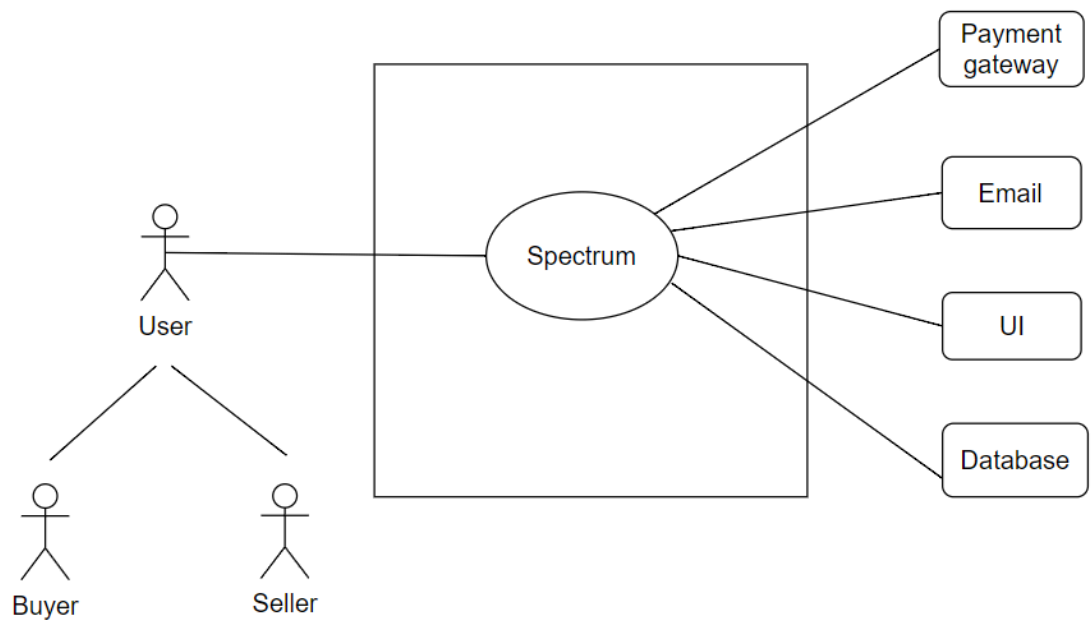
Once a buyer initiates a chat or inquiry regarding a specific order, the seller receives a notification. The seller accesses the chat feature within their seller account to respond to the buyer's message. They provide prompt and helpful responses, addressing any questions or concerns raised by the buyer related to the order, shipping, or product details. The seller can see the last messages sent by buyers. If the message is sent by buyer then it will be read-by-seller and if the message is sent by seller it will be read-by-buyer.

It's important to note that in this scenario, the seller can only communicate with the buyer after the buyer initiates the chat. This allows the buyer to have control over when and how they communicate with the sellers.

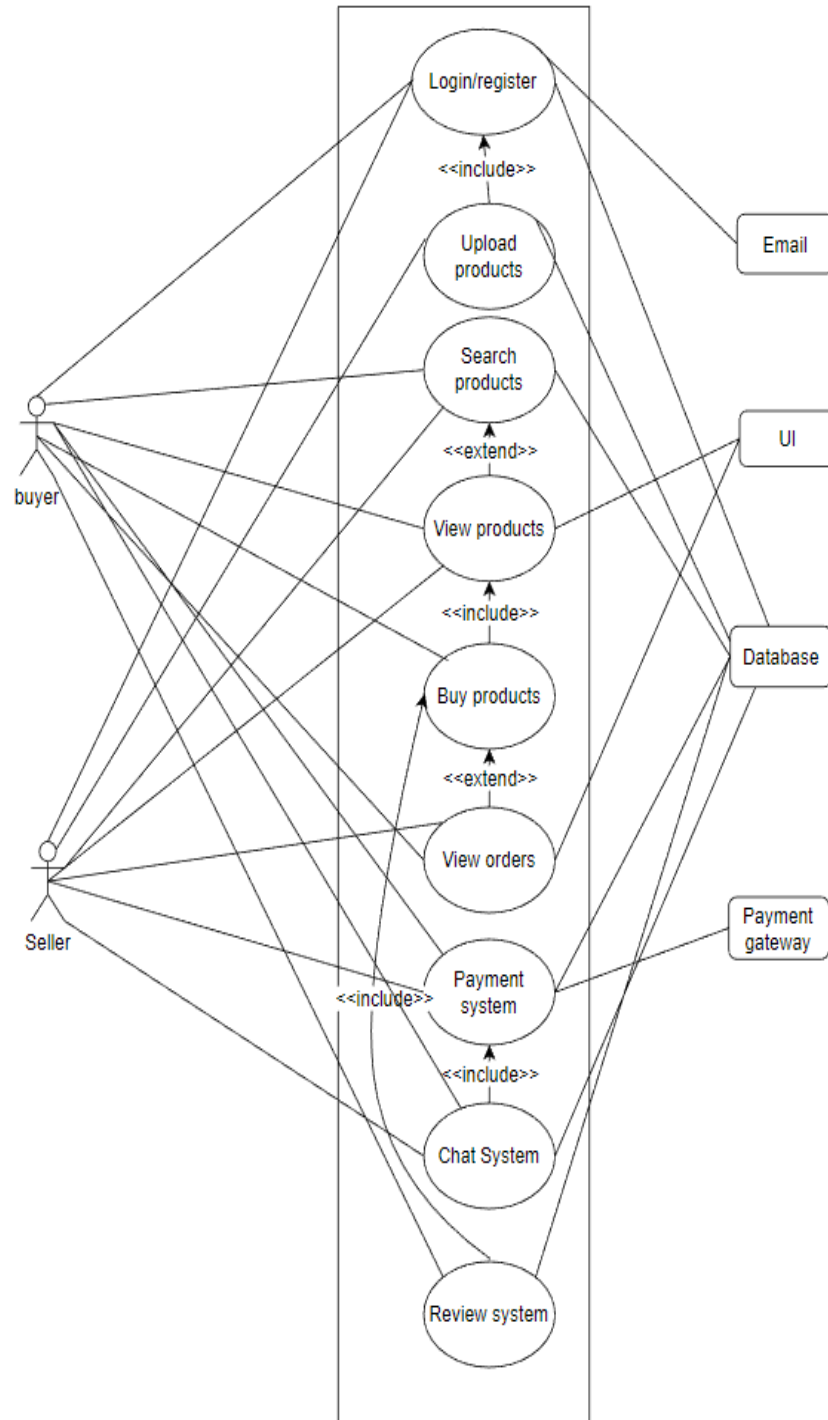
Requirement modeling

Use-Case Modeling

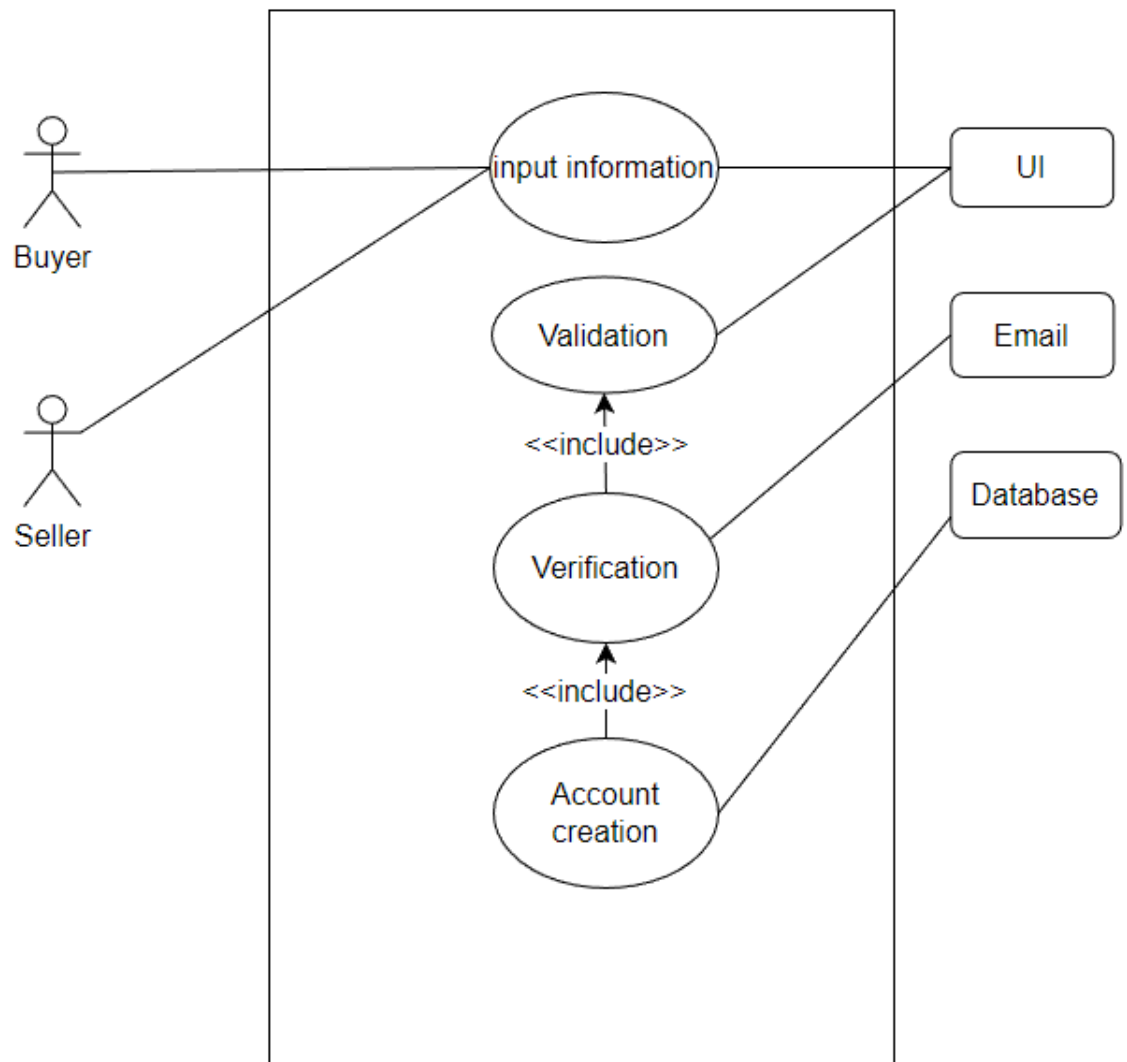
Level - 0 Use Case diagram



Level - 1(Detailed) Use Case diagram



Level 1.1 Authentication Use Case Diagram



Use case name: User creates an account

Iteration:

- Developed by: Maliha Zaman on 28 May 2023

Primary Actor:

- Sellers and buyers

Goal in context:

- Sign up to the system successfully through authentication and validation

Preconditions:

- The seller and buyer must have a valid email address to sign up to the system and also should have a strong password while signing up .

Trigger:

- To sign up to the system as an authenticated user

Scenario:

1. Buyer and seller provide necessary information for creating an account.
2. Both buyer and seller provide an email address that is valid for verification.
3. User uses a strong password to sign up.
4. User chooses or selects the user type(Seller/buyer).
5. Seller provides necessary information,images about products.
6. User gets a verification mail to verify the account.
7. User creates an account after clicking on the verification mail.

Exceptions:

1. Invalid email address given by the users
2. Users did not receive the verification mail.
3. The password is not strong enough to continue signing up
4. Information required in sign up doesn't match with the system's requirement.

Priority: High

When Available: After verification

Frequency of use: High (i.e., it will be used every day by many sellers and buyers)

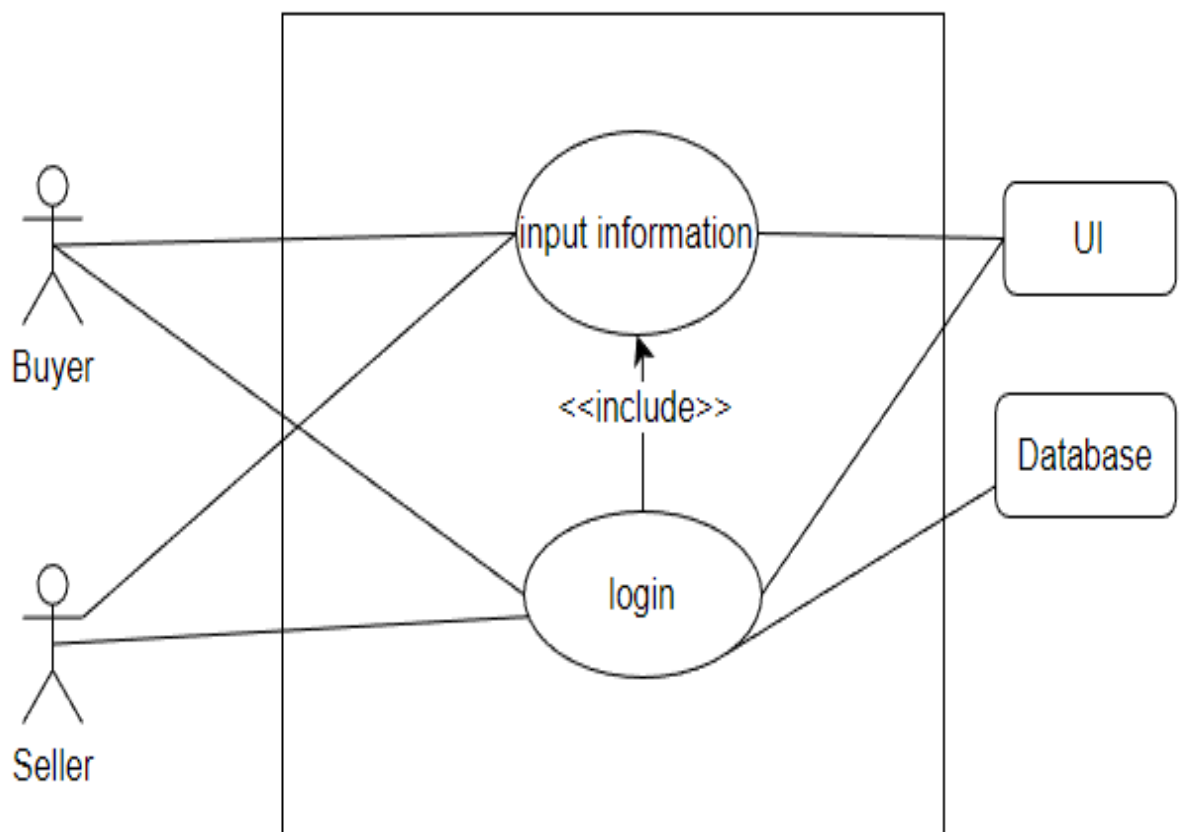
Channel to actor: UI

Secondary actors: UI,email,Database

Channel to secondary actor: Through internet access

Open issues: Did not get verification mail even after giving correct email.

Level 1.2 Login Use Case Diagram



Use case name: User logs in to the system

Iteration:

- Developed by: Maliha Zaman on 28 May 2023

Primary Actor:

- Sellers and buyers

Goal in context:

- Sign in/log in to the system successfully

Preconditions:

- The seller and buyer must have a verified and registered account to log in to the system.

Trigger:

- To log in to the system as an authenticated user after clicking the login button on the system.

Scenario:

1. Buyer and seller provide necessary information such as email address and password to log in to the system.
2. System will verify given information from the database. If the information matches, the user will be successfully logged in.
3. User confirms the password while logging into the system.
4. Users will get an error if any incorrect information is given such as wrong password or the password does not match the confirmed password.
5. User gets an error message if the email address is not already registered

Exceptions:

1. Wrong login credentials.
2. Cannot log in to the system because of bad internet connection

Priority: High

When Available: After account creation

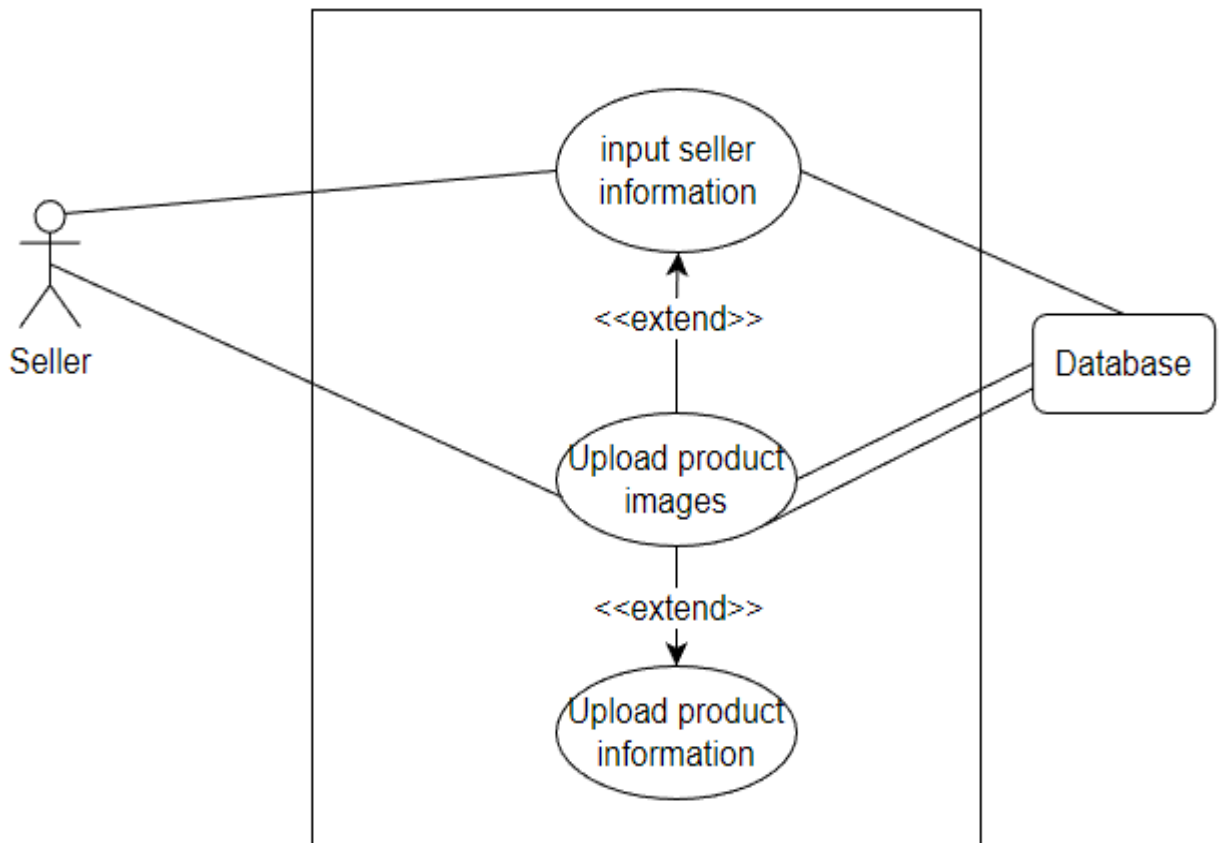
Frequency of use: High (i.e., it will be used every day by many sellers and buyers)

Channel to actor: UI

Secondary actors: UI, Database

Channel to secondary actor: Through internet access

Level 1.3 Upload products diagram



Use case name: Seller uploads products

Iteration:

- Developed by: Maliha Zaman on 28 May 2023

Primary Actor:

- Sellers

Goal in context:

- Sell the products of different pages and brands online by the sellers.

Preconditions:

- The seller must have a verified and registered account to upload the products in the system.
- The seller must have an account where the seller is registered as a seller not a buyer.

Trigger:

- The seller clicks on the add products as an authenticated seller after clicking they want to sell their products through this system online and keep track of their pro

Scenario:

1. Seller uploads information about products.
2. Seller uploads images of the products.
3. Seller provides the quantity of the products as well.
4. Sellers can view the uploaded products.
5. Seller can delete the uploaded products if he/she wants to.

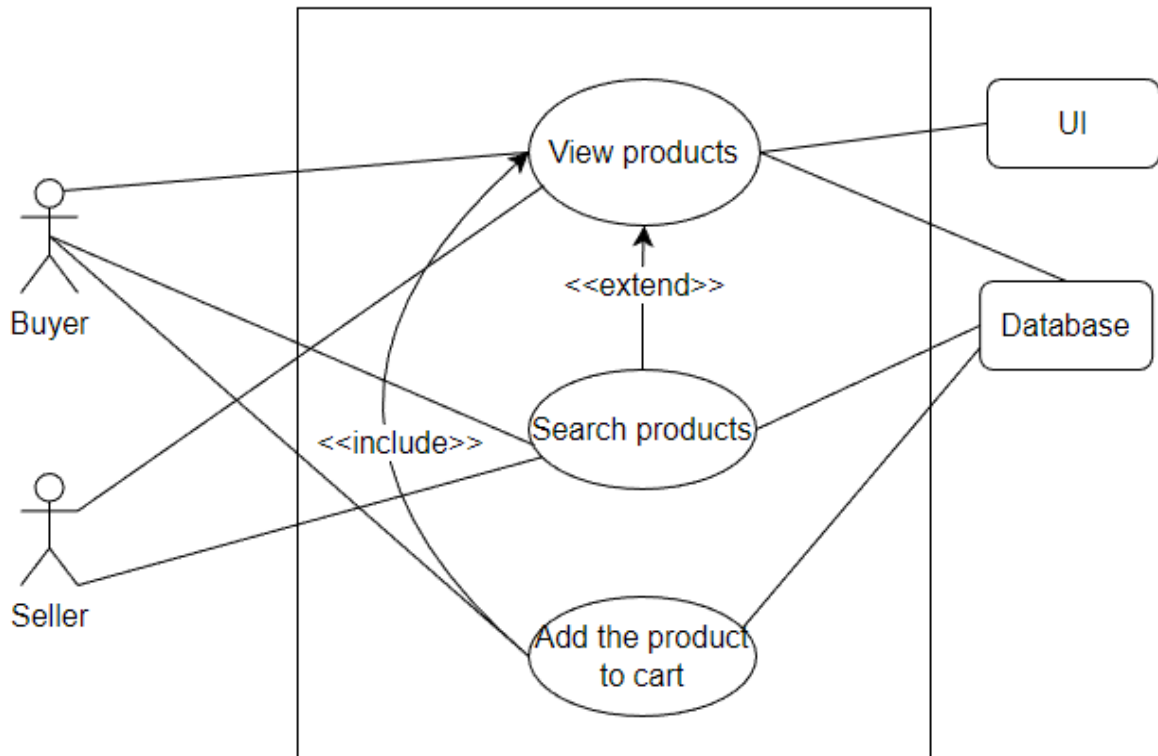
Exceptions:

1. The information provided by the seller is invalid. In this case an error message is displayed
2. An internal configuration error occurred.
3. Seller couldn't upload the product because of a bad internet connection.
4. The product images and descriptions are not clear or hard to understand.
5. Wrong information about the product is provided

Priority: High**When Available:** First increment**Frequency of use:** High (i.e., it will be used every day by many sellers)**Channel to actor:** UI**Secondary actors:** Database**Channel to secondary actor:** Through internet access**Open issues:**

- What will happen if the seller doesn't use his/her account for a long time?
- What will happen if the seller doesn't upload any product for a long period?
- How many times a seller will be able to upload products in a day?

Level 1.4 Search and view products use case diagram:



Use case name: Users view and search for products

Iteration:

- Developed by: Maliha Zaman on 28 May 2023

Primary Actor:

- Sellers and buyers

Goal in context:

- Users searching for a product to buy or view.

Preconditions:

- The users(buyers and sellers) should know about the type of product he/she have been looking for.
- The system must be fully configured for all the products the buyers are looking for.

Trigger:

- When the users press the search button it shows the results.

Scenario:

1. Users search for their products by the name of that product.
2. User clicks on the searched option to view the product.
3. User can view the product images and information
4. User can see the reviews and rating along with the product description
5. Users can view multiple images of the products if they are available.
6. Users can search for products using the price range.
7. Users view the products that belong to the searched price range.

Exceptions:

1. The user couldn't find the searched products
2. The searched products are not currently available.
3. The searched products are stock out.
4. Users couldn't view the products because of bad internet connection.
5. The product images and descriptions don't match the search.

Priority: High

When Available: First increment

Frequency of use: High (i.e., it will be used every day by many users)

Channel to actor: UI

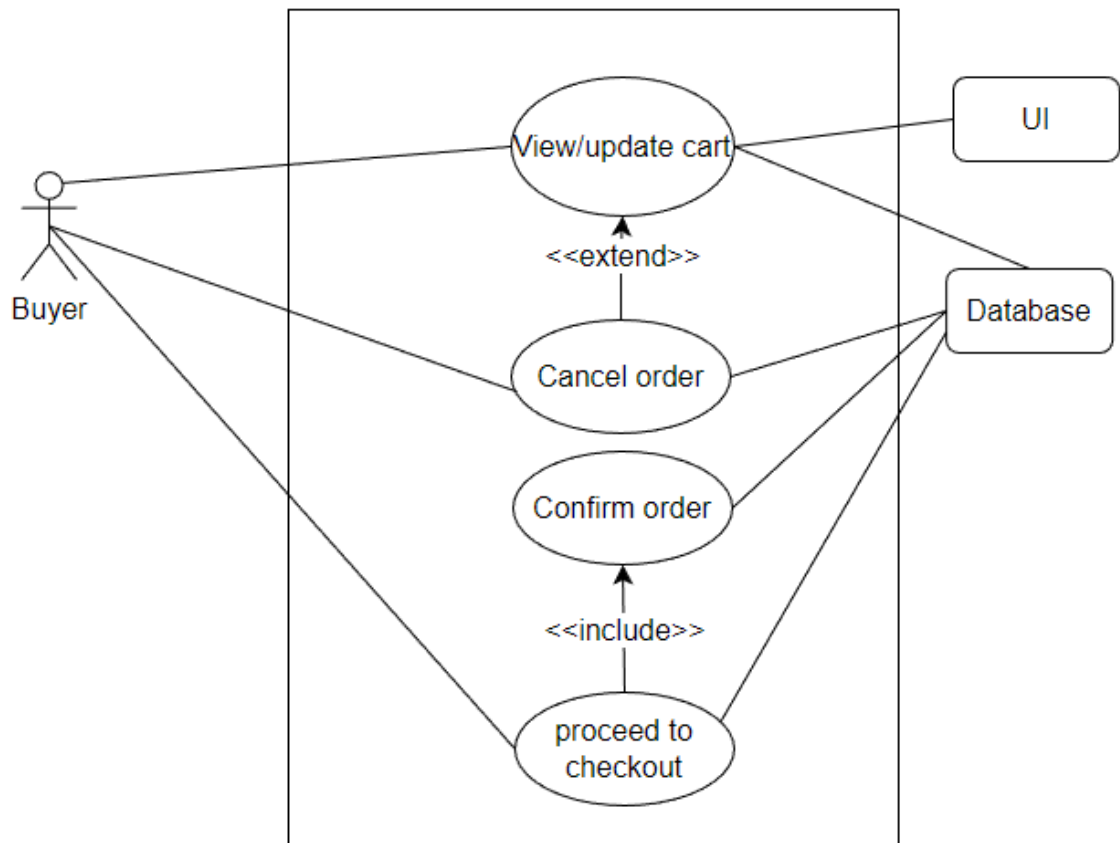
Secondary actors: Database

Channel to secondary actor: Through internet access

Open issues:

- How many products a user will be able to search on the website?
- What type of criteria will be used to search for the products

Level 1.5 Buy products use case diagram



Use case name: Buyer buy the products

Iteration:

- Developed by: Maliha Zaman on 28 May 2023

Primary Actor:

- buyers

Goal in context:

- Buyer wants to buy products.

Preconditions:

- The users(buyers) must be an authenticated user and must be logged in to make a purchase for the website.

Trigger:

- The user or buyer wants to make a purchase from his/her desired brands and pages.

Scenario:

1. Buyer clicks on the add to cart button to make a purchase.
2. Buyer views the cart after adding the products.
3. Buyer updates the cart if he/she wants to add more products to the cart .
4. Buyer removes products from the cart as well.
5. Buyer can clear the products from the cart.
6. Buyer clicks on proceed to checkout after updating the cart
7. Buyer cannot buy if the product is stock out.
8. Buyer confirms the order after updating the cart.
9. Sellers can not make any purchases.
10. Sellers are not allowed to click on the add to cart for any of the products

Exceptions:

1. The buyer couldn't make a purchase because the product is not available.
2. The internet connection was not stable enough to make a purchase.
3. The buyer forgets to update the cart before making the purchase.
4. The buyer got to know that the product is not available after making the purchase.

Priority: High

When Available: First increment

Frequency of use: High (i.e., it will be used every day by many users)

Channel to actor: UI

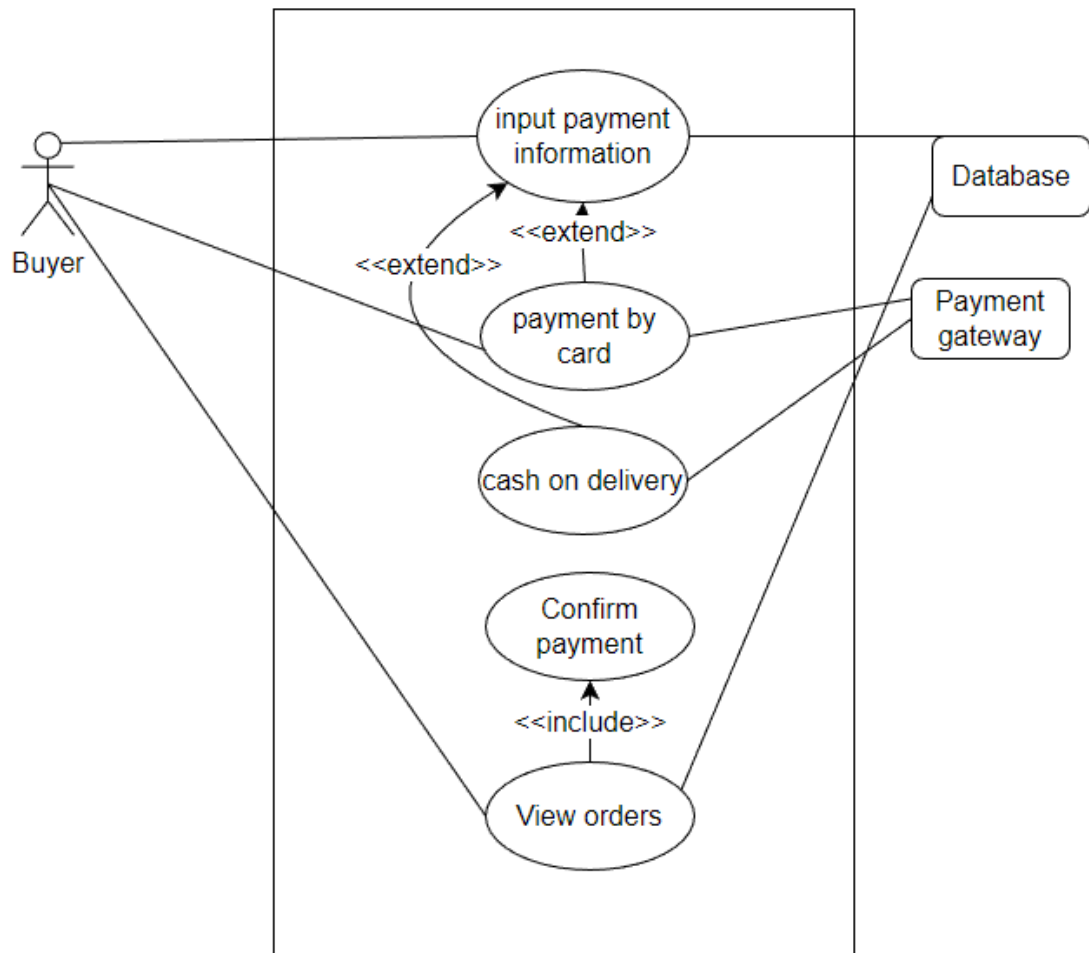
Secondary actors: Database,UI

Channel to secondary actor: Through internet access

Open issues:

- How many products a user will be able to buy from the website at once?
- How long will it take for a user to complete the whole process of buying a product?
- How many times a buyer will be able to buy products in a day?

Level 1.6 Pay the seller use case diagram



Use case name: Paying the seller for the products

Iteration:

- Developed by: Maliha Zaman on 28 May 2023

Primary Actor:

- buyers

Goal in context:

- Buyer pays the seller after making the purchase through the website.

Preconditions:

- The users(buyers) must be an authenticated user and must be logged in to make a purchase for the website.

Trigger:

- The user or buyer wants to pay the seller for the products and clicks on the proceed to payment.

Scenario:

1. Buyer clicks on the proceed to payment to make a purchase.
2. Buyer chooses the payment option either cash on delivery/by card.
3. Buyer provides card information such as card number,email address,expiration date etc .
4. Buyer clicks on continue to submit the payment information.
5. Buyers are redirected to the orders page after the payment is completed .
6. Buyer views the order history of their purchase after the order of the product has been placed
7. Payment will be transferred through their specified payment gateway.

Exceptions:

1. The buyer couldn't make a purchase because of providing wrong payment information
2. The credit card is expired
3. The bad internet connection while on the payment interface.
4. The buyer doesn't have a sufficient amount of money on his account to make the purchase.
5. The buyer gave the wrong email address to proceed. The email address must match with the email address of the logged in user(seller)
6. The payment has been done but the website is not showing any order.
7. The payment was unsuccessful because of any problems with the payment portal.

Priority: High

When Available: First increment. (based on the importance it may change)

Frequency of use: Medium (i.e., it will be used every day by many users)

Channel to actor: UI

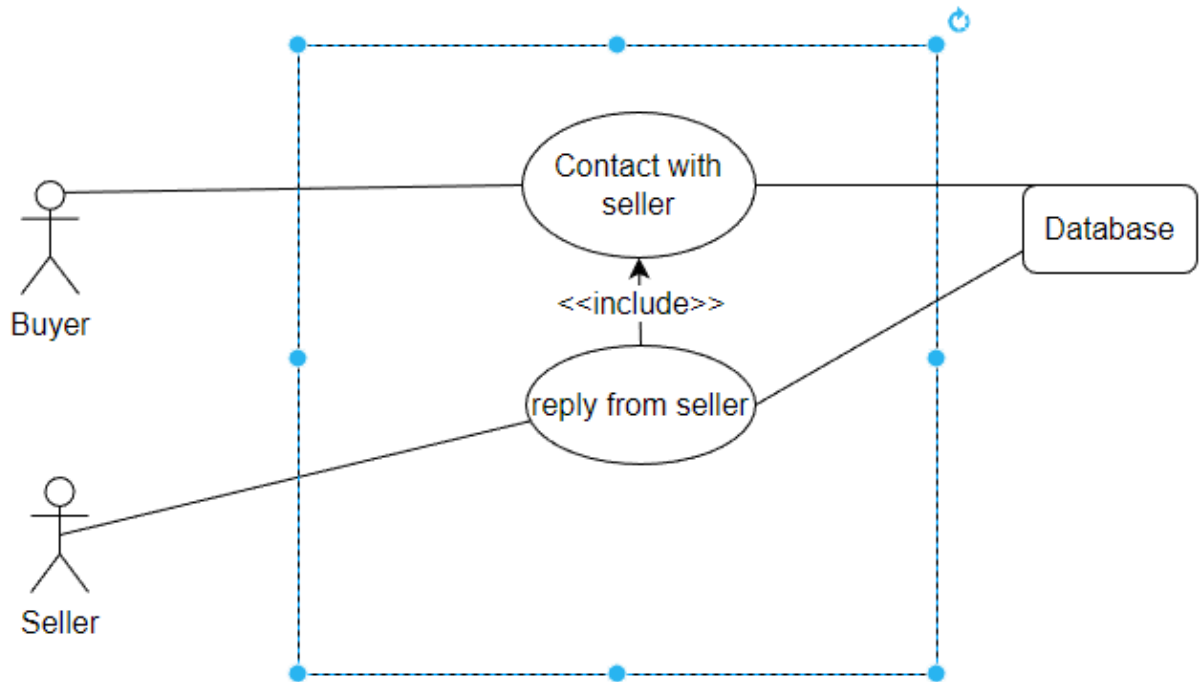
Secondary actors: Database,payment gateway

Channel to secondary actor: Through internet access

Open issues:

- How many times a user will be able to go through the payment system in a day?
- How long will it take for the payment portal to complete the payment?
- How many buyers will be able to use the payment portal at once or simultaneously?

Level 1.7 Chat with the seller use case diagram



Use case name: Chat with the seller

Iteration:

- Developed by: Maliha Zaman on 28 May 2023

Primary Actor:

- buyers,seller

Goal in context:

- Buyer wants to chat with the sellers after making the purchase to know about the delivery time of the products or any other query about the product.

Preconditions:

- The users(buyers and sellers) must be an authenticated user and must be logged in to the website.
- The buyer must make a purchase to make a contact with the seller.
- The seller must be available to reply to the buyer.

Trigger:

- The user or buyer wants to make a contact with the seller by clicking on the message button beside each order.

Scenario:

1. The buyer makes a purchase and in the order page there will be a message button
2. Buyer clicks on the message button beside each order to make contact with that particular seller.
3. Buyer messages the seller anytime he/she wants to.
4. Buyer connects with the seller with a real time chat system.
5. The seller replies to the messages sent by the buyer.
6. The buyer starts the conversation.
7. The user will also be able to know the time of the messages when it was sent

Exceptions:

1. The buyer couldn't make a contact with the seller because the seller is not available.
2. The seller forgot to check the messages.
3. The buyer couldn't understand what the seller said.
4. The seller and buyer didn't have the internet connection to send messages.
5. The seller is not available for a very long time.
6. The seller was not able to give fast replies.
7. The seller made the message as marked as read but actually never opened the message.

Priority: Medium

When Available: After payment (based on the importance it may change)

Frequency of use: Medium (i.e., it will be used every day by many users)

Channel to actor: UI

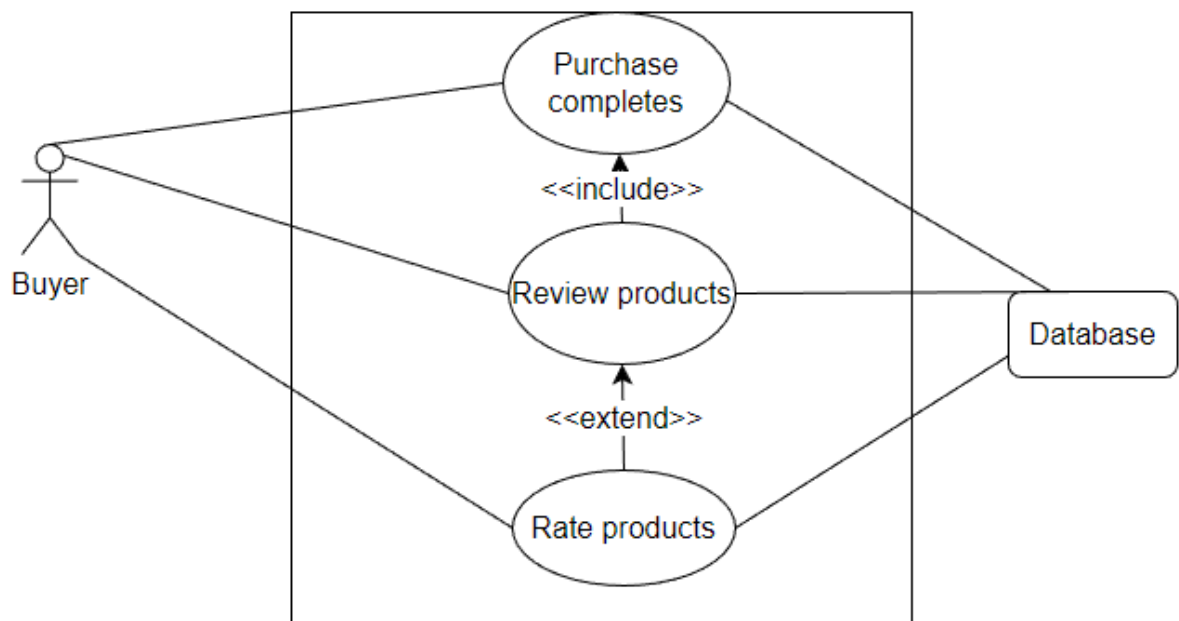
Secondary actors: Database.

Channel to secondary actor: Through internet access

Open issues:

- How many sellers a buyer can talk to at once or simultaneously?
- How long will it take for the buyer to receive a reply?

Level 1.8 Review and rate the products use case diagram:



Use case name: Review and rate the seller for the product

Iteration:

- Developed by: Maliha Zaman on 28 May 2023

Primary Actor:

- buyers

Goal in context:

- Buyer wants to give a review to the product and also wants to rate the product after buying it from the seller.

Preconditions:

- The users(buyers) must be an authenticated user and must be logged in to the website.
- The buyer must make a purchase to add a review to the product.
- The buyer must purchase a product to rate any product.

Trigger:

- The user or buyer wants to give a review (good/bad) to any product as a recommendation or suggestion for others.

Scenario:

1. The buyer makes a purchase and completes the payment and finally can add a review.
2. The buyer can add only one review for each order he/she made.
3. The buyer can rate the product as well.
4. Buyer rates the product from the scale of 1 to 5
5. Seller can not add any review
6. If the buyer tries to add a review before purchasing the product then it will show an error.
7. Buyer must be logged in the entire time to add a review

Exceptions:

8. The review is too long to post to the website.
9. The buyer rated it poorly without any reason.
10. The buyer gave a bad review without any reason.
11. The buyer provided a fake and irrelevant review for the product he/she purchased.
12. The buyer forgot to add any review
13. The buyer forgot to rate the product he/she bought..

Priority: Medium

When Available: After payment (based on the importance it may change)

Frequency of use: Medium (i.e., it will be used every day by many users)

Channel to actor: UI

Secondary actors: Database.

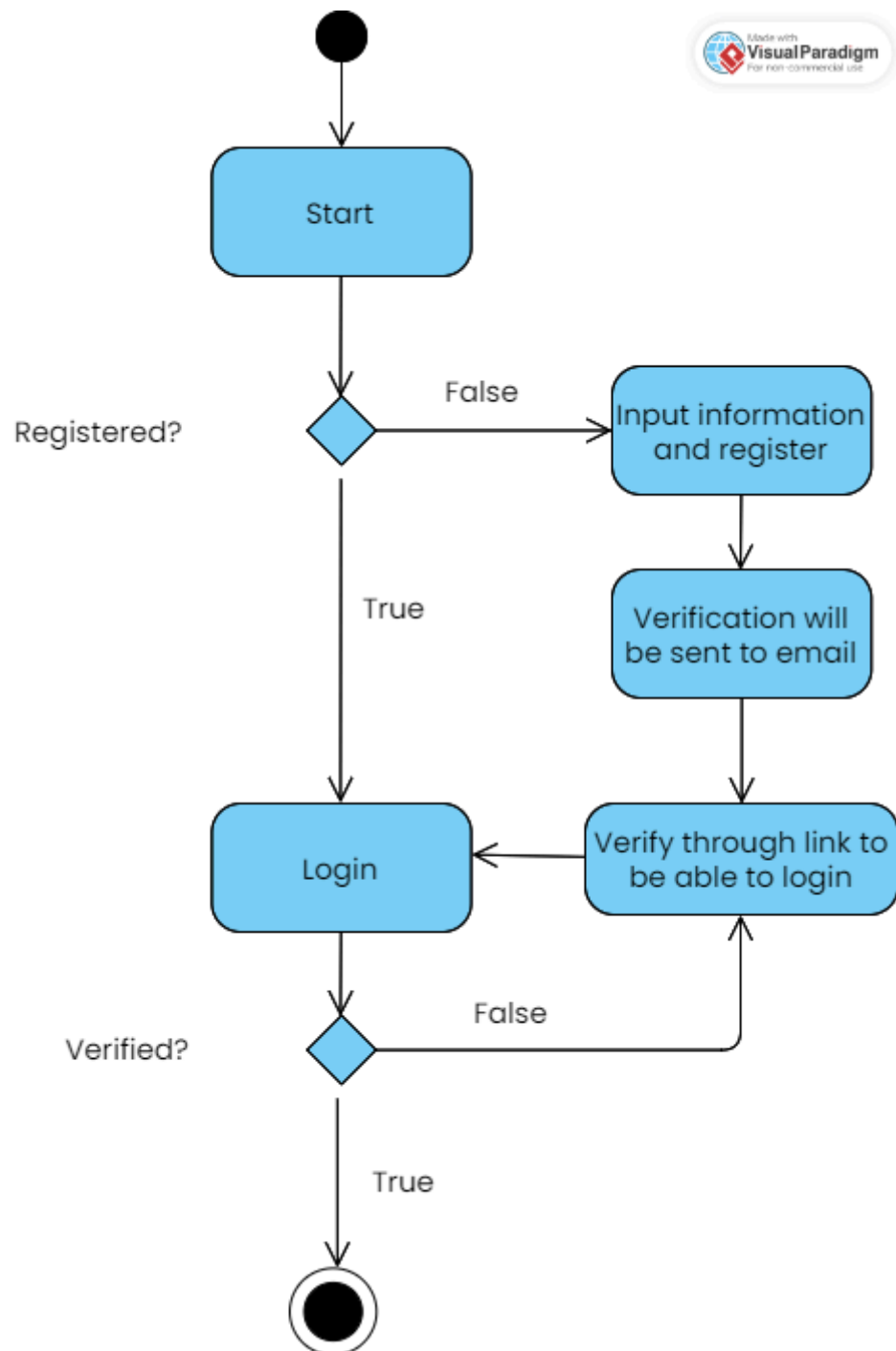
Channel to secondary actor: Through internet access

Open issues:

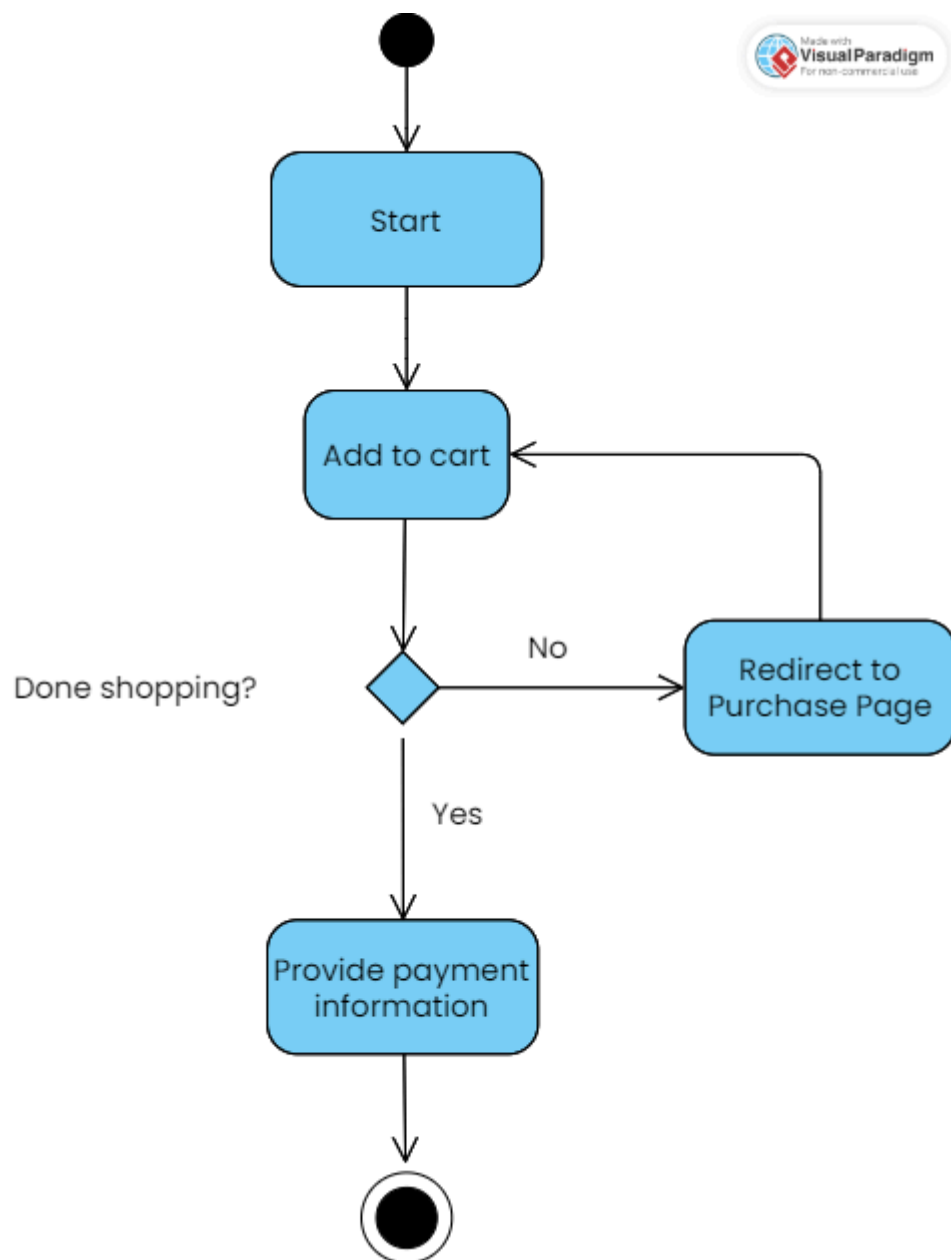
- How many users can add reviews for a particular product?

Activity Diagram

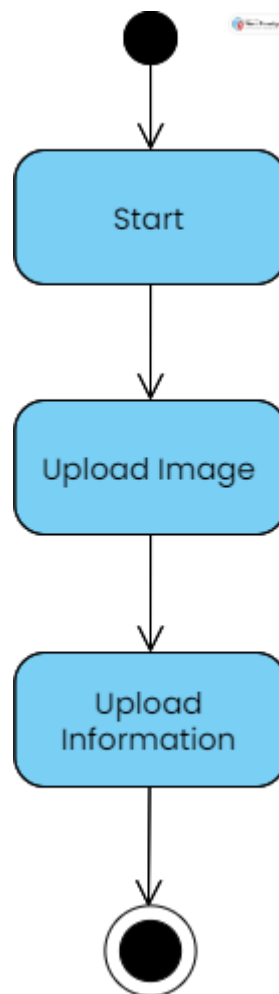
Activity Diagram for Authentication and Verification



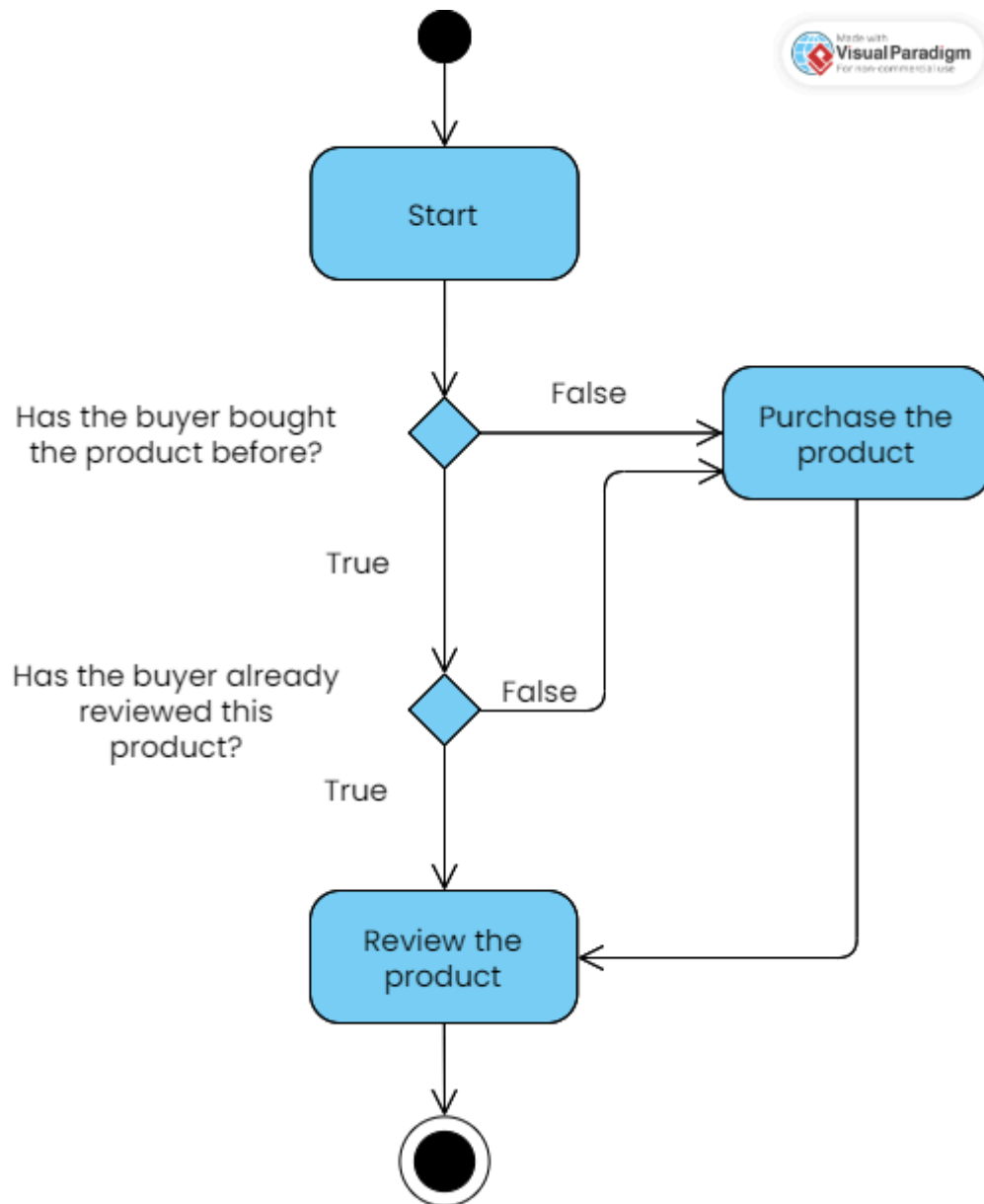
Activity Diagram for Purchasing Products:



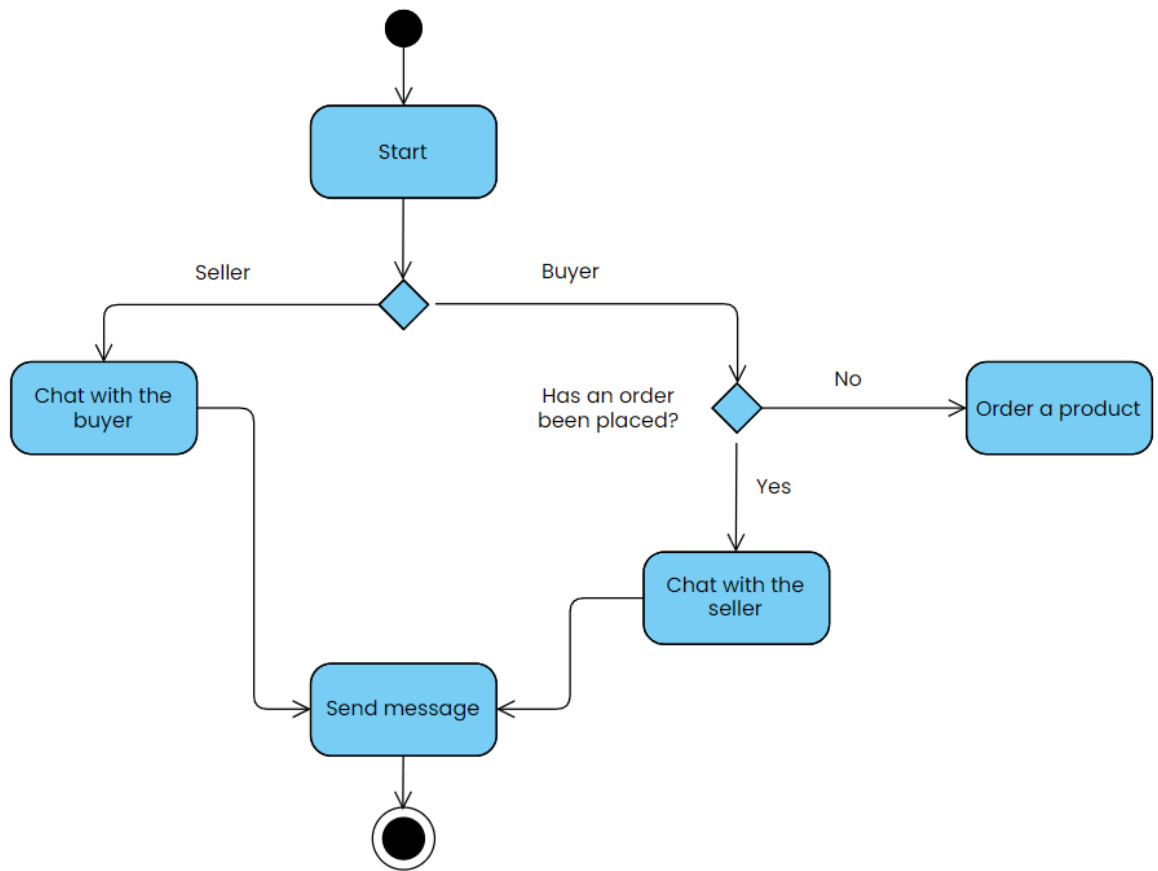
Activity Diagram for Selling Products:



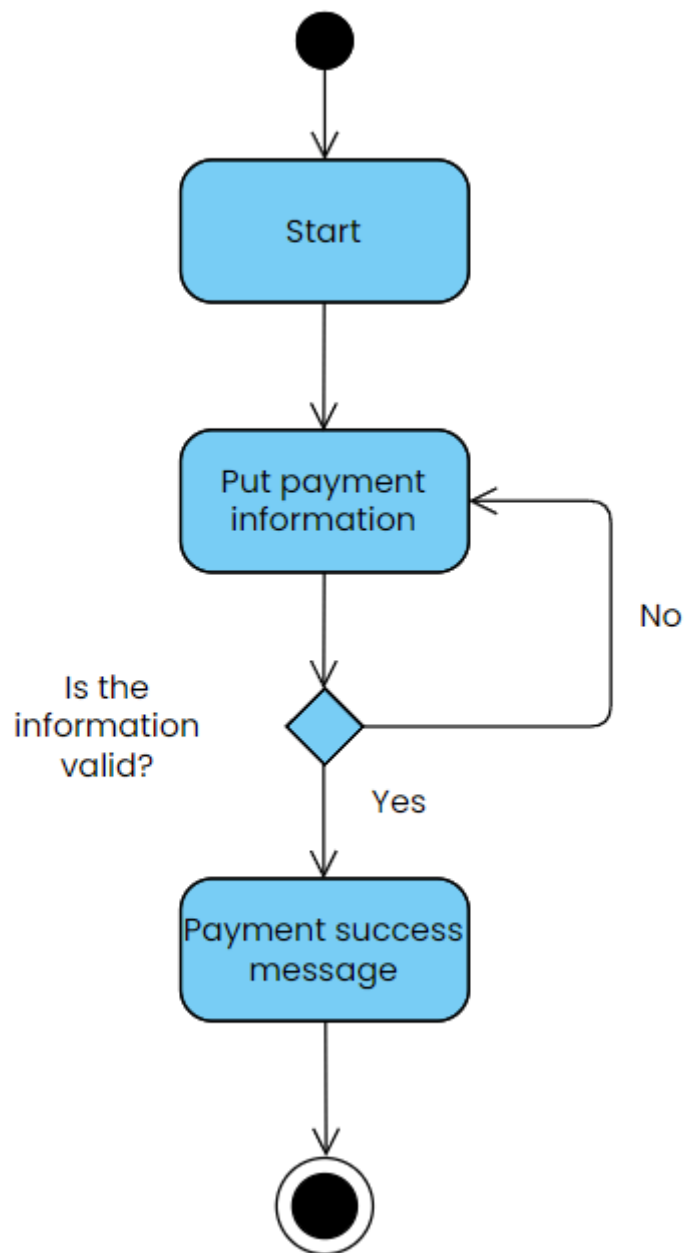
Activity Diagram for Review:



Activity Diagram for Chat System:



Activity Diagram for Payment:



Data Modeling

Noun Parsing

Serial no	Nouns	Attribute/ Field
1	Customer	5,6,7,8,9,13
2	Users	5,6,7,8,9,13,16,19
3	Page	10,14
4	information	
5	name	
6	Email address	
7	password	
8	country	
9	image	
10	checkout	
11	sellers	5,6,7
12	feedback	
13	Phone	2
14	order	21,15,9,17,35,25
15	title	
16	description	
17	price	
18	verification	
19	isSeller	
20	account	
21	products	15,16,25,38,17,9,27,32,28

22	reviews	2,42,23
23	rating	
24	cart	21
25	quantity	
26	image	
27	cover-image	
28	features	
29	notifications	
30	question	
31	concerns	
32	Delivery-time	
33	read-by	
34	Last-messages	
35	payment-intent	
36	conversation	2,37,33,34
37	message	
38	category	
39	button	
40	management	
41	buyer	5,6,7,8,9,13,16,19
42	review	

Composite Data Identification

Users
name email Country phone password Description Image isSeller

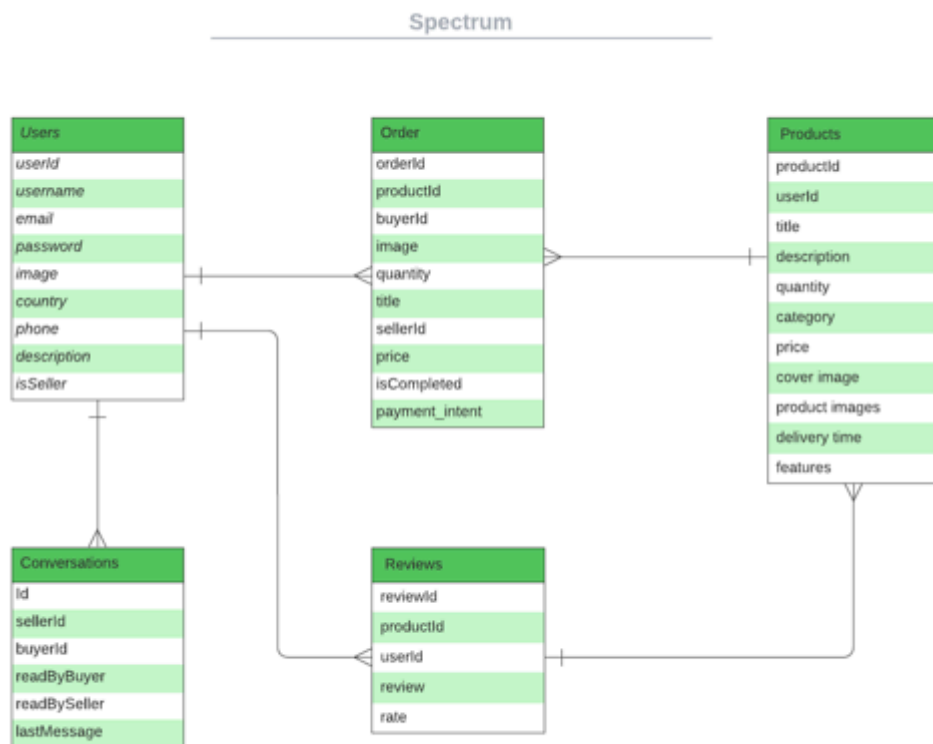
Order
product Image quantity title price Payment_intent

Products
Title description quantity category price Cover_image Images Delivery_time features

Conversations
name readby last_messages

Reviews
name Review rate

Entity-Relationship Diagram



Class Modeling

Noun parsing

External Entity	Payment gateway, database, external system
Things	Platform, join button, email address, password, name, signup, account, verification email, review, rating, description, price, cart, quantity, product, checkout, order button, comments, feedback, contact details, business name, orders, chat,
Occurrences or Events	Forward option, backward option, notification, add to cart, payment, contact us, add products
Roles	Sellers, buyers
Organizational Unit	Registered users, online mode
Places	Profile page, home page, chat page, product page, categories page, orders page, payment portal
Structure	Website

General classification of noun

1. Retained information
2. Needed services
3. Multiple attributes
4. Common attributes
5. Common operations
6. Essential requirements

Potential Class	Characteristic Number That Applies	Remarks
Payment gateway	2	Accepted
database	1	Rejected
external system	2	Rejected
Platform	2	Rejected
join button	2	Rejected
email address	1,2	Rejected
password	1	Rejected
name	1	Rejected
signup	2,4	Rejected
account	1,2,4,5	Accepted
verification email	2	Rejected
review	1,2,5,6	Accepted
rating	1,2,5,6	Accepted
description	1	Rejected
price	1	Rejected

cart	1,2	Rejected
quantity	1,4	Rejected
product	1,3,5	Accepted
checkout	2	Rejected
order button	2	Rejected
comments	1,2,5	Rejected
feedback	1,2,5	Accepted
contact details	1	Rejected
business name	1	Rejected
orders	1,2,3,4,5,6	Accepted
chat	1,2,3,4,5,6	Accepted
forward option	2	Rejected
backward option	2	Rejected
notification	2	Rejected
add to cart	2	Rejected
payment	2	Rejected
contact us	2	Rejected
add products	2	Rejected
users	1,3,4,5,6	Accepted
sellers	1,3,4,5,6	Accepted
buyers	1,3,4,5,6	Accepted
registered users	1	Rejected
conversation	1,3,4,5,6	Accepted
profile page	1,2,5	Rejected
home page	1,2,5	Rejected
chat page	1,2,5,6	Rejected

product page	1,2,5,6	Rejected
categories page	1,2,5	Rejected
orders page	1,2,5,6	Rejected
payment portal	1,2,4,5	Rejected
website	1,2	Rejected

Potential classes

1. Payment gateway
2. Account
3. Review
4. Rating
5. Product
6. Feedback
7. Orders
8. Chat
9. Users
10. Sellers
11. Buyers

Class and Attributes Identification

Class Name	Attributes
Payment gateway	Card number, amount, address, date
Account	Basic Information, Address,name,username,email,phoneNo
Review	Description, reviewer, product no,date
Rating	Stars, buyer, seller,date
Product	Seller, quantity, description, delivery date, average review, features, images, title

Feedback	Description, product no,date
Orders	Buyer, product no, quantity, total price, date
Chats	Last message, sender, receiver, date, seen
User	Basic Information, Address,name,username,email,phoneNo
Seller	Basic Information, Address,name,username,email,phoneNo
Buyer	Basic Information, Address,name,username,email,phoneNo

Verb parsing and object operation identification

Verb	Remark
Sell	yes
visit	Out of scope
click	Out of scope
Sign up	yes
Create account	yes
Receive confirmation email	yes
Email verification	yes
Display selected product	yes
Redirect to payment portal	yes
Log in	yes
Search product	yes
Filter product	yes
Add to cart	yes
Proceed to payment	yes
Pay	yes
Chat	yes
Review	yes

Add rating	yes
ensures	Out of scope

Assigning operation to class

Class Name	Method
Payment gateway	Sell Redirect to payment portal Proceed to payment Pay
Account	Sign up Create account Receive confirmation email Email verification Log in
Review	Review Add rating
Rating	Add rating Display selected product
Product	Display selected product Search product Filter product Add to cart
Feedback	Review Add rating
Orders	Add to cart Proceed to payment
Chat	Chat
Users	Sign up

	Create account Receive confirmation email Email verification Log in
Sellers	Sell
Buyers	Search product Filter product Add to cart Proceed to payment Pay

Conclusion

This document serves as a summary of the outcome of the development process for Spectrum, an e-commerce website with an integrated chat system.

The objective of this document was to showcase the essential features of our project, including product display, search, shopping cart management, secure payment processing, and an integrated chat system for customer support.

We would like to express our gratitude to our team members who contributed their efforts and collaborated throughout the development process of Spectrum. Each team member played a vital role in collecting and documenting the software requirements, designing the user interface, implementing the functionalities, and ensuring the overall quality of the project.

The supervision and guidance provided by MD. Rafid Haque was instrumental in shaping our understanding of software requirements and specifications. Their expertise and feedback helped us to refine our approach and deliver a well-designed and functional e-commerce website.

Although Spectrum is not a deployable worthy project yet, the skills and knowledge gained from its development will prove valuable in our academics. We have learned important lessons about software engineering, user experience design, and the complexities of building an e-commerce platform with an integrated chat system.

As we conclude this project, we acknowledge the importance of effective collaboration, communication, and adherence to industry standards in software development. The process of gathering requirements, designing solutions, and implementing functionalities has provided us with practical experience and deepened our understanding of software development.

We are confident that the skills and knowledge gained from this project will serve us well in future endeavors in the field of software development and contribute to the success of similar projects.