

ONLINE SHOPPING SYSTEM

System Requirements Specification

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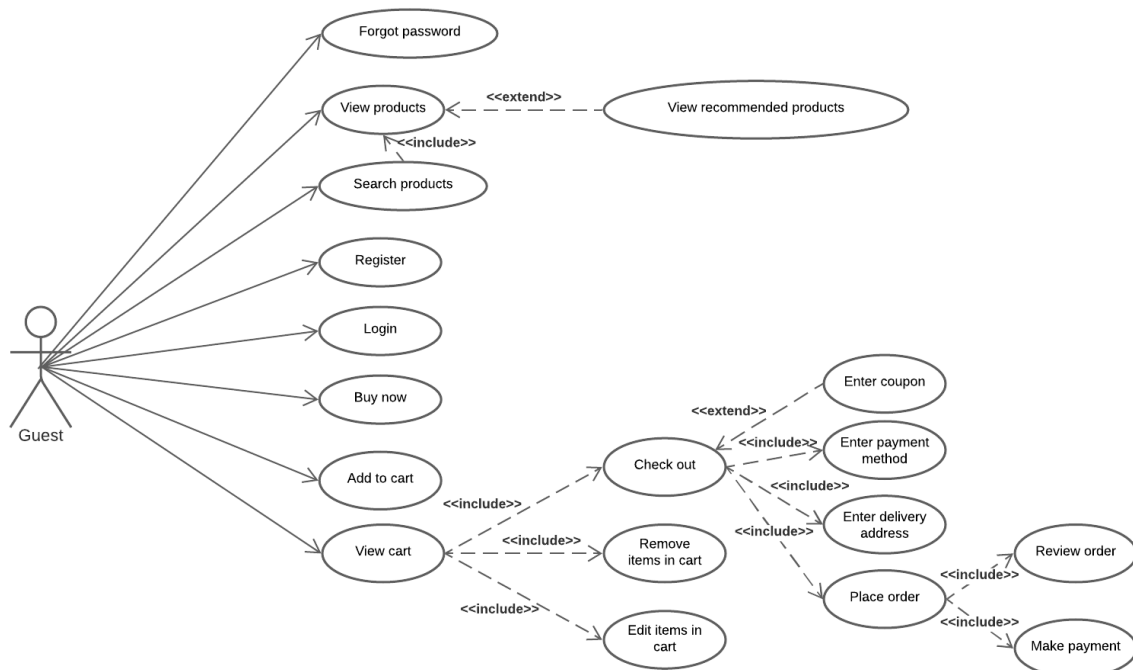
Github repository:

<https://github.com/xii1/se-project>

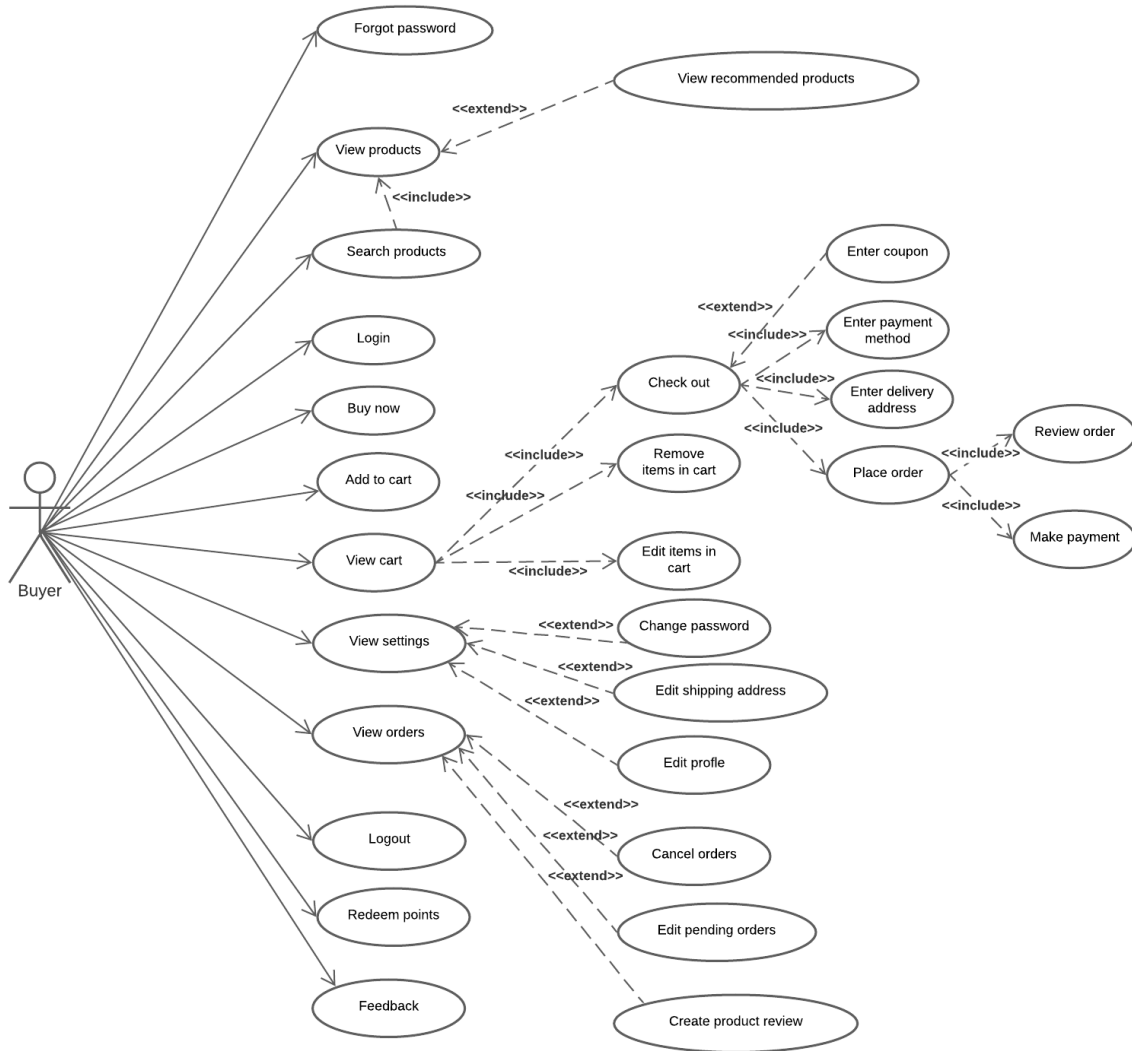
I. Use-case model

A. Use case diagram

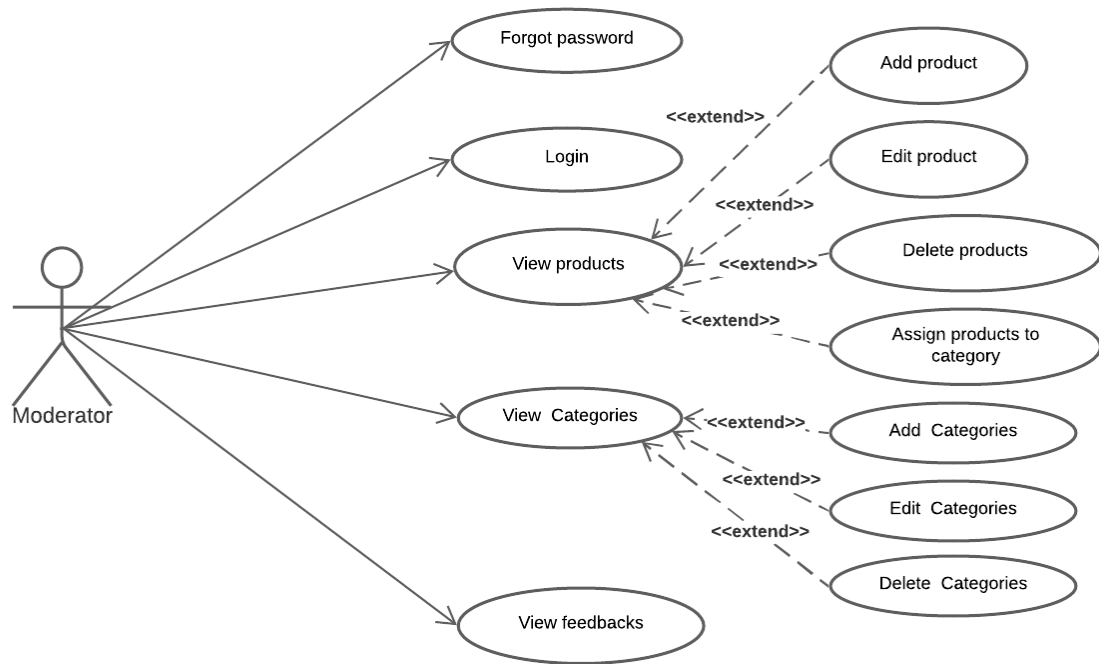
1. Guest



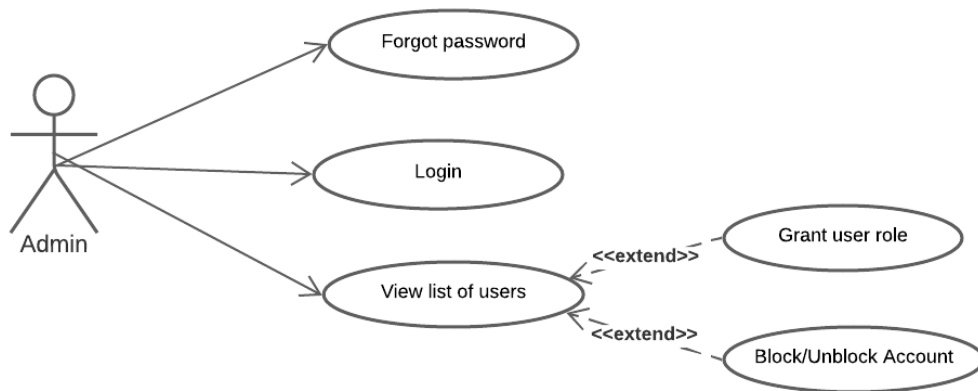
2. Buyer



3. Moderator



4. Admin



B. Use case description

Use case number: 1		
Name: Login		
Brief description: A user logs in to the system to access the functionality of the system		
Actors: Guest, Buyer, Moderator, Admin		
Preconditions		
<ul style="list-style-type: none">- The user must access the website/mobile application		
Flows of Events		
Step	User Actions	System Actions
1	Enter username and password	Validate exists username
2	Click to Login button	Validate password
Postconditions		
<ul style="list-style-type: none">- After a successful login, the page is redirected to the main page with that a successful message is shown- After a failed login, a failed message is shown. The user can try again		
Business Rules		

Use case number: 2		
Name: View products		
Brief description: A user view list of categories and products		
Actors: Guest, Buyer, Moderator		
Preconditions		
<ul style="list-style-type: none">- The user must access the website/mobile application- The Buyer, Moderator must log in successfully. The Guest doesn't need to log in		
Flows of Events		
Step	User Actions	System Actions

1	Click to button Product Categories on the website/mobile application	Show list of product categories on the website/mobile application
2	Click on any product to view	Show list of products include name, description, image, price, available quantity
Postconditions		
Business Rules		

Use case number: 3		
Name: Search products		
Brief description: A user search list of products with a condition or specified category		
Actors: Guest, Buyer, Moderator		
Preconditions		
<ul style="list-style-type: none"> - The user must access the website/mobile application - The Buyer, Moderator must log in successfully. The Guest doesn't need to log in 		
Flows of Events		
Step	User Actions	System Actions
1	Type search area and choose category and filter condition	
2	Click to button Search	Show list of products include name, description, image, price, available quantity
Postconditions		
Business Rules		
<ul style="list-style-type: none"> - The search result is returned exactly depending on the filter condition of the user 		

Use case number: 4		
Name: Add to cart		
Brief description: A user add to the cart the product that they want to buy		
Actors: Guest, Buyer		
Preconditions		
<ul style="list-style-type: none"> - The user must access the website/mobile application - The Buyer must log in successfully. The Guest doesn't need to log in - The user must view or search products user case 		
Flows of Events		
Step	User Actions	System Actions
1	Click to Add to cart button on the product	Add product item into the cart
Postconditions		
Business Rules		
<ul style="list-style-type: none"> - The product must have at least one available quantity to add to the cart 		

Use case number: 5		
Name: View Product Details		
Brief description: This use case allows users to view detail of a product by viewing a product detail screen		
Actors: Guest, Buyer		
Preconditions		
The buyer must log in to the system		
Flows of Events		
Step	User Actions	System Actions
1	The guest/buyer selects to view a product they want	The system returns the product object as a string with product name, quantity, price,

		reviews, ...
Postconditions		
The buyer profile is persisted in the system		
Business Rules		
No duplicate buyer profile. A unique profile is identified by email address		

Use case number: 6		
Name: View Cart		
Brief description: This use case allows users to view a list of items in cart, total price of cart items		
Actors: Guest, Buyer		
Preconditions		
The item must be added to the cart. The buyer must logged in to the system		
Flows of Events		
Step	User Actions	System Actions
1	The guest/buyer selects to view cart	System checks if there is anything in cart, then returns a list of item(s) in cart, if not, display an empty cart message
Postconditions		
The buyer profile is persisted in the system		
Business Rules		
Display a list of items in the cart in recent order.		

Use case number: 7		
Name: Register an account		
Brief description: A method for guests to register their accounts on the system		

Actors Guest		
Preconditions		
Flows of Events		
Step	User Actions	System Actions
1	Guest calls the create account command	The system displays the buyer profile form with first name, last name, email, password
2	The guest fills out the form and requests the system to save the details	The system checks if no other buyer profile with the same email exists in the database and stores the buyer profile and returns a success message. If there is an exception, the system will display a failure message. If there is a duplicate entry in the database, the system will return a message stating that a similar entry exists.
Postconditions		
The buyer profile is persisted in the system		
Business Rules		
No duplicate buyer profile. A unique profile is identified by email address.		

Use case number: 8		
Name: Settings		
Brief description: This UseCase allows the buyer to access and modify settings such as password		
Actors: Buyer		
Preconditions		
The Buyer must be logged in to the system		
Flows of Events		
Step	User Actions	System Actions

1	The Buyer changes the password and shipping address information.	The system updates and changes the old data with the new ones.
Postconditions		
The Buyer's information is persisted in the system.		
Business Rules		
No duplicate Buyer information. A unique identity is identified by email.		

Use case number: 9		
Name: View orders		
Brief description: This UseCase allows the Buyer to see the order list with the order's status		
Actors: Buyer		
Preconditions		
The Buyer must be logged in to the system		
Flows of Events		
Step	User Actions	System Actions
1	A buyer wants to view their orders to keep track of the current order status if it exists.	The system verifies and displays all the buyer's current orders list.
Postconditions		
The Buyer's information is persisted in the system.		
Business Rules		
No duplicate Buyer information. A unique identity is identified by email.		

Use case number: 10		
Name: Redeem point		
Brief description: This UseCase allows A buyer to redeem her/his redeem point to get coupons		

Actors: Buyer		
Preconditions		
The Buyer must be logged in to the system		
Flows of Events		
Step	User Actions	System Actions
1	The buyer gets an amount of redeeming points	The System changes the amount of redeeming points to coupons.
Postconditions		
The Buyer's information is persisted in the system.		
Business Rules		
No duplicate Buyer information. A unique identity is identified by email.		

Use case number: 11		
Name: Reset password		
Brief description: This UseCase allows the moderator to reset their password		
Actors: Moderator		
Preconditions		
The moderator must enter the registered email function.		
Flows of Events		
Step	User Actions	System Actions
1	The moderator requests a password change	The system verifies and changes passwords successfully.
Postconditions		
The moderator's information is persisted in the system.		
Business Rules		

No duplicate moderator information. A unique identity is identified by email.

Use case number: 12

Name: View feedbacks

Brief description: This UseCase allows the moderator to view feedbacks of users

Actors: Moderator

Preconditions

The moderator must be logged in to the system

Flows of Events

Step	User Actions	System Actions
1	The moderator wants to view the feedback of the users	The system verifies and displays all the user feedback about the products.

Postconditions

The moderator's information is persisted in the system.

Business Rules

No duplicate moderator information. A unique identity is identified by email.

Use case number: 13

Name: Manage User

Brief description: This UseCase allows the admin to manage users

Actors: Admin

Preconditions

The Admin must be logged in to the system

Flows of Events		
Step	User Actions	System Actions
1	The Admin wants to manage users	The system verifies and allows the Admin to grant user role, or block/unblock user
Postconditions		
The Admin's information is persisted in the system.		
Business Rules		
No duplicate Admin information. A unique identity is identified by email.		

II. Supplementary specification

A. Objectives

The purpose of this document is to define the non-functional requirements of The Online shopping system. This Supplementary Specification lists the requirements that are not readily captured in the use cases of the use-case model. The Supplementary Specifications and the use-case model together capture a complete set of requirements on the system.

B. Scope

This Supplementary Specification applies to the Online Shopping System. This specification defines the non-functional requirements of the system; such as reliability, usability, performance, and supportability as well as functional requirements that are common across a number of use cases. (The functional requirements are defined in the Use Case Specifications.).

C. Reliability

- Availability: The system must be available 24 hours a day, 7 days a week, and no more than 0.1% downtime a year.
- Mean Time Between Failures must exceed 14 days.
- Mean Time To Repair must be less than 30 minutes.
- Maximum bugs or defect rate: 2 bugs/KLOC or 3 bugs/function-point

D. Performance

- The system must serve at least 10,000 concurrent users
- The system must handle a user's task in a maximum of three seconds.
- The database's system must be able to handle 10,000 transactions/sec with no more than 2 seconds latency.
- Resource utilization: The system must use memory and CPU effectively (no more than 8GB memory and 75% CPU).

E. Security

- The system must implement authentication and authorization for all user types.
- The system must not have critical security bugs and must pass penetration testing.
- The system must implement secure communication.
- The system must encrypt the user's data as well as not save the user's sensitive information at all.

F. Design constraints

- The system should use microservices architecture, Java, Spring Framework, Hibernate ORM, and docker to scale fastly and automatically.

III. Glossary

Term	Definition
Guest	A non-registered user with basic functions such as view, search, add to cart, and checkout.
Buyer	A registered user with basic functions plus: stored payment and shipping information, rewards, order modification, product review, etc.
Moderator	A user that can manage the product and category and is able to see the feedback of the app from other users
Admin	A user that can manage and grant permissions to other users.
Database	An organized collection of data stored and accessed electronically from a computer system
Mean Time	Average time
Concurrent users	The total number of people who use a service in a predefined period of time
Latency	The delay in transmitting or processing data
Penetration Testing	A simulated test to evaluate the security of the system by safely trying to identify vulnerabilities
Encrypt	Translate information into code that hides the true meaning
Microservices	An approach to designing software systems that are made up of small independent services that each have a particular purpose
Hibernate ORM	An object-relational mapping tool for the Java programming language
Spring	Most popular open-source Java's framework

Docker	A container that simplifies the process of building, running, managing, and distributing applications
Bug	An error in a computer code produces an incorrect or unexpected result
KLOC	Thousands of lines of code
function-point	A unit of measurement to represent the number of business functionality an information system provides to a user.