

USECASE SPECIFICATION

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1. General Use Case Diagram



Figure 1: General Use Case Diagram

The usecases in the diagram are from a high-level point-of-view. We will split it into smaller usecases in the documentation:

- Browse Products
 - View listed products in homepage
 - Search Products
 - View product's details
- Manage Cart
 - Add product to cart
 - Update product quantity in cart
 - Remove product from cart
- CRUD Products
 - Create product
 - Update product
 - Delete product

2 Use case “ View list Products in homepage”

Use Case “View list Products in homepage”

1. Use case code

UC001

2. Brief Description

This use case describes the interaction between the customer and the system when the customer views the list of products on the homepage.

3. Actors

3.1 Customer

4. Preconditions

The customer has entered the AIMS system

5. Basic Flow of Events

1. The customer accesses the homepage
2. The system queries the list of all available products
3. The system displays the list of available products on the homepage

6. Alternative flows

7. Input data

8. Output data

9. Postconditions

3 Use case “Search product”

Use Case “Search Product”

1. Use case code

- UC002

2. Brief Description

- This use case describes the interaction between AIMS software and customer when customer wishes to search for a product

3. Actors

3.1 Customer

4. Preconditions

- The customer is on the homepage screen

5. Basic Flow of Events

1. The AIMS software displays the homepage.
2. The customer inputs search criteria (e.g., product name, category, keywords).
3. The AIMS software processes the search query to find relevant products.
4. The AIMS software displays the list of relevant products based on the search criteria

6. Alternative flows

Table A1 - Alternative flows of events for UC Search product

No	Location	Condition	Action	Resume location
1.	At Step 2	If the customer choose the “Book” option	▪ The system search all the Book product	Resumes at Step 3
2.	At Step 2	If the customer choose the “CD” option	▪ The system search all the CD product	Resumes at Step 3
3.	At Step 2	If the customer choose the “DVD” option	▪ The system search all the DVD product	Resumes at Step 3

7. Input data

Table 1-Input data of Search product

No	Data fields	Description	Mandatory	Valid condition	Example
1.	Product’s name	String			Harry Potter

8. Output data

9. Postconditions

4 Use case “Add product to cart”

Use Case “Add product to cart”

1. Use case code

- UC003

2. Brief Description

- This use case describes the interaction between the customer and the system when the customer wants to add a product to the cart.

3. Actors

3.1 Customer

4. Preconditions

The product exists in the system and the available quantity is non-zero.

5. Basic Flow of Events

1. The customer selects the product and enters the desired quantity.
2. The customer adds the product to the cart.
3. The system checks the available quantity.
4. The system adds the product with the given quantity to the cart
5. The system updates the total number of products in the cart

6. Alternative flows

Table A2 - Alternative flows of events for UC Add product to cart

No	Location	Condition	Action	Resume location
1.	At Step 1	The desired quantity exceeds the available quantity	<ul style="list-style-type: none">▪ The system displays an error message	Use case ends

7. Input data

8. Output data

9. Postconditions

- The product and the desired quantity have been updated to the cart

5 Use case “View product’s details”

Use Case “View product’s details”

1. Use case code

UC004

2. Brief Description

This use case describes the interaction between the customer when the customer wants to view the detailed information of a specific product

3. Actors

3.1 Customer

4. Preconditions

The product has existed in the system.

5. Basic Flow of Events

1. The customer chooses to view the details of a product
2. The system queries the product’s details in the database
3. The system displays the product’s detail

6. Alternative flows

7. Input data

8. Output data

9. Postconditions

6 Use case “Place order”

Use Case “Place order”

1. Use case code

UC005

2. Brief Description

This use case describes the interaction between the customer when the customer wants to place an order

3. Actors

3.1 Customer

4. Preconditions

5. Basic Flow of Events

1. The customer chooses to place an order
2. The system checks the product's availability
3. The system prompts the customer to enter a delivery form (See Table 1)
4. The customer enters and submits the delivery form
5. The system validates the form's information
6. The system calculates the shipping fee
7. The system displays an invoice screen
8. The customer confirms the invoice
9. The system calls the “Pay Order” use case
10. The system displays the successful payment
11. The system records the order to the database

6. Alternative flows

Table A3 - Alternative flows of events for UC Place order

No	Location	Condition	Action	Resume location
1.	At Step 4	If the form's information is invalid	▪ The system displays an error message	Restart at step 3
2.	At step 2	If the product is unavailable	▪ The system displays an error message	Use case ends
3.	At step 6	If the customer cancels the order	▪ The system displays the home page	Use case ends

4.	At step 8	If the Pay order use case returns an failed result	<ul style="list-style-type: none"> The system displays an error message 	Restart at step 6
5.	At step 3	If the customer choose to place a rush order	<ul style="list-style-type: none"> The system prompts the customer to provide rush delivery information and call the “Place rush order” use case 	
6.	At step 1	If the cart is empty	<ul style="list-style-type: none"> The system displays an error message 	Resume at step 1

7. Input data

Table 1 – Delivery form input

No	Data fields	Description	Mandatory	Valid condition	Example
1.	Name	The name of the buyer	Yes	A string only consists of lower and upper-case letters	Mai Hoang Duc
2	Phone	The phone number of the buyer	Yes	A string of ten digits	0355290403
3	City	The city of where the buyer lives	Yes	Choose a city in the list	Ha Noi
4	Address	The detail address of the buyer	Yes	A string can contain letters, digits, spaces and commas	270 Hoàng Mai, Hoang Van Thu, Hoàng Mai, Ha Noi
7	Email	The buyer’s personal email	Yes	A string in the form abc@xyz.ghk	duccc@email.com
8	Delivery instructions	The instructions for this order			

8. Output data

Table 1 – Invoice Screen Output

No	Data fields	Description	Display format	Example
1.	Name	The name of the buyer	String	Mai Hoang Duc

2.	Phone	The phone number of the buyer	A string of 10 digits	0355290403
3.	Email	The email of the buyer	A string in the form abc@xyz.ghk	duc@email.com
4.	Address	The address of the buyer	String	
5.	Delivery instruction	The delivery instruction of the order		
6.	Rush order time	The rush delivery time of the order	A string in the form hh:mm	14:00
7.	Rush order delivery instructions	The rush delivery instruction of the order		
8.	Subtotal	The total amount of money for the product (VAT included)		45.000d
9.	Shipping fees	The shipping fee for the order		
10.	Total	The total amount of money for this order		

9. Postconditions

- An order with the pending status is added to the system database

7 Use case “Place rush order”

Use Case “Place rush order”

1. Use case code

UC006

2. Brief Description

This use case describes the interaction between the customer when the customer wants to place a rush order

3. Actors

3.1 Customer

4. Preconditions

The customer chooses to place a rush order

5. Basic Flow of Events

1. The customer chooses to place a rush order
2. The system checks whether rush order is supported for the location
3. The system prompts the customer to enter a rush delivery form (See Table 1)
4. The customer enters and submits the delivery form
5. The system validates the form's information
6. The system recalculates the shipping fee

6. Alternative flows

Table N-Alternative flows of events for UC Place rush order

No	Location	Condition	Action	Resume location
1.	At Step 2	If rush delivery isn't supported for the location	<ul style="list-style-type: none">The system displays an error message	Use case ends
2.	At Step 4	If the form's information is invalid	<ul style="list-style-type: none">The system displays an error message	Restart at step 3

7. Input data

Table 1 – Rush delivery form

No	Data fields	Description	Mandatory	Valid condition	Example
1	Rush delivery time	String	Yes	A string in the format hh:mm	14:00
2	Rush delivery instructions	String			

8. Output data**9. Postconditions**

- Rush delivery information has been added to the order's information

8 Use case “Pay order”

Use Case “Pay order”

1. Use case code

UC007

2. Brief Description

This use case describes the interaction between the customer when the customer wants to pay for an order

3. Actors

3.1 Customer

4. Preconditions

The customer has confirmed invoice

5. Basic Flow of Events

1. The system redirects the customer to VNPay software screen
2. The VNPay software screen returns the transaction information
3. The system records the transaction information to the database
4. The system displays the successful payment result

6. Alternative flows

NONE

7. Input data

8. Output data

Table 1 – Payment result screen

No	Data fields	Description	Display format	Example
1.	TransactionID	The ID of the money transaction	String	14464072
2.	Amount	The amount of money	Positive integers, comma for thousand separator, Vietnamese currency (d)	88.000d
3.	Content	The content of the transaction	String	Payment
4.	Transaction time	The time of the transaction	yy/mm/dd hh:mm:ss	2024/06/17 22:37:33

9. Postconditions

- Rush delivery information has been added to the order's information

9 Use case "Update product quantity in cart"

Use Case "Update product quantity in cart"

1. Use case code

UC008

2. Brief Description

This use case describes the interaction between the customer and the AIMS system when the customer wants to update the product's quantity in the cart

3. Actors

3.1 Customer

4. Preconditions

There exists at least one product in the cart

5. Basic Flow of Events

1. The customer adjusts the product's quantity in the cart
2. The software validate the new product's quantity
3. The software displays the new product's quantity in the cart
4. The software recalculates the subtotal, VAT and total amount of money

6. Alternative flows

Table N-Alternative flows of events for UC Update product quantity in cart

No	Location	Condition	Action	Resume location
1.	At Step 2	If the product's quantity exceeds the available quantity	<ul style="list-style-type: none">▪ The system displays an error message	Use case ends

7. Input data

8. Output data

9. Postconditions

10 Use case “Delete product from cart”

Use Case “Delete product from cart”

1. Use case code

UC009

2. Brief Description

This use case describes the interaction between the customer and the AIMS system when the customer wants to delete a product from the cart

3. Actors

3.1 Customer

4. Preconditions

There exists at least one product in the cart

5. Basic Flow of Events

1. The customer chooses to delete a product from the cart
2. The software deletes the product from the cart
3. The software recalculates the subtotal, VAT and total amount of money

6. Alternative flows

7. Input data

8. Output data

9. Postconditions

11 Use case “Log in” for product manager

Use Case “Log in” for product manager

1. Use case code

UC010

2. Brief Description

This use case describes the interaction between the product manager and the AIMS system when the product manager wants to log in

3. Actors

3.1 Product manager

4. Preconditions

5. Basic Flow of Events

1. The product manager enters the account information
2. The software check the product manager’s username and password
3. The software redirects to the homescreen of the product manager

6. Alternative flows

Table N-Alternative flows of events for UC Log in

No	Location	Condition	Action	Resume location
1.	At Step 2	If the data doesn’t match	▪ The system displays an error message	Use case ends

7. Input data

Table 1 – Login input data

No	Data fields	Description	Mandatory	Valid condition	Example
1	User name	The name of the product manager’s account	Yes		tester
2	Password	The password of the product manager’s account	Yes		tester

8. Output data

9. Postconditions

- The product manager can now use all of the system's services for product manager.

12 Use case “Log in” for user

Use Case “Log in” for user

10. Use case code

UC010

11. Brief Description

This use case describes the interaction between the user and the AIMS system when the user wants to log in

12. Actors

12.1 User

13. Preconditions

14. Basic Flow of Events

4. The user enters the account information
5. The software check the user’s username and password
6. The software redirects to the homescreen of the user

15. Alternative flows

Table N-Alternative flows of events for UC Log in

No	Location	Condition	Action	Resume location
1.	At Step 2	If the data doesn’t match	▪ The system displays an error message	Use case ends

16. Input data

Table 1 – Login input data

No	Data fields	Description	Mandatory	Valid condition	Example
1	User name	The username of the user’s account	Yes		tester
2	Password	The password of the user’s account	Yes		tester

17. Output data

18. Postconditions

- The product manager can now use all of the system’s services for product manager.

13 Use case “Create product”

Use Case “Create product”

1. Use case code

UC011

2. Brief Description

This use case describes the interaction between the product manager and the AIMS system when the product manager wants to create a product

3. Actors

3.1 Product manager

4. Preconditions

5. Basic Flow of Events

1. The product manager chooses to create a product
2. The software prompts the product manager to fields in title, category, price, quantity, type.
3. The product manager enter and submit the product’s detail form
4. The software validates the product’s information
5. The software creates a product and stores it into the database

6. Alternative flows

Table A - Alternative flows of events for UC Create product

No	Location	Condition	Action	Resume location
1.	At Step 3	If the information is invalid	▪ The system displays an error message	Resume at step 3

7. Input data

Table 1 – Create product input data

No	Data fields	Description	Mandatory	Valid condition	Example
1	Title	The title of the product	Yes	A string consists of letters only	Harry Potter
2	Category	The category of the product	Yes	A string consists of letters only	adventure
3	Price	An integer specifies the	Yes	A non-negative integer and	80

		unit price of the product		Price \geq 30%Value and Price \leq 150%Value	
4	Quantity	An integer represents the available quantity of the product	Yes	A positive integer	50
5	Type	The type of the product	Yes	A string consists of letters only	book

8. Output data

9. Postconditions

- The product manager can now use all of the system's services for product manager.

14 Use case “Update product”

Use Case “Update product”

1. Use case code

UC015

2. Brief Description

This use case describes the interaction between the product manager and the AIMS system when the product manager wants to update a product

3. Actors

3.1 Product manager

4. Preconditions

5. Basic Flow of Events

1. The product manager chooses to update a product
2. The software ask the product manager to fill in 2 data fields (price and availability)
3. The product manager enter the required fields
4. The software ask for product manager’s confirmation
5. The product manager confirms
6. The software update the product in the database

6. Alternative flows

Table A - Alternative flows of events for UC Update product

No	Location	Condition	Action	Resume location
1.	At Step 5	If the information is invalid	▪ The system displays an error message	Resume at step 3
2.	At Step 3	If the product manager cancels	▪ The system quit the process	
3.	At Step 5	If the product manager doesn’t confirm	▪ The system quit the process	

7. Input data

Table 1 – Update input data

No	Data fields	Description	Mandatory	Valid condition	Example
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1	Price	An integer specifies the unit price of the product	Yes	A non-negative integer and Price $\geq 30\% \text{Value}$ and Price $\leq 150\% \text{Value}$	800
2	Quantity	An integer represents the available quantity of the product	Yes	A positive integer	50

8. Output data

9. Postconditions

- The product's information has been updated

15 Use case “Delete product”

Use Case “Delete product”

1. Use case code

UC019

2. Brief Description

This use case describes the interaction between the product manager and the AIMS system when the product manager wants to delete a product

3. Actors

3.1 Product manager

4. Preconditions

The product manager chooses to delete a product

5. Basic Flow of Events

1. The product manager chooses to delete a product
2. The software ask for product manager’s confirmation
3. Product managers confirms
4. The software delete all the product’s information inside the system database
5. The software notifies the product manager of successful delete attempt

6. Alternative flows

Table A - Alternative flows of events for UC Create DVD

No	Location	Condition	Action	Resume location
1.	At Step 2	If the product manager doesn’t confirm	▪ The system stop the process	Resume at step 1

7. Input data

Table 1 – Login input data

No	Data fields	Description	Mandatory	Valid condition	Example

8. Output data

9. Postconditions

- There exits at least 1 product in the database

16 Use case “Manage orders”

Use Case “Manage orders”

1. Use case code

UC020

2. Brief Description

This use case describes the interaction between the product manager and the AIMS system when the product manager wants to view the list of pending orders

3. Actors

3.1 Product manager

4. Preconditions

The product manager chooses to view the list of orders

5. Basic Flow of Events

1. The software queries the information of all the status with status “pending”
2. The software displays the list of pending orders.

6. Alternative flows

Table A - Alternative flows of events for UC Create DVD

No	Location	Con dition	Action	Resume location
1.	At Step 2	If the product manager chooses to approve the order	<ul style="list-style-type: none">▪ The system changes the order’s status to “Approved” and saves to the database	

7. Input data

8. Output data

No	Data fields	Description	Display format	Example
1.	ID	The ID of the order	String	3
2.	Shipping fee	The order’s shipping fee	Positive integers, comma for thousand separator, Vietnamese currency (d)	88.000d
3.	In rushing		Yes/No	Yes
4.	Status	The status of the order	Approved/Pending	Approved
5.	Address	The address of the buyer		Ha Dong, Ha Noi

6.	Instruction	The order's delivery instruction		
7.	Rush ship instruction	The order's rush delivery instruction		
9. Postconditions				

17 Use case “Sign up”

Use Case “Sign up”

1. Use case code

UC021

2. Brief Description

This use case describes the interaction between the new user and the AIMS system when the new user wants to register an account.

3. Actors

3.1 User

4. Preconditions

The new user chooses to sign up

5. Basic Flow of Events

1. The software prompts the new user to fill in a register form (See Table 1)
2. The new user fills and submits the form
3. The software validates the information
4. The software creates a new user and stores back to the database

6. Alternative flows

Table A - Alternative flows of events for UC Sign up

No	Location	Condition	Action	Resume location
1.	At Step 2	If the sign up information is invalid	▪ The system displays an error message	

7. Input data

No	Data fields	Description	Mandatory	Valid condition	Example
1	UserName	The new account's username	Yes		Tester
2	PassWord	The new account's password	Yes		Tester

8. Output data

9. Postconditions

