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1 Introduction

1.1 Objective

The aim of this Software Requirements Specification (SRS) is to offer a detailed insight into the AIMS Project, which is a desktop e-commerce software. It delineates the functionality, performance, and reliability prerequisites of the software. This SRS is crafted to cater to stakeholders, technical leads, development teams, and quality assurance teams.

1.2 Scope

The software product, named AIMS, is a desktop e-commerce application. The AIMS Project seeks to transform the e-commerce landscape by offering a dependable and user-friendly platform accessible 24/7. It promises increased convenience for users and enhanced efficiency in online transactions. The main goals include delivering a smooth shopping experience, upholding high performance and reliability standards. AIMS will support up to 1000 concurrent users without notable performance degradation, operate continuously for 300 hours without failure, and resume normal functioning within an hour after any incident. It will maintain a maximum response time of 2 seconds in standard conditions and 5 seconds during peak usage periods.

1.3 Glossary

No	*Term*	*Explanation*	*Example*	*Note*
1	Payment Gateway Service	A technology that facilitates online transactions by securely authorizing payments between customers and merchants.	VNPay	
2	Administrator	The person or a group of persons who are responsible for management works.		
3	CRUD	Four main operations on an object: Create, Read, Update, Delete.		

4	User-friendly	A characteristic of a software or system, in which novice users do not find any difficulty in familiarizing the use of the software or system		

1.4 References

AIMS Project description

2 Overall Description

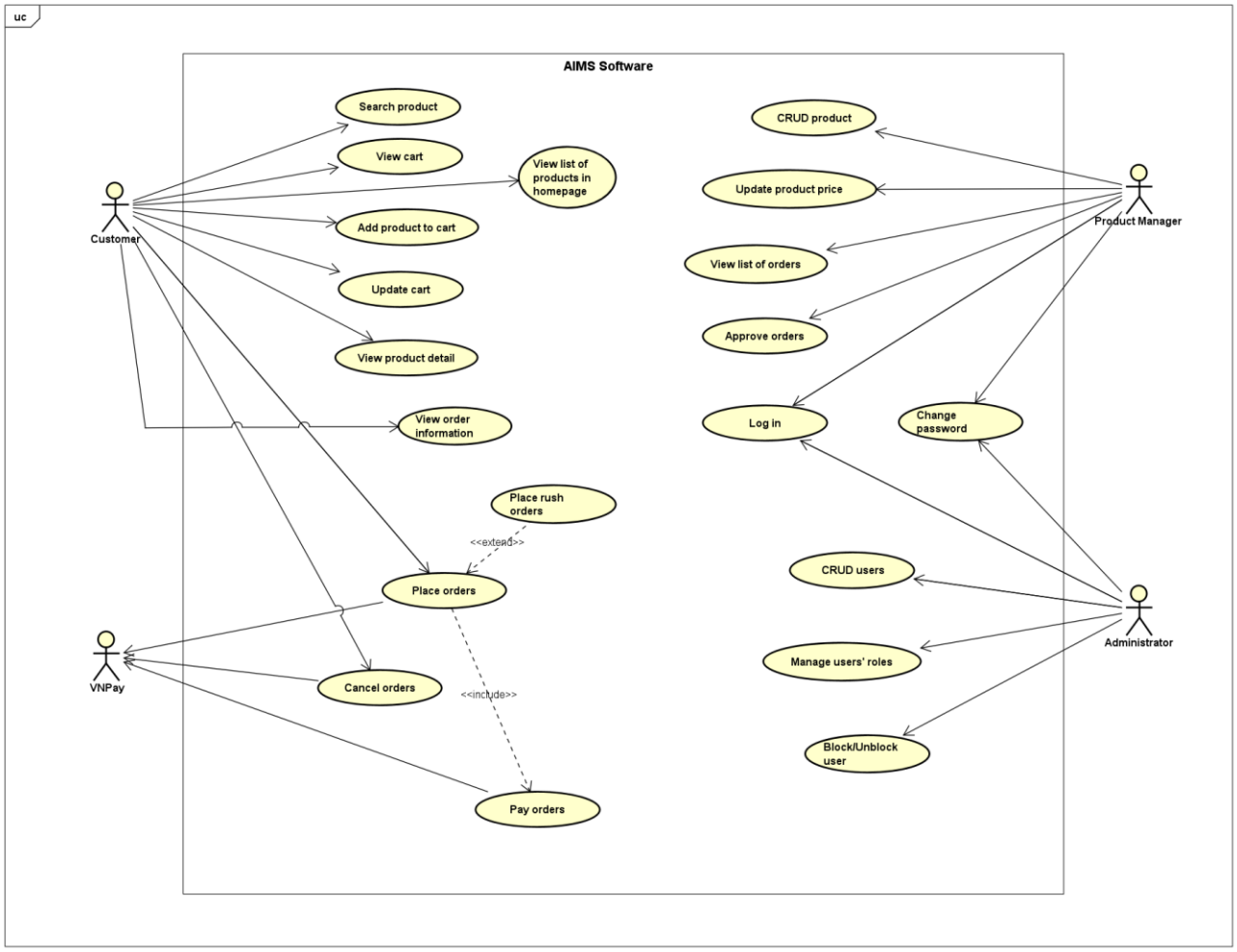
2.1 Survey

The AIMS Project involves four main actors interacting with the system:

1. Customer: The customer represents those who are interested in media products and desires to make purchases via the internet. Customers interact with the system to search for, and choose media products which they want to purchase, edit their cart in order to request for placing an order. After that, customers must pay for the order to successfully receive the purchased items. They are also able to cancel the order at any time during the payment process.
2. Product Manager: Product managers are responsible for managing the product and verifying customers' pending orders. Their activities include creating and managing products in inventory, viewing lists of orders, and choosing to approve or reject them. Product managers must log in to be able to utilize those features, and eventually they can also change their password.
3. VNPAY system: It plays a critical role in executing transactions between customers and the AIMS system. Whenever a customer places an order, the VNPAY system will support the payment process by carefully guiding customers to make a successful payment.
4. Administrator: Admins are responsible for managing users' information, which includes managing users' roles (Product Manager, Customer), blocking or unblocking users. Admins also must log in to make use of those features, and consequently, they are able to change their password.

2.2 Overall requirements

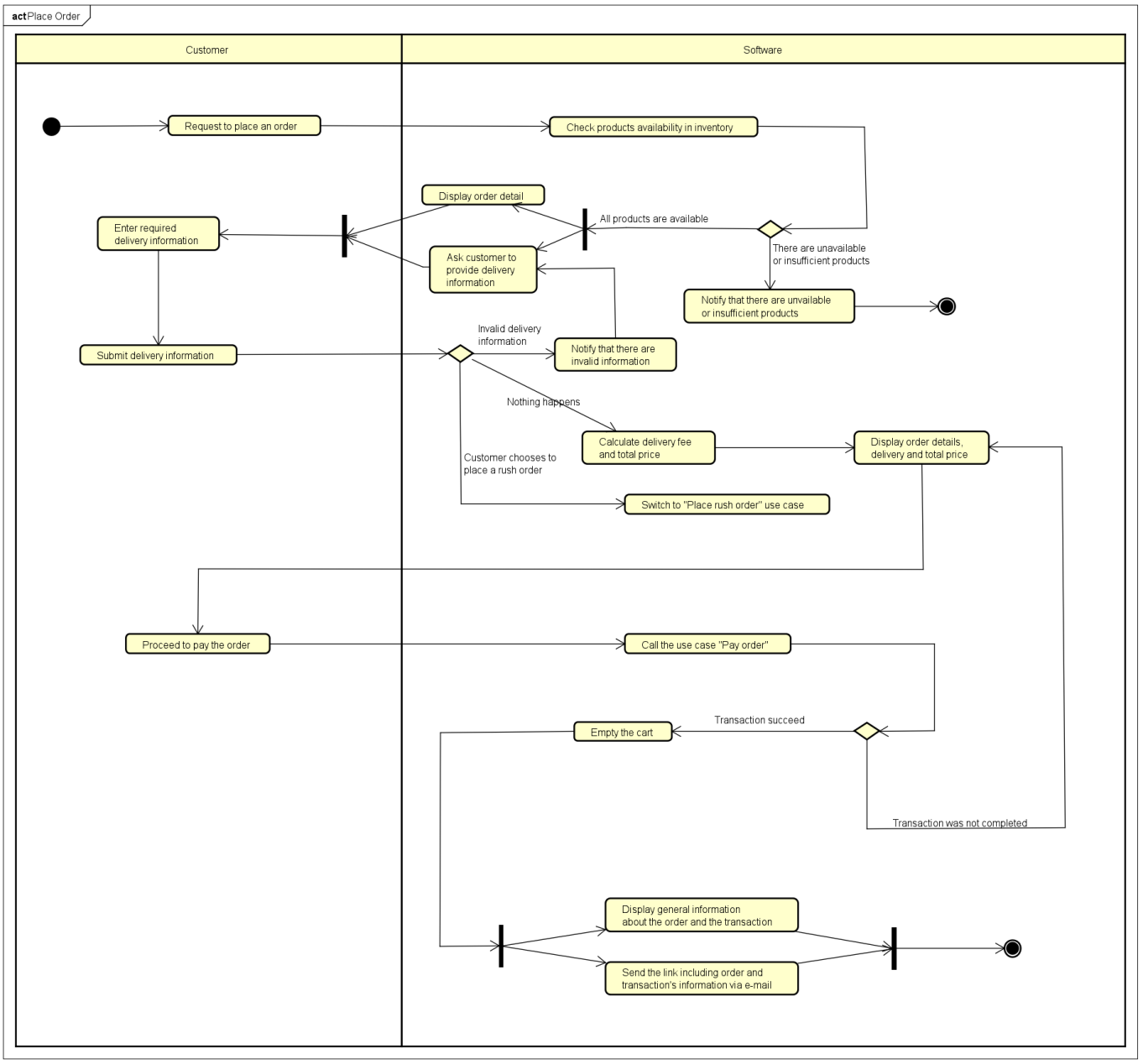
Use case diagram represents the interactions between actors and use cases and shows the functional requirements of the system.



2.3 Business process

2.3.1 The process of placing an order as a customer

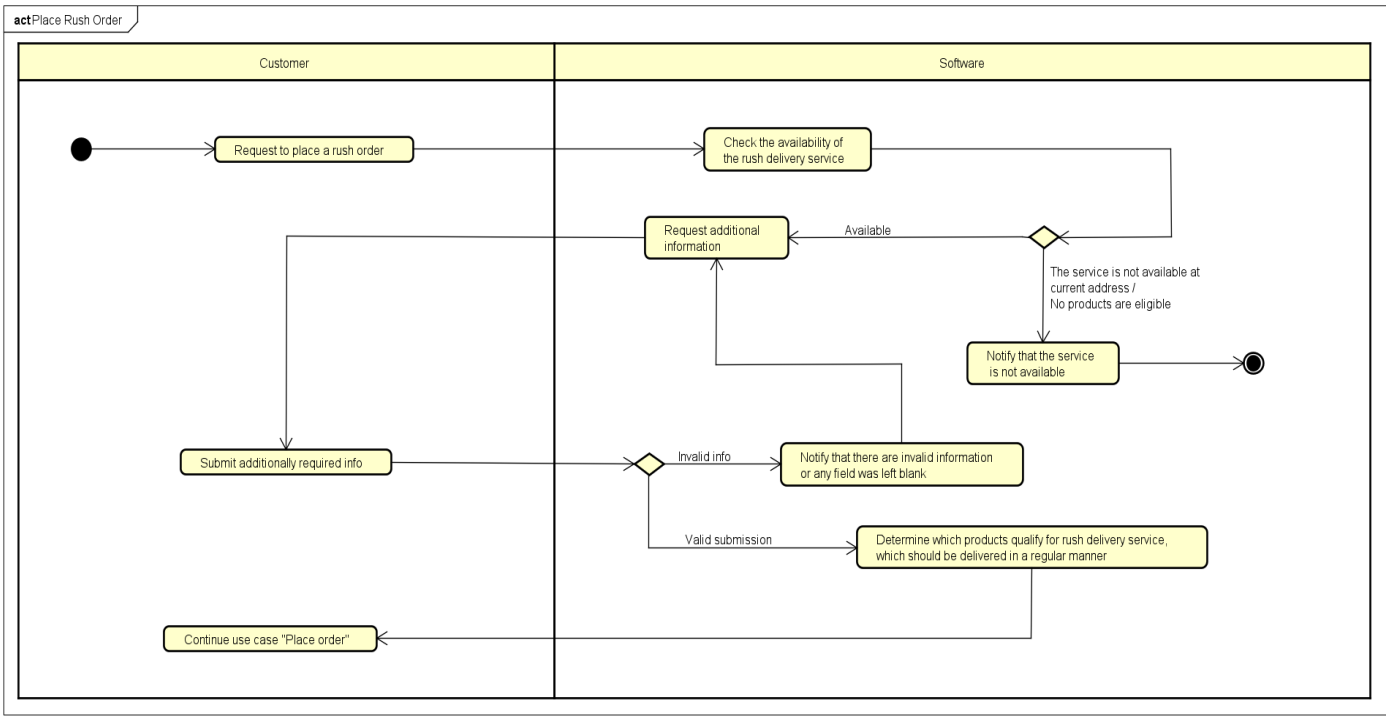
The process begins with the customer requesting to place an order. The software then checks if there's enough inventory to fulfill the order. If sufficient, it prompts the customer to input delivery information, displaying the order details for any necessary adjustments. Once the customer submits the required information, the software calculates the order details, including the delivery fee and total price. The customer proceeds to payment, triggering the software to process the transaction and clear the shopping cart for future orders. Following this, the software displays general order information and transaction details. Finally, it sends an email containing a link with the complete order and transaction information.



2.3.2 The process of placing a rush order as a customer

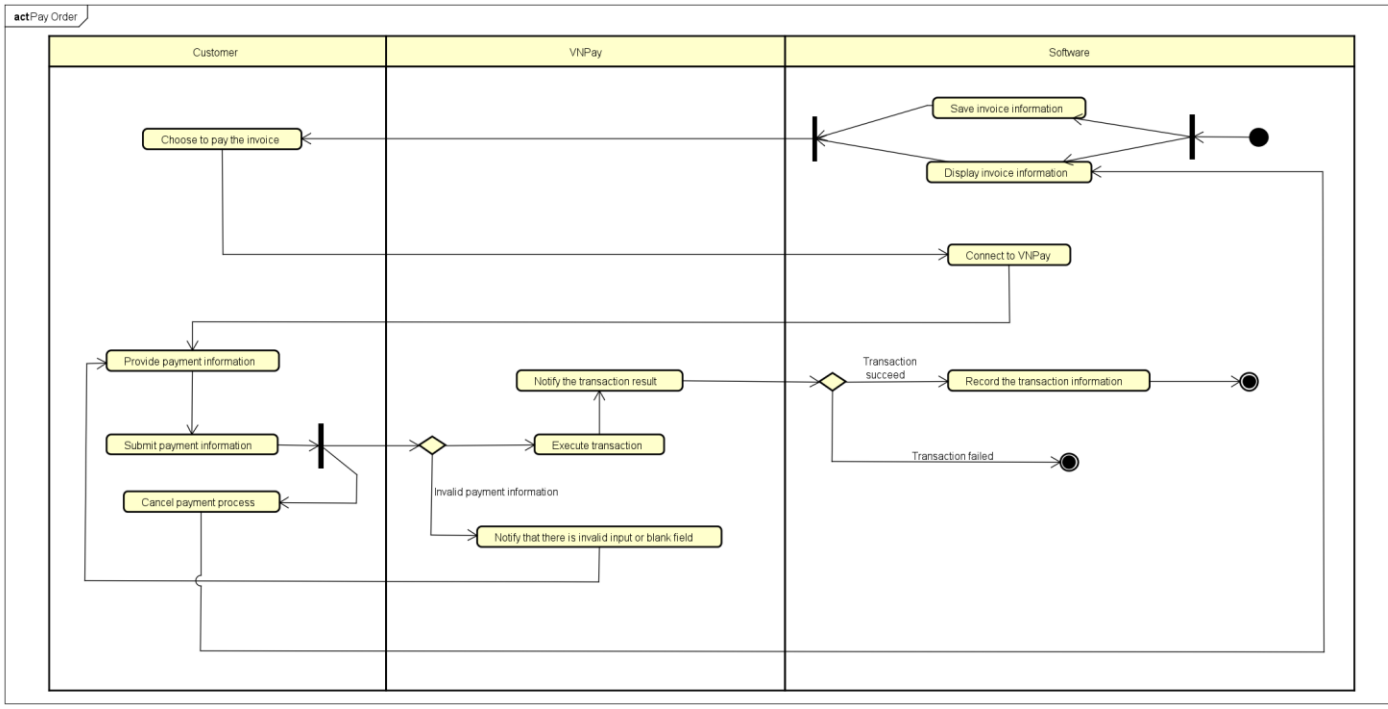
Upon selecting a rush order, the software initiates a comprehensive evaluation to determine if the delivery address permits this expedited service and if any products are eligible. Subsequently, it prompts the customer to ask for supplementary details tailored specifically for rush order fulfillment. Upon receipt of the requisite information, the software discerns which products meet the criteria for expedited delivery, treating those that do not accordingly. It then meticulously computes and showcases the order

particulars, encompassing the delivery fee and total cost, factoring in any additional charges associated with expedited delivery services.



2.3.3 The process of paying for an order as a customer

The software initially records and exhibits the invoice details, comprising a list of products, quantities, total price, delivery fee, and the overall amount due. Following this, the customer opts to settle the invoice. Subsequently, the software establishes a connection with VNPay, a payment gateway service. The customer then furnishes and submits the necessary payment information. VNPay executes the transaction, and upon completion, notifies the software of the transaction outcome. Finally, the software records pertinent transaction information for future reference and auditing purposes.


act Pay Order
Customer
VNPay
Software
Save invoice information
Choose to pay the invoice
Display invoice information
Connect to VNPay
Provide payment information
Notify the transaction result
Transaction succeed
Record the transaction information
Submit payment information
Execute transaction
Transaction failed
Cancel payment process
Invalid payment information
Notify that there is invalid input or blank field

3 Detailed Requirements

3.1 Use case UC001 – "Place Order"

Use Case "Place Order"

1. Use case code

UC00

2. Brief Description

The use case "Place order" describes the interaction between *customers* and the AIMS system when the customers wish to request to make a purchase for anything they want which is already included in their carts.

3. Actors

3.1 Customer

4. Preconditions

- The cart is not empty (at least 1 item is added to the cart).
- The customer reviewed the cart.

5. Basic Flow of Events

1. The customer requests to place an order
2. The software checks whether the inventory quantity is sufficient to provide the customer.
3. The software asks the customer to provide delivery information and displays the order detail in case there are changes that need to be made.
4. The customer enters and submits the required delivery information (See **Table A – Input Data of Required Delivery Information**).
5. The software calculates and displays the order details and delivery fee as well as the total price. (See **Table B - Output data of order information and delivery fee**).
6. The customer proceeds to pay the order.
7. The software calls the use case "*Pay order*".
8. The software empties the cart to make room for upcoming orders made by customer.
9. The software displays general information about the order and transaction information. (See **Table C – Output data of order and transaction information**).

10. The software sends the link in which the order and transaction information is included via e-mail.

6. Alternative flows

Table N-Alternative flows of events for UC Place order

No	Location	Condition	Action	Resume location
1.	At Step 3	The requested products are unavailable or insufficient in inventory.	The software notifies that the products requested by the customer is unavailable or insufficient and stays at the use case "*View cart*".	Use case ends.
2.	At Step 5	Invalid delivery information.	The software notifies that there is invalid information or required fields haven't been filled up in the form.	At Step 3
3.	At Step 5	The customer decides to place a rush order.	The software calls the "Place rush order" use case.	At Step 6
4.	At Step 7	The transaction is not fulfilled, or exception arises from the payment process		At Step 5

7. Input data

Table A-Input data of Required Delivery Information

No	Data fields	Description	Mandatory	Valid condition	Example
1.	Recipient	The name of the recipient	Yes		Nguyen Thanh Dat
2.	Phone number		Yes	10 digits	0989160060
3.	Province	Choose from a drop-down list	Yes		Hanoi
4.	Specific address		Yes		Le Trong Tan, Thanh Xuan, Hanoi

5.	Voucher selection	Discount code or discount program to be applied	No		CODERTAPTA	
6.	Shipping instructions		No			

8. Output data

Table B-Output data of order information and delivery fee

Note: *Yellow-shaded rows are the fields that are repeated for each item in the order.*

No	Data fields	Description	Display format	Example
1.	Title	Title of the product	String	DVD
2.	Unit price	The unit price of the corresponding product	▪ Comma for thousands separator ▪ Positive integer	200,000
3.	Quantity	Quantity of the corresponding product	Positive integer	2
4.	Price	The price of the corresponding product	▪ Comma for thousands separator ▪ Positive integer	400,000
5.	Total	Total price of all purchased products	▪ Comma for thousands separator ▪ Positive integer	500,000
6.	Delivery fee			30,000

Table C-Output data of order and transaction information

No	Data fields	Description	Display format	Example
1.	Customer	The name of customer	String	Nguyen Thanh Dat
2.	Phone number			0989160060
3.	Province			Hanoi
4.	Address			Le Trong Tan, Thanh Xuan, Hano
5.	Discount	Discount code selected, or discount voucher		ABCDEF

6.	Total	Total price of all purchased products	Vietnamese currency (VND)	500,000 VND	
7.	Transaction ID				
8.	Transaction date		dd/mm/yyyy	10/03/2024	

9. Postconditions

- The cart is emptied by the system to prepare for upcoming orders made by the customer.
- The transaction and order information are recorded in the system.

3.2 Use case UC002 – "Pay Order"

Use Case "Pay Order"

1. Use case code

UC002

2. Brief Description

The use case "Pay order" describes the interaction between *customers* and the software with the support of *VNPay system* to make transactions.

3. Actors

3.1 Customer

3.2 VNPay

4. Preconditions

- The customer successfully chooses to proceed to pay for the order.
- The software has finished calculating the total price including the delivery fee.

5. Basic Flow of Events

1. The software saves and displays the invoice information (list of products, quantity, total price, delivery fee and total amount to be paid). (See **Table B – Output data of invoice information**).
2. The customer chooses to pay the invoice.

3. The software connects to VNPay.
4. The customer provides and submits payment information. (See **Table A – Input data of payment information**).
5. VNPay executes the transaction.
6. VNPay notifies the transaction result.
7. The software records the transaction information.

6. Alternative flows

Table N-Alternative flows of events for UC Pay order

No	Location	Condition	Action	Resume location
1.	Step 7	The customer cancels the payment process		Step 1
2.	Step 5	Any field contains invalid information	The software notifies that there is invalid information in the payment information form submitted by customer	Step 4
3.	Step 7	The transaction failed		Use case ends

7. Input data

Table A-Input data of payment information

No	Data fields	Description	Mandatory	Valid condition	Example
1.	Account Number		Yes		000123459999
2.	Message		No		NGUYEN THANH DAT thanh toan don hang xxxxxxx

8. Output data

Table B-Output data of invoice information

Note: *Yellow-shaded rows are the fields that are repeated for each item in the order.*

No	Data fields	Description	Display format	Example
1.	Title	Title of the product	String	DVD
2.	Unit price	The unit price of the corresponding product	▪ Comma for thousands separator ▪ Positive integer	200,000
3.	Quantity	Quantity of the corresponding product	Positive integer	2
4.	Price	The price of the corresponding product	▪ Comma for thousands separator • Positive integer	400,000
5.	Total price without VAT	Total price of all purchased products excluding VAT	▪ Comma for thousands separator ▪ Positive integer	400,000
6.	Total price with VAT	Total price of all purchased products including VAT		440,000
7.	Delivery fee			30,000
8.	Total price	Total amount to be paid		470,000
9.	Currency			VND
10.	Customer	The customer's name		Nguyen Thanh Dat
11.	Phone number			0989160060
12.	Province			Hanoi
13.	Address			Le Trong Tan, Thanh Xuan, Hanoi
14.	Delivery instruction			

9. Postconditions

The transaction information is recorded successfully in the system.

3.3 Use case UC003 - "Place Order with Place Rush Order"

Use Case "Place Rush Order"

1. Use case code

UC003

2. Brief Description

The use case "Place rush order" describes the interaction between *customers* and the AIMS system when the customers wish to request to place a rush order.

3. Actors

3.1 Customer

4. Preconditions

- The cart is not empty (at least 1 item is added to the cart).
- The customer reviewed the cart.

5. Basic Flow of Events

1. The customer requests to place an order.
2. The software checks whether the inventory quantity is sufficient to provide to the customer.
3. The software asks the customer to provide delivery information and displays the order detail in case there are changes that need to be made.
4. The customer enters the required delivery information. (See **Table A - Input data of Delivery Information**).
5. The customer chooses to place a rush order.
6. The software checks whether the delivery address supports this service and if any products are eligible.
7. The software requests additional information for rush order delivery from the customer.
8. The customer enters and submits the required additional information. (See **Table B - Input data of Additional Information for Rush Delivery**).
9. The software discerns which products qualify for rush delivery, while those that do not meet the criteria are handled in a regular manner.
10. The software calculates and displays the order details and delivery fee as well as the total price. (See **Table C - Output data of order information and delivery fee**).
11. The customer proceeds to pay the order.
12. The software calls the use case "*Pay order".*

13. The software empties the cart to make room for upcoming orders made by the customer.
14. The software displays general information about the order and transaction information. (See **Table D - Output data of order and transaction information**).
15. The software sends the link in which the order and transaction information is included via e-mail.

6. Alternative flows

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

No	Location	Condition	Action	Resume location
1.	Step 3	The requested products are unavailable or insufficient in inventory.	The software notifies that the products requested by the customer is unavailable or insufficient and stays at the use case "*View cart*".	Use case ends.
2.	Step 5	Invalid delivery information.	The software notifies that there is invalid information or required fields haven't been filled up in the form.	Step 3
3.	Step 7	The service is not available at current address, or no products are eligible	The software notifies and asks the customer to update the delivery information	Step 3
4.	Step 9	Invalid additional rush delivery information.	The software notifies that there is invalid information or required fields haven't been filled up in the form.	Step 7
5.	Step 13	The transaction is not fulfilled, or exception arises from the payment process.		Step 10

7. Input data

Table A-Input data of Delivery Information

No	Data fields	Description	Mandatory	Valid condition	Example
1.	Delivery date		Yes	dd/mm/yyyy	12/03/2024
2.	Delivery time		Yes	hh:mm	23:00
3.	Delivery instructions		No		

Table B – Input data of Additional Information for Rush Delivery

No	Data fields	Description	Mandatory	Valid condition	Example
1.	Recipient	The name of the recipient	Yes		Nguyen Thanh Dat
2.	Phone number		Yes	10 digits	0989160060
3.	Province	Choose from a drop-down list	Yes		Hanoi
4.	Specific address		Yes		Le Trong Tan, Thanh Xuan, Hanoi.
5.	Voucher selection	Discount code or discount program to be applied	No		CODERTAPTA
6.	Delivery instructions		No		

8. Output data

Table C-Output data of order information and delivery fee

Note: *Yellow-shaded rows are the fields that are repeated for each item in the order.*

No	Data fields	Description	Display format	Example
1.	Title	Title of the product	String	DVD
2.	Unit price	The unit price of the corresponding product	▪ Comma for thousands separator Positive integer	200,000
3.	Quantity	Quantity of the corresponding product	• Positive integer	2
4.	Price	The price of the corresponding product	▪ Comma for thousands separator • Positive integer	400,000
5.	Total	Total price of all purchased products	▪ Comma for thousands separator ▪ Positive integer	500,000
6.	Regular delivery service fee			30,000
7.	Rush delivery service fee			50,000

Table D - Output data of order and transaction information

No	Data fields	Description	Mandatory	Valid condition	Example
1.	Recipient	The name of the recipient	Yes		Nguyen Thanh Dat
2.	Phone number		Yes	10 digits	0989160060
3.	Province	Choose from a drop-down list	Yes		Hanoi
4.	Specific address		Yes		Le Trong Tan, Thanh Xuan, Hanoi
5.	Voucher selection	Discount code or discount program to be applied	No		CODERTAPTA
6.	Delivery instructions		No		

9. Postconditions

- The cart is emptied by the system to prepare for upcoming orders made by the customer.
- The transaction and order information are recorded in the system.

4 Supplementary specification

4.1 Functionality

The AIMS Project serves as a desktop e-commerce application, ensuring uninterrupted functionality and enabling seamless onboarding for novice users.

4.2 Usability

The software is user-friendly, ensuring that new users can quickly become acquainted with its features and functionalities.

4.3 Reliability

AIMS is highly reliable, capable of serving up to 1,000 customers simultaneously without significant performance degradation. It can operate continuously for up to 300 hours without failure and resume normal operation within a maximum of 1 hour after an incident.

4.4 Performance

The software maintains a maximum response time of 2 seconds under normal conditions and can handle peak loads with a maximum response time of 5 seconds, ensuring efficient performance even during periods of high traffic.

4.5 Supportability

AIMS is supported by robust technical infrastructure and can be easily maintained and updated to ensure uninterrupted service and adaptability to changing requirements.

4.6 Other requirements

Additional requirements include integration capabilities with VNPay payment gateway service.