HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

School of Information and communications technology

Software Requirement Specification

AN INTERNET MEDIA STORE

Subject: ITSS SOFTWARE DEVELOPMENT

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*Hanoi,* *March - 2024*

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# Introduction

The pursuit of knowledge, art, and entertainment has always been and will remain an essential part of human life. However, life itself is not inherently easy, and there may be times when creative endeavors struggle to reach people, making it difficult for artists and intellectuals to sustain themselves at a satisfactory standard of living.

Luckily, in the age of the thriving Internet and the Fourth Industrial Revolution, new opportunities have arisen for all of us. One such opportunity is the AIMS Project, an E-commerce system specifically designed for purchasing media products.

This document aims to provide a comprehensive description of the subsystem, user groups, and their functions available during the system's operation. It outlines the system's purpose and features, as well as the interfaces and constraints that the system must adhere to when responding to external stimuli. The documentation is intended for stakeholders and software developers alike.

## Objective

The platform provides customers with the ability to explore products, select items for purchase, go through the checkout process, complete payments, and access their order history. The main objective of this project is to offer students a practical opportunity to improve their programming and software engineering abilities, with a specific focus on web development, designing databases, and creating software architectures. Additionally, the project aims to enhance students' comprehension of the e-commerce sector, covering both operational procedures and technical elements like payment handling, inventory control, and order completion.

## Scope

The AIMS Software is a web-based platform designed to facilitate online product ordering and payment for customers, as well as provide administrative and inventory management capabilities for administrators and product managers. Customers will have access to features such as product browsing, searching, adding items to their cart, previewing invoices, and making payments using prepaid credit cards. They will also have the ability to cancel orders and receive refunds. On the other hand, administrators and product managers will be able to oversee and manage orders, including approval or rejection of pending orders, and update inventory levels. They will also have control over the addition, deletion, and modification of products in the inventory. The primary objective of the AIMS Software is to offer customers a convenient and efficient way to place orders, while empowering administrators to effectively handle orders and inventory. This includes benefits such as streamlined order processing, improved inventory management, and enhanced customer satisfaction. The software aims to achieve these goals by providing a user-friendly and reliable system that caters to the requirements of both customers and administrators. For payment processing, customers will have the option to use a credit card, with transactions being handled by a third-party service called VNPay.

## Glossary

| ***No*** | ***Term*** | ***Explanation*** | ***Example*** | ***Note*** |
| --- | --- | --- | --- | --- |
| 1 | AIMS | AIMS stands for "Automated Inventory Management System". It is a software system designed to help businesses manage their inventory and streamline their operations |  |  |
| 2 | E-commerce | E-commerce (electronic commerce) refers to the buying and selling of goods and services over the internet. |  |  |
| 3 | Customer | A customer is a person or organization that purchases goods or services from a business. |  |  |
| 4 | Credit Card | A credit card is a plastic card issued by a bank or financial services company that allows cardholders to borrow funds to purchase goods and services. The borrowed funds must be repaid with interest. |  |  |
| 5 | CRUD | Four basic functions, namely Create, Retrieve, Update, Delete |  |  |

## References

# Overall Description

## Survey

There are three actors including customer, administrator and VNPay.

## Overall requirements

*A diagram of software

Description automatically generated*

## Business process

First, use case “Place Order” starts, then at step 6, AIMs software checks that if the customer has placed rush order then use case “Place Rush Order” will be called. Otherwise, the “Place order” process still continues. At step 10, AIMs software will call use case “Pay Order”.

### *Place order process*

A diagram of a company

Description automatically generated

### *Pay order process*

A diagram of a flowchart

Description automatically generated

### *Place rush order process*

A screenshot of a diagram

Description automatically generated

# Detailed Requirements

In the AIMS Project, UC “Place Order” and “Place Rush Order” describe the interaction between customers and AIMS software when the customer wishes to place an order. Naturally, from the use case diagram, we describe how the use case starts and ends to gain the purpose of a use case, and we may think of a basic flow of the events for UC “Place (Rush) Order" as follows.

## Use Case “Place Order”

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Use Case “Place Order”**   1. **Use case code**   UC001   1. **Brief Description**   This use case describes the interaction between a customer and AIMS software when the customer wants to place an order.   1. **Actors**   Customer   1. **Pre-conditions**   The customer has at least one product in the cart.   1. **Basic Flow of Events** 2. Customer views cart 3. AIMS checks the availability of the products in the cart 4. AIMS displays cart and delivery information 5. Customer requests order 6. AIMS displays delivery information form 7. Customer fills and confirms the delivery information (see Table 2) 8. AIMS checks the validity of delivery information 9. AIMS checks delivery information 10. AIMS calculates shipping fee and displays receipt 11. Customer confirms the order 12. AIMS calls UC002 “Pay order” 13. AIMS displays the order information (see Table 3, Table 4) 14. AIMS sends all order and transaction information to the customer's email 15. AIMS notifies successful order 16. **Alternative flows**   Table 1 - Alternative flows of events for UC Place order   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Location** | **Condition** | **Action** | **Resume location** | |  | At Step 3 | Insufficient quantity of product in stock | * AIMS shows notification of insufficient quantity of product in stock and requests customer to update the cart. * Customer updates cart | At Step 2 | |  | At Step 6 | Customer selects rush order delivery option | * Goes to UC003 “Place rush order” if any product supports rush order delivery. Otherwise, the process returns to step 6 | At Step 8 | |  | At Step 7 | Missing or invalid information | * Requests customer to re-enter and update the information | At Step 5 |  1. **Input data**   Table 2 – Input data of delivery information   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** | |  | Customer name |  | Yes |  | NGUYEN DUC THANG | |  | Phone number |  | Yes | 10-digit number | 0123456789 | |  | Province | Choose from list | Yes |  | Ha Noi | |  | Address |  | Yes |  | 12, 34 Alley of Tran Thai Tong street. Cau Giay district | |  | Time |  | Yes |  | 12:00, 01/01/2024 | |  | Shopping instructions |  | No |  | Weekdays delivery |  1. **Output data**   Table 3 - Output data of order information and shipping fee   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Display format** | **Example** | |  | Title | Title of a media product |  | “MTP” DVD | |  | Price | Price of the corresponding product | - Positive integer  - Separate thousands by commas  - Right-aligned | 100,000 | |  | Quantity | Quantity of products | - Positive integer  - Separate thousands by commas  - Right-aligned | 5 | |  | Amount | Total price of the corresponding product | - Positive integer  - Separate thousands by commas  - Right-aligned | 500,000 | |  | Subtotal before VAT | Total price in the cart before VAT | - Positive integer  - Separate thousands by commas  - Right-aligned | 500,000 | |  | Subtotal | Total price in the cart including VAT | - Positive integer  - Separate thousands by commas  - Right-aligned | 550,000 | |  | Shipping fee |  | - Positive integer  - Separate thousands by commas  - Right-aligned | 40,000 |   Table 4 - general information of order and transaction info   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Display format** | **Example** | | 1. | Customer name |  |  | NGUYEN DUC THANG | | 2. | Phone number |  |  | 0915486681 | | 3. | Province | Choose from list |  | Ha Noi | | 4. | Address |  |  | 12, 34 Alley of Tran Thai Tong street. Cau Giay district | | 5. | Total price | Sum of subtotal and shipping fees | Right aligned  Vietnamese currency(VND)  Vietnamese locate | 590,000 | | 6. | Transaction ID |  |  | 12345621 | | 7. | Transaction content |  |  | Hello 123 | | 8. | Transaction date |  | dd/mm/yyyy | 01/01/2024 |  1. **Post-conditions****: None** |

## Use Case “Pay Order”

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Use Case “Pay Order”**  **1. Use case code**  UC002  **2. Brief Description**  This use case describes the interaction between the customer, VNPay and AIMS software when the customer wants to make a payment.  **3. Actors**  - Customer  - VNPay  **4. Pre-conditions**  AIMS has calculated the total price to be paid.  **5. Basic Flow of Events**  1. AIMS displays the payment screen (see Table 2)  2. Customer asks to pay the invoice  3. AIMS redirects to VNPay to process the transaction  4. VNPay processes the transaction  5. AIMS records the transaction information (see Table 3)  **6. Alternative flows**  Table 1 - Alternative flows of events for UC Pay order   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Location** | **Condition** | **Action** | **Resume location** | | 1. | At Step 3 | If the customer cancels the payment transaction | * VNPay redirects to the AIMS software | At Step 1 |   **7. Input data**  Table 2 – Input data of purchasing information   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** | | 1. | Card owner |  | Yes |  | NGUYEN DUC THANG | | 2. | Card number |  | Yes |  | 099999999999999 | | 3. | Expiry |  | Yes | mm/yy | 12/23 | |  | PIN code |  | Yes |  | 246891 |   **8. Output data**  Table 3 - Output data of invoice   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Display format** | **Example** | | 1. | Title | Title of a media product |  | “MTP” DVD | | 2. | Price | Price of the corresponding product | - Positive integer  - Separate thousands by commas  - Right-aligned | 100,000 | | 3. | Quantity | Quantity of products |  | 5 | | 4. | Amount | Total price of the corresponding product |  | 500,000 | |  | Subtotal before VAT | Total price in the cart before VAT |  | 500,000 | |  | Subtotal | Total price in the cart including VAT |  | 550,000 | |  | Shipping fee |  |  | 40,000 | |  | Total price | Sum of subtotal and shipping fees |  | 590,000 | |  | Currency | Vietnamese currency |  | VND | |  | Customer name |  |  | NGUYEN DUC THANG | |  | Phone number |  |  | 0123456789 | |  | Province | Choose from list |  | Ha Noi | |  | Address |  |  | No 1, Dai Co Viet street, Hai Ba Trung district | |  | Transaction date |  |  | 01/01/2024 | |  | Shpping instructions |  |  | Weekdays delivery |   9. **Post-conditions: None** |

## Use Case “Place Rush Order”

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Use Case “Place Rush Order”**  **1. Use case code**  UC003  **2. Brief Description**  This use case describes the interaction between the customer and AIMS software when the customer wants to make a rush order delivery.  **3. Actors**  **-** Customer  **4. Pre-conditions**  Customer selects rush order option.  **5. Basic Flow of Events**  1. AIMS displays the rush order delivery screen with a list of products that support rush order delivery (see Table 2)  2. Customer updates rush order information and chooses products  3. AIMS checks the validity of the order information  4. AIMS calculates shipping costs  5. AIMS displays order information  **6. Alternative flows**  Table 1 - Alternative flows of events for UC Place rush order   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Location** | **Condition** | **Action** | **Resume location** | | 1. | At Step 1 | If the customer cancels the payment transaction | * Continues the UC001 – “Place order” | Use case ends | | 2. | At Step 3 | If the location is not in Ha Noi | * Notifies the invalid information | At Step 2 | | 3. | At Step 3 | Missing information | * Requests customer to fill the missing information | At Step 2 |   **7. Input data**  Table 2 - Input data of rush order delivery information   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** | | 1. | Receiver’s name |  | Yes |  | NGUYEN DUC THANG | | 2. | Phone number |  | Yes | 10-digit number | 0915486681 | | 3. | City | Choose from list | Yes |  | Ha Noi | | 4. | Address |  | Yes |  | 12, 34 Alley of Tran Thai Tong street. Cau Giay district | | 5. | Time |  | Yes |  | 12:00, 01/01/2024 | | 6. | Instruction |  | No |  | Weekdays delivery |  1. **Output data: None** 2. **Post-conditions**   Calculate delivery costs to continue printing invoice for UC001. |

# Supplementary specification

## Functionality

Placing orders and paying orders, instead of features such as account authentication or user management.

## Usability

AIMS Project is a 24/7 platform-independent system, which allows new users to easily familiarize themselves.

## Reliability

The AIMS Software can also be fixed within 1 hours after any typical failure. The response time for the AIMS Software is 1 second at normal or 2 seconds during a peak load if it is not explicitly stated*.*

## Performance

The system can serve up to 1000 customers at the same time without noticeable loss of performance and operate for an average of 300 hours without failure.

## Supportability

The product manager can delete up to 10 products at once. Additionally, he is not allowed to delete or update more than 30 products due to security concerns but can add an unlimited number of products in a day.

## Other requirements