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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# Introduction

The journey towards knowledge, art, and entertainment has always been and will continue to be an integral part of human life. However, life itself is not inherently easy. There will come a time when the fruits of creative labor may struggle to reach people, as artists and intellectuals may find it challenging to sustain themselves with adequate living standards.

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

The objective of this Software Requirements Specification (SRS) document is to provide a comprehensive description of the requirements for the development of the AIMS software. The intended audience for this SRS includes the developers and testers, who will be involved in the development, testing and implementation of the system.

The SRS aims to serve as a reference guide and communication tool between the project team and stakeholders, ensuring a clear understanding of the system's objectives, functionalities, and constraints. It will provide the basis for system design, development, testing, and validation activities.

## Objective

The system enables customers to browse products, add items to their cart, proceed to checkout, make payments for orders, and manage their purchase history. The project aims to offer a hands-on experience for students to enhance their programming and software engineering skills, focusing particularly on web development, database design, and software architecture. Furthermore, the project aims to deepen students' understanding of the e-commerce industry, encompassing both business processes and technical aspects such as payment processing, inventory management, and order fulfillment.

## Scope

The software product to be produced is the AIMS Software, which is an online platform for e-commerce systems, a comprehensive and dynamic platform designed to cater to diverse needs. The system will support various features and functionalities to provide a seamless user experience. It allows customers to order products and make payments, and for administrators and product managers to manage users, orders, and inventory. The system will support various features and functionalities to provide a seamless user experience.

Notably, by using the AIMS website, users can expect a user-friendly interface, intuitive navigation, and a robust course catalog that spans different expertise levels.

The AIMS Software will allow customers to browse and search for products, add products to their cart, view the invoice before payment, and make payments using a prepaid credit card. Customers will also be able to cancel their orders and receive refunds.

For administrators and product managers, the AIMS Software will provide a view for managing orders, including approving or rejecting pending orders, and updating inventory levels. The software will also enable the addition, deletion, and editing of products in the inventory.

The purpose of the AIMS Software application is to provide customers with a convenient and efficient means of ordering products, while enabling product managers to effectively manage orders and inventory. The relevant benefits include streamlined order processing, improved inventory management, and increased customer satisfaction. The objectives and goals are to create a user-friendly and reliable software system that meets the needs of both customers and administrators. For purchasing purposes, customers will have the option of using a credit card. The transaction will be processed by a third-party payment processing service called VNPay.

In summary, the AIMS website is intended to be a versatile and user-centric platform that not only provides top-notch service but also fosters a sense of community and adaptability akin to successful platforms in the near future.

## 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 |  |  |
| 6 | Use Case Analysis | A technique that aids in modeling the requirements of a software system. A well-crafted Use Case model will describe the system in the most intuitive and easy-to-understand way for all users and clients. |  |  |

## References

# Overall Description

## Survey

*The AIMS System involves four main actors interacting with the system* *including the customer, admininistrator, product manager and VNPay.*

## Overall requirements

Use case diagram represents the interactions between actors and usecases. It represents the functional requirements of the system, showing the interaction between external and internal actors with the system.

*A diagram of a product

Description automatically generated*

## Business process

Details of the actions in these processes are visualized with activity diagrams in the sub-sections of each process.

### *Place order process*

The process of placing an order involves several steps. First, the customer checks their shopping cart, ensuring that all desired items are included. Next, they select a payment method, in the scope of AIMS software, VNPay is chosen. The system then verifies order details, including the shipping address and product availability. Finally, the customer confirms the order, and the system processes it. This streamlined process ensures efficient and accurate order placement within the AIMS software.

A diagram of a flowchart

Description automatically generated

### *Pay order process*

The business process of paying orders involves several crucial steps. First of all, the system generates an invoice for the customer, detailing the order items and their costs. The customer then makes a payment when AIMS redirects to VNPay purchase interface. Once payment is verified, the system proceeds with order fulfillment. Otherwise, the process returns to the initial steps by displaying the payment screen once again to ask whether customer wishes to process the transaction. Finally, the system logs the payment transaction for record-keeping and auditing purposes.

A screenshot of a diagram

Description automatically generated

### *Place rush order process*

The business process of placing rush orders involves several crucial steps. This process can only start if the customer confirms this option from the placing order process. First, the software checks whether the delivery address supports this service and if any products are eligible. If no products are eligible or the delivery address does not support rush order delivery, the software prompts the customer to update the delivery information or delivery method. In cases where both the products and delivery address support rush order delivery, the software requests additional rush order delivery information from the customer. Customers can adjust the delivery method or the items they wish to purchase if necessary. The software recalculates the delivery fees and updates the corresponding invoice. Delivery fees depend on the weight of the products and the delivery location.

A screenshot of a computer

Description automatically generated

# Detailed Requirements

Details of the use cases given in part 2 are described in the sections below.

## 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 when the customer wants to place an order.   1. **Actors**    1. **Customer** 2. **Pre-conditions**   The customer has products in the cart.   1. **Basic Flow of Events** 2. Customer checks 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 | 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 | 8 | |  | At Step 7 | Missing or invalid information | * Requests customer to re-enter and update the information | 5 |  1. **Input data**   Table 2 – Input data of delivery information   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** | |  | Customer name |  | Yes |  | DINH VIET QUANG | |  | Phone number |  | Yes | 10-digit number | 0123456789 | |  | Province | Choose from list | Yes |  | Ha Noi | |  | Address |  | Yes |  | No 1, Dai Co Viet street, Hai Ba Trung district | |  | Time |  | Yes |  | 12:00, 01/01/2024 | |  | Shpping 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 |  | 5 | |  | 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 |   Table 4 - general information of order and transaction info   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Display format** | **Example** | | 1. | Customer name |  |  | DINH VIET QUANG | | 2. | Phone number |  |  | 0123456789 | | 3. | Province | Choose from list |  | Ha Noi | | 4. | Address |  |  | No 1, Dai Co Viet street, Hai Ba Trung 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 when the customer wants to make a payment.  **3. Actors**  **3.1 Customer**  **3.2 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 software | 1 |   **7. Input data**  Table 2 – Input data of purchasing information   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** | | 1. | Card owner |  | Yes |  | DINH VIET QUANG | | 2. | Card number |  | Yes |  | 09123232134132 | | 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 |  |  | DINH VIET QUANG | |  | 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”

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Use Case “Place rush order”**  **1. Use case code**  UC003  **2. Brief Description**  This use case describes the interaction between the customer and AIMS when the customer wants to make a rush order delivery.  **3. Actors**  **3.1 Customer**  **4. Pre-conditions**  Customer chooses 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 | 2 | | 3. | At Step 3 | Missing information | * Requests customer to fill the missing information | 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 |  | DINH VIET QUANG | | 2. | Phone number |  | Yes | 10-digit number | 0123456789 | | 3. | City | Choose from list | Yes |  | Ha Noi | | 4. | Address |  | Yes |  | No 1, Dai Co Viet street, Hai Ba Trung 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