HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

School of Information and Communications Technology

Software Requirement Specification

Version 1.2

AIMS: An Internet Media Store

Subject: ITSS Software Development

Class: 156812

Group 24

Vũ Nguyên Hạo 20226037

Nguyễn Hoàng Minh 20226057

Bùi Hoàng Việt 20226073

Nguyễn Hải Anh 20194725

Trần Như Thái 20194835

*Hanoi, February 2025*

**Table of contents**

[**1. Introduction 2**](#_tyjcwt)

[1.1. Objective 2](#_3dy6vkm)

[1.2. Scope 2](#_1t3h5sf)

[1.3. Glossary 2](#_4d34og8)

[1.4. References 3](#_2s8eyo1)

[**2. Overall Description 4**](#_17dp8vu)

[2.1. Survey 4](#_3rdcrjn)

[2.2. Overall requirements 4](#_26in1rg)

[2.3. Business process 6](#_lnxbz9)

[**3. Detailed Requirements 9**](#_35nkun2)

[3.1. Place order 9](#_eug7h14e9d9y)

[3.2. Add products 14](#_wuarqkghnfp3)

[3.3. Update products 21](#_dth69q1vlozs)

[3.4. Delete products 28](#_rck6qgsjp8ey)

[3.5. Pay order 30](#_91lr4fm26jud)

[3.6. View product detail 33](#_77ekeibil00q)

[3.7. Place rush order 34](#_14d27hasaarw)

[**4. Supplementary specification 38**](#_z337ya)

[4.1. Functionality 38](#_3j2qqm3)

[4.2. Usability 38](#_1y810tw)

[4.3. Reliability 38](#_4i7ojhp)

[4.4. Performance 38](#_2xcytpi)

[4.5. Supportability 38](#_1ci93xb)

[4.6. Other requirements 38](#_3whwml4)

# Introduction

## Objective

The main purpose of this SRS document is to provide a comprehensive overview of the AIMS: An Internet Media Store software, ensuring that all stakeholders have a clear understanding of the software’s requirements. It serves as a foundation for the development and design of the AIMS system, facilitating effective communication between development team and other stakeholders, including users, clients.

## Scope

AIMS Project is developed to be a desktop e-commerce software that operates 24/7, allowing new users to easily familiarize themselves.

This software can serve up to 1,000 customers simultaneously without significantly reducing performance and can operate continuously for 300 hours without failure. Additionally, the software can resume normal operation within a maximum of 1 hour after an incident. The maximum response time of the software is 2 seconds under normal conditions or 5 seconds during peak hours.

In AIMS, product managers can systematically manage their products for sale, while administrators can manage users. Customers can not only easily search for products as they desire, but also place orders or place rush orders if necessary. This software supports VNPay transactions, which helps customers to pay orders fast and efficiently.

## Glossary

| ***No*** | ***Term*** | ***Explanation*** | ***Example*** | ***Note*** |
| --- | --- | --- | --- | --- |
| 1. | VAT(value-added tax) | A consumption tax that is levied on the value added at each stage of a product's production and distribution |  |  |
| 2. | API(Application Programming Interface) | A collection of communication protocols and subroutines used by various programs to communicate between them | VNPay API | AIMS connects to API of VNPay for transaction |

## References

* AIMS-ProblemStatement-v2.0.pdf

# Overall Description

This section presents a survey of the overall description of the AIMS software, including its key stakeholders and main functionalities. Additionally, it examines the primary business processes of the software, illustrating them through activity diagrams.

## Survey

The system under consideration is an internet media store designed to facilitate customers' online purchase of digital media products. This software acts as a comprehensive platform, serving both customers and shop or product managers.

This system includes 3 main actors:

* **Customer:** Customers can view, search or sort by various criteria of the products that are available in the store. To place an order, they need to add, update products in the cart and provide delivery information. If all information is valid, and the products are available, customers then proceed to pay the order through the VNPay platform. If the order is created successfully, they will receive an invoice message from the AIMS software through email. Moreover, customers can also choose to place rush orders, in order to get their delivery in 2 hours.
* **Product manager:** They manage their products in their shop through the user interface for the manager, provided by the AIMS software. They can add, update information and remove their products from the shop. Product managers can also apply sales for their products.
* **Administrator:** They can gain access to manage users in the system. They can also block or unblock the user (customer, product manager) and the system will send an email to that account. In addition, the administrator can also change the role of the user, like a user can be a customer and a product manager at the same time.

Besides, VNPay is also a stakeholder in the system when they supply the API to make the transaction in the AIMS software.

## Overall requirements

The figure below shows the general use case diagram of AIMS software, which includes the actors and use cases that are involved in the system.

|  |
| --- |
|  |
| *Figure 1: AIMS UseCase Diagram* |

## Business process

AIMS software consists of 3 main business operations: “Place order” by the customer, “Manage product” by the product manager and “Manage user” by administrator. Additionally, AIMS software utilizes the VNPay transaction API to make any payment or refund transaction. The details of each business process are described by an activity diagram in each section of each one.

Activity diagrams visually represent workflows, decision points, and resource allocation, aiding stakeholders in analyzing and optimizing business processes. They also serve as documentation tools, enhancing communication and collaboration.

*2.3.1. Operation “Place order”:*

|  |
| --- |
|  |
| *Figure 2: “Place order” activity diagram* |

*2.3.2. Operation “Manage product” - by product manager:*

* Add product:

|  |
| --- |
|  |
| *Figure 3: “Add product” activity diagram* |

* Update product:

|  |
| --- |
|  |
| *Figure 4: “Update product” activity diagram* |

* Delete product:

|  |
| --- |
|  |
| *Figure 5: “Delete product” activity diagram* |

*2.3.3. Operation “Manage user” - by administrator:*

*<To be updated…>*

*2.3.4. “Pay order” through VNPay:*

|  |
| --- |
|  |
| *Figure 6: “Pay order” activity diagram* |

# Detailed Requirements

## Place order

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Use Case “Place Order”**  **1.** **Use case code**  UC001  **2.** **Brief Description**  This use case describes the interaction between customers and AIMS software when the customer wishes to place an order.  **3.** **Actors**   * Customer   **4.** **Preconditions**   * Cart must have at least 1 item * VNPay system is available for payment   **5.** **Basic Flow of Events**  1. Customer selects products and requests to place order  2. Software checks the product availability  3. Software checks the product availability  4. Customer provides submit delivery information  5. Software checks the validity of the delivery information  6. Software calculates the shipping fee  7. Software displays the invoice  8. Customer selects payment method and asks for payment  9. Software connects to VNPay to start the payment transaction  10. Customer performs the payment transaction with VNPay  11. Software saves the payment transaction  12. Software saves the new order  13. Software sends email to customer for the success order  14. Software makes cart empty  15. Software displays order and payment information  **6.** **Alternative flows**  **Table 1-Alternative flows of events for UC “Place order”**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Location** | **Condition** | **Action** | **Resume location** | | 1. | At Step 2 | If the products are not available | AIMS software notifies that the product is not available and stay at the previous use case | Use case ends | | 2. | At Step 4 | If customer choose “Place rush order” | AIMS software inserts the use case “Place rush order” | Resumes at Step 5 | | 3. | At Step 5 | If the delivery information is invalid | AIMS software displays error: “Invalid delivery info” | Resumes at Step 4 | | 4. | At Step 10 | If the order payment is not successful or goes back from payment | AIMS software displays error: “Failed transaction” | Resumes at Step 10 |       **7.** **Input data**  **Table 2-Input data of delivery information**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** | | 1. | Receiver Name | Receiver’s full name | Yes | Only alphabetical characters | Vu Nguyen Hao | | 2. | Email | Email for order confirmation | Yes | Valid email format | haovn@gmail.com | | 3. | Phone Number | Phone number for contacting recipient | Yes | 10 digits | 039xxxxxxx | | 4. | Province | City or Province name, choose from a list of options |  |  | Ha Noi | | 5. | Delivery address | Receiver’s desired shipping address | Yes |  | Dai hoc Bach khoa Ha noi – Hai Ba Trung – Hanoi | | 6. | Delivery method | Choose normal delivery or “rush order” | Yes |  | Rush order | | 7. | Shipping instruction | Instructions and notes for shipping | No |  | Fragile,… |     **8.** **Output data**  **Table 3-Output data of transaction**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Display format** | **Example** | |  | Title | Title of a product | Text | DVD abd | |  | Price | Price of the product | -Comma for thousands separator  -Positive integer  -Right alignment | 123,000 | |  | Quantity | Quantity of the product | Positive integer | 2 | |  | Amount | Total money of the product | -Comma for thousands separator  -Positive integer  -Right alignment | 246,000 | |  | Subtotal before VAT | Total price of products in the order before VAT | 2,106,000 | |  | Subtotal | Total price of products in the order with VAT | 2,316,600 | |  | Shipping fee | The fee for delivery | 30,000 | |  | Total | Sum of subtotal and shipping fee | 2,346,600 |     **Table 4-General information of the order and transaction information**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Display format** | **Example** | | 1. | Customer name | Full of name of customer | Text | Vu Nguyen Hao | | 2. | Phone number | The phone number of the customer | 10 digits | 039xxxxxxx | | 3. | Shipping address | Address of the customer | Text | Dai hoc Bach khoa Ha noi – Hai Ba Trung – Hanoi | | 4. | Province | Province of the shipping address | Text | Hanoi | | 5. | Total amount | Total cost of the order | -Comma for thousands separator  -Positive integer  -Right alignment | 1,200,000 | | 6. | Transaction ID | Unique identifier for the transaction | Alphanumeric | TRAN001 | | 7. | Transaction content | Transaction message of customer | Text | VNPay Payment - ORD001 | | 8. | Transaction date | Date of the transaction | dd/mm/yy | 05/10/2024 |     **9.** **Postconditions**   * When the order is placed, the customer receives the confirmation via email * The AIMS software records and stores the payment transaction information and the successfully paid order * Update the inventory after the order has been placed and empty the cart |

## Add products

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Use Case “*Add products*”**   1. **Use case code**   UC002   1. **Brief Description**   This use case describes the interaction between the product manager and the AIMS system when the product manager wishes to add new products to the system.   1. **Actors**    1. **Product manager**  * A product manager is an individual responsible for managing product listings, including adding, updating, or modifying product details in the system, to ensure that they meet business goals and customer needs. * Product managers can only add one product at a time. * Product managers can add an unlimited amount of products in a day.  1. **Preconditions**  * Product manager must be logged into the system. * Currently, the software exclusively supports the buying and selling of physical media products. These products must include a barcode, product description (such as new, used, primary color, and return condition), quantity, warehouse entry date, dimensions, and weight.  1. **Basic Flow of Events** 2. The product manager logs into the system. 3. The product manager navigates to the product management tab. 4. The system shows a list box containing modifying options. 5. The product manager chooses the “Add a new product” button. 6. The system shows a dialog that asks for the type of product (Books, CDs, LP records, DVDs) 7. The software displays a product entry form corresponding to the product type. 8. The product manager fills in and submits the product entry form. 9. Software checks for the validation of the form. 10. The system adds the products to the inventory. 11. The system displays a textbox confirming the successful completion of the product entry process. 12. The system saves the data of the product entry form in the memory. 13. **Alternative flows**   **Table 1-Alternative flows of events for UC Add products**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Location** | **Condition** | **Action** | **Resume location** | | 1. | At Step 1 | If the login information is invalid. | * System asks the user to enter the login information again. | Resumes at Step 1. | | 2. | At Step 4 | If the product manager does not select the “Add product” button. |  | The use case ends. | | 3. | At Step 7 | If the product manager presses the “Cancel” button. | * The system asks the product manager to confirm. | * If the user presses “Yes”, the use case ends. * If the user presses “No”, resumes at Step 7. | | 4. | At Step 8 | If the data in the product entry form is insufficient or invalid. | * The system displays an error message to notify the user. | Resumes at Step 7. | | 5. | At Step 8 | If the product is already in the inventory. | * The system will notify the user * The quantity of this entry will be accumulated to the quantity in the inventory.. | Resumes at step 10.. |   **7. Input data**  **Table 2-Input data of product entry form for “Book” product type**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** | |  | Title | The name of the product. | Yes |  | Wuthering Heights | | 2. | Category | The classification or group that the product belongs to. | Yes |  | Psychological Fiction, Romanticism | | 3. | Author | The person or entity that created the content of the book. | Yes |  | Emily Brontë | | 4. | Price | The price per product (excluding tax) in VND | Yes |  | 100000 | | 5. | Cover type | The material and format of the book's outer covering | Yes | Paperback/ hardcover | Paperback | | 6. | Publisher | An individual or company responsible for producing and distributing the book | Yes |  | Nha xuat ban Giao duc Viet Nam | | 7.. | Publication date | The time when the publisher officially publishes the book. | Yes | dd/mm/yyyy | 01/01/2025 | | 8. | Number of pages | The number of pages per book. | No | A positive integer | 300 | | 9. | Language | The languages that the book is written of | No |  | English | | 10. | Genre | Genre of the book |  |  | Gothic fiction | | 11. | Barcode | A pattern that stores the product information. | Yes |  |  | | 12. | State | The status of the product based on its usage and wear. | Yes | Can be “New” or “Used” | New | | 13. | Product description | Some more description about the product. | No |  |  | | 14. | Warehouse entry date | The date when the product enters the inventory | Yes | dd/mm/yyyy | 05/01/2025 | | 15. | Product dimensions | The measurements of the product (in centimetre) | Yes | Width x Length x Height | 12.7 x 20.3 x 10.5 | | 16. | Weight | The weight of a single product (in gram) | Yes | A positive number. | 100 |   **Table 3-Input data of product entry form for “CD” and “LP record” product type**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** | |  | Title | The name of the product. | Yes |  | Cheri Cheri Lady | | 2. | Category | The classification or group that the product belongs to. | Yes |  | Rock, Pop | | 3. | Artist | The person or entity that created the content of the product. | Yes |  | Modern Talking | | 4. | Price | The price per product (excluding tax) in VND | Yes |  | 100000 | | 5. | Record label | The company responsible for producing, distributing, and promoting music recordings. | Yes |  | Sony Music | | 6. | Tracklist | The ordered list of songs or audio recordings included on an album, CD, vinyl, or digital release | Yes |  | Song Title 1 – 3:45  Song Title 2 – 4:12  Song Title 3 (feat. Artist) – 3:58 | | 7. | Genre | Genre of the product | Yes |  | Rock, Pop | | 8. | Release date | The date that the product is officially released | No | dd/mm/yyyy | 01/01/1980 | | 9. | Barcode | A pattern that stores the product information. | Yes |  |  | | 10. | State | The status of the product based on its usage and wear. | Yes | Can be “New” or “Used” | New | | 11. | Product description | Some more description about the product. | No |  |  | | 12. | Warehouse entry date | The date when the product enters the inventory | Yes | dd/mm/yyyy | 05/01/2025 | | 13. | Product dimensions | The measurements of the product (in centimetre) | Yes | Width x Length x Height | 12.7 x 20.3 x 10.5 | | 14. | Weight | The weight of a single product (in gram) | Yes | A positive number. | 100 |   **Table 4-Input data of product entry form for “DVD” product type**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** | |  | Title | The name of the product. | Yes |  | The call of the Wild | | 2. | Disc type | The classification or group that the product belongs to. | Yes | Blu-ray, HD-DVD | Blu-Ray | | 3. | Director | The person or entity that oversaw the creative aspect of the movie on DVD. | Yes |  | Chris Sanders | | 4. | Price | The price per product (excluding tax) in VND | Yes |  | 100000 | | 5. | Runtime | Total duration of the movie. | Yes | hh:mm:ss | 02:30:01 | | 6. | Studio | An individual or company responsible for producing the DVD | Yes |  | 20th Century Studios | | 7. | Language | The languages of the DVD | Yes |  | English | | 8. | Subtitles | Information about the subtitles | Yes | Yes/No | Vietnamese subtitle | | 9. | Barcode | A pattern that stores the product information. | Yes |  |  | | 10. | State | The status of the product based on its usage and wear. | Yes | Can be “New” or “Used” | New | | 11. | Product description | Some more description about the product. | No |  |  | | 12. | Warehouse entry date | The date when the product enters the inventory | Yes | dd/mm/yyyy | 05/01/2025 | | 13. | Product dimensions | The measurements of the product (in centimetre) | Yes | Width x Length x Height | 12.7 x 20.3 x 10.5 | | 14. | Weight | The weight of a single product (in gram) | Yes | A positive number. | 100 |  1. **Output data**   **No**   1. **Postconditions**   **No** |

## Update products

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Use Case “*Update products*”**   1. **Use case code**   UC003   1. **Brief Description**   This use case describes the interaction between the product manager and the AIMS system when the product manager wishes to modify the details of products in the system.   1. **Actors**   **3.1 Product manager**   * A product manager is an individual responsible for managing product listings, including adding, updating, or modifying product details in the system, to ensure that they meet business goals and customer needs. * Product managers can only add one product at a time. * Product managers can add an unlimited amount of products in a day.  1. **Preconditions**  * Product manager must be logged into the system. * Currently, the software exclusively supports the buying and selling of physical media products. These products must include a barcode, product description (such as new, used, primary color, and return condition), quantity, warehouse entry date, dimensions, and weight.  1. **Basic Flow of Events** 2. The product manager logs into the system. 3. The product manager navigates to the product management tab. 4. The system shows a list box containing modifying options. 5. The product manager chooses the “Update product” button. 6. The system verifies whether more than 30 products have been updated on the current date. 7. The system shows a list of products in the inventory. 8. The product manager selects a product in the list. 9. Software shows the update form corresponding to the product type. 10. The manager fills in and submits the product update form. 11. Software checks for the validation of the form. 12. The system updates the products to the inventory. 13. The system displays a textbox confirming the successful completion of the product update process. 14. The system updates the number of updated products on the current date. 15. The system saves the data of the product update form. 16. **Alternative flows**   **Table 1-Alternative flows of events for UC Update products**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Location** | **Condition** | **Action** | **Resume location** | |  | At Step 1 | If the login information is invalid. | * System asks the user to enter the login information again. | Resumes at Step 1. | | 2. | At Step 4 | If the product manager does not select the “Update product” button |  | The use case ends. | |  | At Step 5 | If more than 30 products have been updated on the current date. | * The system shows an error message to notify the user | The use case ends. | |  | At Step 6 | If the product manager presses the “Cancel” button. |  | The use case ends. | |  | At Step 8 | If the data in the product update form is insufficient or invalid. | * The system displays an error message to notify the user. | Resumes at Step 8. | |  | At Step 8 | If the product is already in the inventory. | * The system displays an error message to notify the user. | Resumes at Step 8. |  1. **Input data**   **Table 2-Input data of product update form for “Book” product type**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** | |  | Title | The name of the product. | Yes |  | Wuthering Heights | | 2. | Category | The classification or group that the product belongs to. | Yes |  | Psychological Fiction, Romanticism | | 3. | Author | The person or entity that created the content of the book. | Yes |  | Emily Brontë | | 4. | Price | The price per product (excluding tax) in VND | Yes |  | 100000 | | 5. | Cover type | The material and format of the book's outer covering | Yes | Paperback/ hardcover | Paperback | | 6. | Publisher | An individual or company responsible for producing and distributing the book | Yes |  | Nha xuat ban Giao duc Viet Nam | | 7.. | Publication date | The time when the publisher officially publishes the book. | Yes | dd/mm/yyyy | 01/01/2025 | | 8. | Number of pages | The number of pages per book. | No | A positive integer | 300 | | 9. | Language | The languages that the book is written of | No |  | English | | 10. | Genre | Genre of the book |  |  | Gothic fiction | | 11. | Barcode | A pattern that stores the product information. | Yes |  |  | | 12. | State | The status of the product based on its usage and wear. | Yes | Can be “New” or “Used” | New | | 13. | Product description | Some more description about the product. | No |  |  | | 14. | Warehouse entry date | The date when the product enters the inventory | Yes | dd/mm/yyyy | 05/01/2025 | | 15. | Product dimensions | The measurements of the product (in centimetre) | Yes | Width x Length x Height | 12.7 x 20.3 x 10.5 | | 16. | Weight | The weight of a single product (in gram) | Yes | A positive number. | 100 |   **Table 3-Input data of product update form for “CD” and “LP record” product type**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** | |  | Title | The name of the product. | Yes |  | Cheri Cheri Lady | | 2. | Category | The classification or group that the product belongs to. | Yes |  | Rock, Pop | | 3. | Artist | The person or entity that created the content of the product. | Yes |  | Modern Talking | | 4. | Price | The price per product (excluding tax) in VND | Yes |  | 100000 | | 5. | Record label | The company responsible for producing, distributing, and promoting music recordings. | Yes |  | Sony Music | | 6. | Tracklist | The ordered list of songs or audio recordings included on an album, CD, vinyl, or digital release | Yes |  | Song Title 1 – 3:45  Song Title 2 – 4:12  Song Title 3 (feat. Artist) – 3:58 | | 10. | Genre | Genre of the product | Yes |  | Rock, Pop | | 11. | Release date | The date that the product is officially released | No | dd/mm/yyyy | 01/01/1980 | | 11. | Barcode | A pattern that stores the product information. | Yes |  |  | | 12. | State | The status of the product based on its usage and wear. | Yes | Can be “New” or “Used” | New | | 13. | Product description | Some more description about the product. | No |  |  | | 14. | Warehouse entry date | The date when the product enters the inventory | Yes | dd/mm/yyyy | 05/01/2025 | | 15. | Product dimensions | The measurements of the product (in centimetre) | Yes | Width x Length x Height | 12.7 x 20.3 x 10.5 | | 16. | Weight | The weight of a single product (in gram) | Yes | A positive number. | 100 |   **Table 4-Input data of product update form for “DVD” product type**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** | |  | Title | The name of the product. | Yes |  | The call of the Wild | | 2. | Disc type | The classification or group that the product belongs to. | Yes | Blu-ray, HD-DVD | Blu-Ray | | 3. | Director | The person or entity that oversaw the creative aspect of the movie on DVD. | Yes |  | Chris Sanders | | 4. | Price | The price per product (excluding tax) in VND | Yes |  | 100000 | | 5. | Runtime | Total duration of the movie. | Yes | hh:mm:ss | 02:30:01 | | 6. | Studio | An individual or company responsible for producing the DVD | Yes |  | 20th Century Studios | | 7. | Language | The languages of the DVD | Yes |  | English | | 8. | Subtitles | Information about the subtitles | Yes | Yes/No | Vietnamese subtitle | | 9. | Barcode | A pattern that stores the product information. | Yes |  |  | | 10. | State | The status of the product based on its usage and wear. | Yes | Can be “New” or “Used” | New | | 11. | Product description | Some more description about the product. | No |  |  | | 12. | Warehouse entry date | The date when the product enters the inventory | Yes | dd/mm/yyyy | 05/01/2025 | | 13.. | Product dimensions | The measurements of the product (in centimetre) | Yes | Width x Length x Height | 12.7 x 20.3 x 10.5 | | 14. | Weight | The weight of a single product (in gram) | Yes | A positive number. | 100 |  1. **Output data**   **No**   1. **Postconditions**   **No** |

## Delete products

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Use Case “*Delete products*”**   1. **Use case code**   UC004   1. **Brief Description**   This use case describes the interaction between the product manager and the AIMS system when the product manager wishes to remove products from the system.   1. **Actors**    1. **Product manager**  * A product manager is an individual responsible for managing product listings, including adding, updating, or modifying product details in the system, to ensure that they meet business goals and customer needs. * Product managers can only delete up to 10 products at a time. * Product managers cannot remove more than 30 products in a day, due to security reasons.  1. **Preconditions**  * Product manager must be logged into the system. * Currently, the software exclusively supports the buying and selling of physical media products. These products must include a barcode, product description (such as new, used, primary color, and return condition), quantity, warehouse entry date, dimensions, and weight.  1. **Basic Flow of Events** 2. The product manager logs into the system. 3. The product manager navigates to the product management tab. 4. The system shows a list box containing modifying options. 5. The product manager chooses the “Remove products” button. 6. The software displays a list of products in the inventory. 7. The product manager selects the products that need removing, and then submits to the system. 8. The system verifies whether more than 30 products are removed on the current date (including the currently selected items). 9. The system displays a textbox confirming the successful completion of the product removal process. 10. The system updates the amount of deleted product on the current date. 11. The system saves the removal data. 12. **Alternative flows**   **Table 1-Alternative flows of events for UC Add products**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Location** | **Condition** | **Action** | **Resume location** | | 1. | At Step 1 | If the login information is invalid. | * System asks the user to enter the login information again. | Resumes at Step 1. | | 2. | At Step 4 | If the product manager does not select the “Remove product” button. |  | The use case ends. | | 3. | At Step 7 | If more than 30 products are removed on the current date (including the currently selected items). | * The system shows an error message to notify the user. | The use case ends. | | 4. | At Step 6 | If the product manager presses the “Cancel” button. | * The system asks the product manager to confirm. | * If the user presses “Yes”, the use case ends. * If the user presses “No”, resumes at Step 6. |  1. **Input data**   **No**   1. **Output data**   **No**   1. **Postconditions**   **No** |

## Pay order

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Use Case “Pay order”**   1. **Use case code**   UC005   1. **Brief Description**   This use case describes the interaction between Customer, AIMs Software, and VNPay when Customer wishes to pay an order.   1. **Actors**  * Customer * VNPay * Software  1. **Preconditions**  * A completed order must be created before the transaction is formed.  1. **Basic Flow of Events**   1. AIMS software displays the order and total price.  2. Customer chooses payment method.  3. Software redirects to VNPay.  4. VNPay displays transaction details and total price.  5. Customer enters credit card information.  6. VNPay processes payment.  7. Return to software.  8. Software displays order information.  9. Software sends payment transaction information to the customer's email.  10. Software records order transaction.   1. **Alternative flows**   **Table N-Alternative flows of events for UC Place order**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Location** | **Condition** | **Action** | **Resume location** | | 1 | At Step 5 | If the credit card information is invalid. | VNPay asks the customer to enter their credit card information again. | Resumes at Step 5. | | 2 | At Step 6 | If the payment process is unsuccessful. | VNPay displays error message.  VNPay returns to transaction detail page. | Resumes at Step 4. |  1. **Input data**   **Table A - Input data of credit card information.**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** | | 1 | Credit card number | Card number | Yes | 16-digit numbers | 0000 0000 0000 0000 | | 2 | Serial number | Card serial number | Yes | 16 to 19-digit number | 000000000000 | | 3 | Password | User’s password | Yes |  |  | | 4 | Pin code | Personal Identification Number | Yes | 3-digit numbers | 000 |  1. **Output data**   **Table B - Output data of invoice after successful payment.**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Display format** | **Example** | | 1 | Transaction ID | Transaction ID | ID + Number | ID0001 | | 2 | Transaction date | Transaction date | yyyy/mm/dd | 2025/01/01 | | 3 | Transaction time | Transaction time | hh:mm:ss | 00:00:00 | | 4 | Transaction content | Transaction description |  | “Product Payment: Books: Harry Potter Collection” | | 5 | Customer name | Customer name |  | Bùi Hoàng Việt | | 6 | Phone number | Customer phone number |  | 0966342369 | | 7 | Shipping address | Customer address |  | 1 Phùng Chí Kiên, Hà Nội | | 8 | Product | Product name |  | Books: Harry Potter Collection | | 9 | Quantity | Product quantity | Number | 1 | | 10 | Subtotal | Product price (excluding tax) | Vietnamese currency(VND)  Comma for thousand separator | 2,560,000 | | 11 | Shipping fee | Shipping fee | Vietnamese currency(VND)  Comma for thousand separator | 35,000 | | 12 | Tax | Tax | Vietnamese currency(VND)  Comma for thousand separator | 3,500 | | 13 | Total amount | Total amount | Vietnamese currency(VND)  Comma for thousand separator | 2,598,000 | | 14 | Process state | Process state | Can be “Pending process” or “Processing” | Pending process |  1. **Postconditions**  * Payment successful: * Order state updated to “Pending process” * Customers receive payment confirmation email, including electronic invoice * Payment unsuccessful: * AIMS system receives response from VNPay with status "Payment cancelled". * The order is not confirmed and remains in "Awaiting Payment" status. * The system displays an error message and allows the customer to retry payment or cancel the order. |

## View product detail

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Use Case “View product detail”**   1. **Use case code**   UC006   1. **Brief Description**   This use case describes the interaction between customer and AIMS software when the customer wishes to view product detail.   1. **Actors**   **-** Customer   1. **Preconditions**   The AIMS software displays a list of products.   1. **Basic Flow of Events**   1. The customer chooses a product in the list of products screen.  2. The AIMS software shows the details of the corresponding product (see Table 2).   1. **Alternative flows**   **Table 1-Alternative flows of events for UC View product detail**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Location** | **Condition** | **Action** | **Resume location** | | 1. | At Step 1 | If the product is not available for sale | The AIMS notifies that the product is not available for sale | Use case ends |  1. **Output data**   **Table 2-Output data of product details**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Data fields** | **Description** | **Display format** | **Example** | | 1. | Title | Name of the product | * Bold | **Đắc nhân tâm** | | 2. | Category | Classification or group that the product belongs to | * Normal format | Book | | 3. | Product information | Details of the product | * New line for new item | Author: Dale Carnegie  Subject: self-help  Publisher: NXB Tuổi trẻ | | 4. | Product dimension | Measurements of the product | * Unit of measurement: centimeter(cm) * Width x Length x Height | 12.5 x 20 x 1.75 | | 5. | Weight | Weight of a single product | * Unit of measurement: gram(g) | 100 | | 6. | Price | The price per product (excluding tax) in VND | * Vietnamese currency(VND) * Comma for thousand separator | 120,000 |  1. **Postconditions:**   **No** |

## Place rush order

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Use Case “Place Rush Order”**   1. **Use case code**   UC007   1. **Brief Description**   This use case describes the interaction between customer and the software when the customer wishes to place a rush order instead of normal order   1. **Actors**  * Customer  1. **Preconditions**   Customers must be in their working session; the cart is not empty, and the customer’s information is valid   1. **Basic Flow of Events**    1. Customer requests to place rush order    2. AIMS software checks whether the delivery address supports this service and the eligibility of the products.    3. AIMS software displays the form of additional information (See table 1) and requests customer to complete.    4. Customer completes the form of additional information and submit the form.    5. AIMS processes, calculates, and displays the order and shipping fees. (See table 2)    6. Customer asks to pay. 2. **Alternative flows**   **Table 1-Alternative flows of events for UC View product detail**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Location** | **Condition** | **Action** | **Resume location** | | 1 | At step 2 | If no products are available or the address is ineligible for a rush order. | - The AIMS software notifies the user that the products in the cart are unavailable or the address is not supported, keeping them in the "View Cart" use case.  - Some products may still be delivered through standard shipping. | Use case ends | | 2 | At any step | If the customer chooses other order methods | AIMS returns to use case “Place Order” | Use case ends |  1. **Input data**   **Table 2-Input data of delivery information**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | No | Data fields | Description | Mandatory | Valid condition | Example | | 1 | Receiver name |  | Yes |  | Tran Nhu Thai | | 2 | Phone number |  | Yes | 11 digits | 0963927247 | | 3 | Province | Select an option from the list. | Yes |  | Ninhbinh | | 4 | Address |  | Yes |  | 73, Tran Hung Dao Street, Ninh Binh city | | 5 | Shipping instruction |  | No |  |  | | 6 | Delivery time | Rush order delivery time | No |  | 1 day |  1. **Output data**   **Table 3-Output data of order information and shipping fee**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | No | Data fields | Description | Display format | Example | | 1 | Title | The name of a media product |  | DVD”Davinci code” | | 2 | Price | Price of the corresponding media product | - Comma for thousands separator    - Positive integer  - Right alignment | 150,000 | | 3 | Quantity | Quantity of the corresponding media | - Positive integer    - Right alignment | 4 | | 4 | Amount | The total cost of the corresponding media. | - Comma for thousands separator  - Positive integer  - Right alignment | 600,000 | | 5 | Subtotal | Total amount of all products in the order |  | 1,436,000 | | 6 | Shipping fee |  |  | 23,000 |  1. **Postconditions**   A new order is created, and the details are emailed to the customer. However, if the payment is unsuccessful, no action is taken. |

## 

# Supplementary specification

## Functionality

* In use cases involving transactional operations, any errors that occur during the connection or operation process must trigger appropriate error notifications, ensuring that users understand the issue is system-related rather than their own mistake.
* For use cases involving registration, account recovery, and password changes, it is essential to implement secure, reliable, and accurate confirmation methods, requiring at least two verification steps to authenticate the user's account.
* Use cases designed for Product Managers, and Administrators must require login with the appropriate roles.

## Usability

* The functions should be designed for user-friendly operation.
* The layout should be intuitive and easy to navigate.
* The language should be clear and simple..

## Reliability

*…Updating <This will be updated when the AIMs Project is completed>*

## Performance

*…Updating <This will be updated when the AIMs Project is completed>*

## Supportability

This software is compatible with Windows desktop and computer platforms. Additionally, the development team provides support for module upgrades and maintenance as needed by the client.

## Other requirements

Attractive and user-friendly interface with intuitive navigation, rapid processing speed and high accuracy. Well-organized product categorization for easy searching.