USE CASE “Add/Update Product”

**1. Use case code:** UC01

**2. Brief description**

This use case describes the interaction between the Product Manager and the system when the Product Manager wishes to add or update a product.

**3. Actors**

Product Manager

**4. Preconditions**

The Product Manager must be logged into the system with the appropriate permissions.

**5. Basic flow**

**Step 1.** Product Manager selects 'Add/Update Product' from the system menu.

**Step 2.** The system prompts the Product Manager to enter product details.

**Step 3.** Product Manager enters product details (e.g., product name, description, price).

**Step 4.** The system validates the entered data.

**Step 5.** If valid, the system saves the new or updated product information.

**Step 6.** The system confirms the successful addition or update of the product.

**Step 7.** The system updates the product catalog with the new or updated product information.

**Step 8.** The system notifies the Product Manager of the successful operation.

**6. Alternative flow**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Location** | **Condition** | **Action** | **Resume location** |
|  | Step 3 | if the Product Manager leaves any mandatory fields empty | * The system displays an error message indicating the missing fields. The Product Manager is prompted to complete the information. | Resumes at Step 2 |
|  | Step 4 | if the system detects invalid data (e.g., price format is incorrect) | * The system highlights the invalid fields and prompts the Product Manager to correct them. | Resumes at Step 3 |
|  | Step 5 | if the product fails to save due to a system error | * The system displays an error message. The Product Manager can retry saving or contact support. | Ends if the issue is unresolved |
|  | Step 7 | if the product update impacts existing orders or inventory | * The system prompts the Product Manager with a confirmation dialog to proceed with the update. If the Product Manager cancels, the flow ends. If confirmed, it continues. | Resumes at Step 8 |

**7. Input data for deliveries**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No** | **Data fields** | **Description** | **Mandatory** | **Valid condition** | **Example** |
|  | Product Name | Name of the product | Yes | Cannot be empty | Wireless Headphones |
|  | Description | Short description of the product | Yes | Cannot be empty | Bluetooth over-ear headphones |
|  | Price | The price of the product | Yes | Positive integer or float | 99.99 |
|  | Quantity | Number of items available | Yes | Positive integer | 100 |
|  | Category | Category to which the product belongs | Yes | Must be a valid category | Electronics |
|  | Image URL | Link to the product image | No | Must be a valid URL format | https://example.com/image.jpg |
|  | Shipping Weight | Weight of the product for shipping purposes | No | Positive number | 1.5 kg |
|  | SKU (Stock Keeping Unit) | Unique product identifier | Yes | Alphanumeric code | WH-001 |
|  | Dimensions | Product dimensions (L x W x H) | No | Must follow valid format (cm) | 30 x 20 x 10 cm |
|  | Manufacturer | Manufacturer or brand name | No | Cannot be empty if present | Sony |

**8. Output data**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Data fields** | **Description** | **Display format** | **Example** |
|  | Product ID | Unique identifier for the product | Numeric, Auto-incremented | 101 |
|  | Product Name | Name of the product | Text | Wireless Headphones |
|  | Price | The price of the product | Currency format (Comma-separated) | $99.99 |
|  | Quantity Available | Number of items currently available | Numeric | 100 |
|  | Total Value | Total value based on price and quantity | Currency format (Comma-separated) | $9,999.00 |
|  | Category | The product category | Text | Electronics |
|  | SKU | Stock Keeping Unit (Unique product identifier) | Alphanumeric | WH-001 |
|  | Date Added | The date the product was added to the system | Date (MM/DD/YYYY) | 02/27/2025 |
|  | Status | Current status of the product (e.g., Active, Out of Stock) | Text | Active |
|  | Last Updated | The date when the product information was last updated | Date (MM/DD/YYYY) | 02/25/2025 |

**9. Postconditions**

1. The new or updated product is successfully saved in the system's database.

2. The product catalog is updated to reflect the changes made by the Product Manager.

3. The updated product information is made available for viewing and searching by other users (e.g., customers, other managers).

4. If the product was added, it now appears as a new entry in the product list with the status "Active."

5. If the product was updated, all associated data (e.g., orders, inventory) are synchronized to reflect the new product details.

6. A notification or confirmation message is displayed to the Product Manager confirming the success of the operation.

7. Any inventory adjustments (if applicable) are reflected in the stock levels of the product.

8. The system logs the transaction for auditing and tracking purposes, including details such as who made the changes, the time of the update, and what was changed.

**10. Supportability**

1. Maintainability: The system should allow for easy updates and modifications to the product catalog. This includes version control for tracking changes and the ability to rollback product updates if necessary.

2. Documentation: Comprehensive documentation should be provided, detailing how Product Managers can add, update, and manage product information. It should also cover system maintenance procedures for future administrators.

3. System Updates: The system must be capable of supporting future feature updates without significant downtime, ensuring minimal impact on users during product catalog changes or improvements.

4. Technical Support: A technical support system should be in place, allowing Product Managers to report any issues with adding or updating products and receive timely assistance.

5. Modularity: The product management module should be designed in a modular fashion, allowing for future enhancements (e.g., new product attributes, integration with external systems) without disrupting the overall system architecture.

6. Scalability: The system should be able to scale with increasing numbers of products and product updates, ensuring performance remains optimal as the product catalog grows.

**11. Other Requirements**

1. Security: The system must ensure that only authorized Product Managers can access and modify product information. Data encryption should be used for sensitive fields such as pricing.

2. Data Integrity: Data consistency must be maintained during product updates. Any interruptions during the update process should trigger an automatic rollback to prevent partial updates.

3. Performance: The system should handle product additions and updates efficiently, with response times under 2 seconds for basic operations such as saving or validating product information.

4. Backup and Recovery: A backup mechanism should be in place to ensure that product information is not lost in case of a system failure. Regular backups should be scheduled, and recovery should be quick and reliable.

5. Compliance: The system should comply with industry standards and regulations regarding data handling, such as GDPR for protecting personal data.

6. Integration: The product management system should support integration with external systems such as inventory management, e-commerce platforms, or third-party analytics tools.