**2.5 Process Specification Structured English: (Azzam Esam 2022094521)**

Use structured English to describe the logic of each process in a clear and concise manner.

Decision Tables: Employ decision tables to represent complex decision-making processes.

**Login Process :**

* **IF** the username and password are entered
  + **IF** the credentials are correct
    - Grant access to the user.
  + **ELSE**
    - Display an error message: "Invalid credentials."
* **ELSE**
  + Display a message prompting the user to enter all required fields.

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| |  | | --- | | **Condition 1** |  |  | | --- | |  | | |  | | --- | | **Condition 2** |  |  | | --- | |  | | Condition 3 | Action |
| |  |  |  | | --- | --- | --- | | |  | | --- | | Username and password are provided |  |  | | --- | |  | |  |  | | --- | |  | | |  | | --- | | Credentials are correct |  |  | | --- | |  | | |  | | --- | | Shipping and payment info provided |  |  | | --- | |  | | - |
| Yes | Yes | Yes | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  |  |  | | --- | --- | --- | --- | | |  | | --- | | Grant user access. |  |  | | --- | |  | | | |  | |  |  | | --- | |  | |
| Yes | Yes | No | Display error message: "Invalid credentials." |
| No | - | - | Prompt user to enter all required fields. |

**Add Item to Cart Process :**

* **IF** the desired item is available in stock
  + **IF** the user is logged in
    - Add the item to the shopping cart.
    - Update the total price in the cart.
  + **ELSE**
    - Prompt the user to log in first.
* **ELSE**
  + Display a message indicating that the item is currently unavailable.

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| |  | | --- | | **Condition 1** |  |  | | --- | |  | | |  | | --- | | **Condition 2** |  |  | | --- | |  | | Condition 3 | Action |
| |  |  |  | | --- | --- | --- | | |  | | --- | | Item available in stock |  |  | | --- | |  | |  |  | | --- | |  | | |  | | --- | | User is logged in |  |  | | --- | |  | | |  | | --- | | Shipping and payment info provided |  |  | | --- | |  | | - |
| Yes | Yes | Yes | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  |  |  | | --- | --- | --- | --- | | |  | | --- | | Add item to cart and update the total price. |  |  | | --- | |  | | | |  | |  |  | | --- | |  | |
| Yes | Yes | No | |  |  |  | | --- | --- | --- | | |  | | --- | | Prompt user to log in. |  |  | | --- | |  | |  |  | | --- | |  | |
| No | - | - | Display message: "Item is unavailable." |

**Checkout Process :**

* **IF** the cart is not empty
  + **IF** shipping and payment information is provided
    - Check the stock for all items in the cart.
    - **IF** all items are available
      * Deduct the quantity from inventory.
      * Process the payment.
      * Generate an order tracking number.
      * Send order confirmation to the user.
    - **ELSE**
      * Display a message indicating the unavailable items.
  + **ELSE**
    - Prompt the user to complete shipping and payment information.
* **ELSE**
  + Display a message indicating that the cart is empty.

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| |  | | --- | | **Condition 1** |  |  | | --- | |  | | |  | | --- | | **Condition 2** |  |  | | --- | |  | | Condition 3 | Action |
| |  |  |  | | --- | --- | --- | | |  | | --- | | Cart is not empty |  |  | | --- | |  | |  |  | | --- | |  | | |  | | --- | | All items in stock |  |  | | --- | |  | | |  | | --- | | Shipping and payment info provided |  |  | | --- | |  | | - |
| Yes | Yes | Yes | |  |  |  |  | | --- | --- | --- | --- | | |  |  | | --- | --- | | Deduct quantity, process payment, send order confirmation. | | |  | |  |  | | --- | |  | |
| Yes | Yes | No | |  | | --- | | Display message: "Some items are unavailable." |  |  | | --- | |  | |
| No | - | - | Display message: "Cart is empty." |

**Product Search Process**

* **IF** the user enters a keyword or applies filters
  + Search for products that match the keyword or filters.
  + **IF** results are found
    - Display the list of matching products.
  + **ELSE**
    - Display a message indicating no available results.
* **ELSE**
  + Display a message prompting the user to enter a keyword or select filters.

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| |  | | --- | | **Condition 1** |  |  | | --- | |  | | |  | | --- | | **Condition 2** |  |  | | --- | |  | | Condition 3 | Action |
| |  |  |  | | --- | --- | --- | | |  | | --- | | Keyword entered |  |  | | --- | |  | |  |  | | --- | |  | | |  | | --- | | Filter applied |  |  | | --- | |  | | |  | | --- | | Results found |  |  | | --- | |  | | - |
| Yes | Yes | Yes | |  |  |  |  | | --- | --- | --- | --- | | |  |  | | --- | --- | | Display matching products. | | |  | |  |  | | --- | |  | |
| Yes | Yes | No | |  | | --- | | Display matching products. |  |  | | --- | |  | |
| Yes | No | - | |  | | --- | | Display message: "No results found." |  |  | | --- | |  | |
| No | - | - | Prompt user to enter a keyword or select filters. |

**Product Review Process :**

* **IF** the user has purchased the product
  + **IF** the user has not previously reviewed the product
    - Allow the user to enter a rating and review.
    - Save the review and rating to the database.
    - Update the product's average rating.
  + **ELSE**
    - Display a message indicating the product has already been reviewed.
* **ELSE**
  + Display a message prompting the user to purchase the product first.

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| |  | | --- | | **Condition 1** |  |  | | --- | |  | | |  | | --- | | **Condition 2** |  |  | | --- | |  | | Condition 3 | Action |
| |  | | --- | | Productmethod selected |  |  | | --- | |  | | Product funds | Productgateway active | - |
| Yes | Yes | Yes | |  |  |  |  | | --- | --- | --- | --- | | |  |  | | --- | --- | | Process payment and generate receipt. | | |  | |  |  | | --- | |  | |
| Yes | Yes | No | |  | | --- | | Display message: "Insufficient funds." |  |  | | --- | |  | |
| Yes | No | - | Display message: "Payment gateway currently unavailable." |
| No | - | - | Prompt user to select a payment method. |

**Shipping Process :**

* **IF** a shipping address is provided
  + **IF** the address is within a valid shipping region
    - Confirm shipping and initiate dispatch.
  + **ELSE**
    - Display a message: "Shipping not available in this region."
* **ELSE**
  + Prompt the user to enter a shipping address.

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| |  | | --- | | **Condition 1** |  |  | | --- | |  | | |  | | --- | | **Condition 2** |  |  | | --- | |  | | Condition 3 | Action |
| |  | | --- | | Shipping address provided |  |  | | --- | |  | | Valid shipping region | - | - |
| Yes | Yes | Yes | |  |  |  |  | | --- | --- | --- | --- | | |  |  | | --- | --- | | Confirm shipping and initiate dispatch process. | | |  | |  |  | | --- | |  | |
| Yes | Yes | No | |  | | --- | | Display message: "Shipping not available in this region." |  |  | | --- | |  | |
| No | - | - | Prompt user to enter a shipping address. |

**Payment Process :**

* **IF** a payment method is selected
  + **IF** sufficient funds are available
    - **IF** the payment gateway is active
      * Process payment and generate a receipt.
    - **ELSE**
      * Display a message: "Payment gateway currently unavailable."
  + **ELSE**
    - Display a message: "Insufficient funds."
* **ELSE**
  + Prompt the user to select a payment method.

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| |  | | --- | | **Condition 1** |  |  | | --- | |  | | |  | | --- | | **Condition 2** |  |  | | --- | |  | | Condition 3 | Action |
| |  | | --- | | Payment method selected |  |  | | --- | |  | | Sufficient funds | Payment gateway active | - |
| Yes | Yes | Yes | |  |  |  |  | | --- | --- | --- | --- | | |  |  | | --- | --- | | Process payment and generate receipt. | | |  | |  |  | | --- | |  | |
| Yes | Yes | No | |  | | --- | | Display message: "Insufficient funds." |  |  | | --- | |  | |
| Yes | No | - | Display message: "Payment gateway currently unavailable." |
| No | - | - | Prompt user to select a payment method. |

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### **Inventory Update Process :**

* **IF** the item exists in inventory
  + **IF** the required quantity is available
    - **IF** quantity update is successful
      * Reflect changes in product availability.
    - **ELSE**
      * Display a message: "Failed to update quantity, please try again."
  + **ELSE**
    - Display a message: "Insufficient quantity in inventory."
* **ELSE**
  + Display a message: "Item not found in inventory."

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| |  | | --- | | **Condition 1** |  |  | | --- | |  | | |  | | --- | | **Condition 2** |  |  | | --- | |  | | Condition 3 | Action |
| |  | | --- | | Item exists in inventory |  |  | | --- | |  | | Quantity available | Update quantity | - |
| Yes | Yes | Yes | |  | | --- | | Update inventory and reflect changes in product availability. |  |  | | --- | |  | |
| Yes | Yes | No | Display message: "Failed to update quantity, please try again." |
| Yes | No | - | Display message: "Insufficient quantity in inventory." |
| No | - | - | Display message: "Item not found in inventory." |

### **Order Cancellation Process :**

* **IF** an order has been placed
  + **IF** the order has not been shipped
    - **IF** the cancellation is within the allowed timeframe
      * Cancel the order and initiate a refund.
    - **ELSE**
      * Display a message: "Order cancellation period has expired."
  + **ELSE**
    - Display a message: "Order cannot be canceled as it has already shipped."
* **ELSE**
  + Display a message: "No active order found to cancel."

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| |  | | --- | | **Condition 1** |  |  | | --- | |  | | |  | | --- | | **Condition 2** |  |  | | --- | |  | | Condition 3 | Action |
| |  | | --- | | Order is placed |  |  | | --- | |  | | Order not yet shipped | Cancellation within allowed timeframe | - |
| Yes | Yes | Yes | |  | | --- | | Cancel order and refund payment. |  |  | | --- | |  | |
| Yes | Yes | No | Display message: "Order cancellation period has expired." |
| Yes | No | - | Display message: "Order cannot be canceled as it has already shipped." |
| No | - | - | Display message: "No active order found to cancel." |

### **Refund Process :**

* **IF** the product has been returned
  + **IF** the product is in its original condition
    - **IF** the return is within the allowed policy period
      * Approve the refund and process payment to the user.
    - **ELSE**
      * Display a message: "Return period expired, refund not possible."
  + **ELSE**
    - Display a message: "Product not in returnable condition."
* **ELSE**
  + Display a message: "No product returned for refund."

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| |  | | --- | | **Condition 1** |  |  | | --- | |  | | |  | | --- | | **Condition 2** |  |  | | --- | |  | | Condition 3 | Action |
| |  | | --- | | Product returned |  |  | | --- | |  | | Product in original condition | Within return policy period | - |
| Yes | Yes | Yes | Approve refund and initiate payment to user. |
| Yes | Yes | No | Display message: "Return period expired, refund not possible." |
| Yes | No | - | Display message: "Product not in returnable condition." |
| No | - | - | Display message: "No product returned for refund." |