Individual Lab

**Inventory Module**

A common question is ‘what products does Karen purchase to help her run her business and must be concerned about allergies and other additives’. Karen would like to be able to quickly access this information.

While Karen would prefer to purchase products from distributors, this requires some planning ahead of time, which she’s not always organized enough to do. More often than not, she ends up at a pharmacy or even Wal-Mart, buying as she needs to. Karen realizes that products will be cheaper if she purchases ahead of time and looks for deals or buys in bulk.

Karen would like a system that helps her organize her purchases, instead of having to look through a combination of online orders and paper receipts. She would like the ability to attach a copy or picture of the receipt to the purchase order for tax and tracking purposes.

**Please create a class diagram and sequence diagrams for the User Stories and Systems Use Case Specifications detailed below.**

**Use Case: Maintain Product**

User Story

As the owner of this business, I would like to record the products that I use for easy information retrieval. I want to be able to quickly show my customers the ingredients in the products. I don’t expect that I’ll have to retrieve products by their ingredients.

Acceptance Criteria:

1. Must be able to record critical information about each product.
2. Allow deletion of products in case the owner makes a mistake. Owner must be prompted to confirm, and product must not be included in any purchase orders.
3. Must be able to easily retrieve product information including ingredients and precautions for use.
4. Must be able to retrieve a list of products by product type, so that the owner can retrieve all massage oil (example) products at once.

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| --- | --- | --- | --- |
| Use Case Name | Add New Product | | |
| Triggering Event | A new product of interest to the business to eventually order | | |
| Brief Description | Allows the Owner to record a new product. | | |
| Actors | Owner | | |
| Related Use Cases |  | | |
| Preconditions | Owner has opened the Main Menu. | | |
| Post Conditions | Product is saved to the database and now can be purchased or used in a service. | | |
| Flow of activities | Actor | | System |
|  |  | Requests to add a new product | Displays a list of product types and prompts for selection. |
|  |  | Selects product type | Verifies that a product type was selected. Prompts for Product identifier, product name, description, ingredients, and any precautions for use. |
|  |  | Enters product identifier, name, description, ingredients, and precautions for use. | Identifier, name, description, and ingredients must be entered.  Data is valid  Prompts to save |
|  |  | Request to save | Saves the product and returns to the main menu |
| Exception Conditions | * Owner chooses to cancel adding the product | | |

**Use Case: Maintain Purchase**

User Story

As the owner of this business, I would like to record my purchases so that I can quickly see how much money I’ve spent, what I’ve ordered and from where.

Acceptance Criteria:

1. Must be able to record purchases by supplier.
2. Differentiate between scheduled (bought online) and emergency purchases (bought in store).
3. Must be able to query purchases by product and by product type (example massage oil).

Use Case Descriptions

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Name | Add Items to Inventory (add Purchase) | | |
| Triggering Event | Purchase of products, shipment has arrived (either pickup or shipped) | | |
| Brief Description | Allows the Owner to record new items to Inventory. | | |
| Actors | Owner | | |
| Related Use Cases |  | | |
| Preconditions | Owner has opened the Main Menu. | | |
| Post Conditions | Items are saved to the database and now can be queried. | | |
| Flow of activities | Actor | | System |
|  | 1. | Requests to add new inventory | Displays a list of suppliers and prompts for selection. |
|  | 2. | Selects a supplier. | Verifies that a supplier was selected. Prompts for purchase date and selection of receipt file location. |
|  | 3. | Enters purchase date and receipt file selected. | Verifies that date was entered and receipt selected.  Creates a unique identifier for the purchase. Prompts to enter product details. |
|  | loop | Chooses to add item | Displays a list of products and prompts for selection. Prompts for price, quantity ordered, and quantity received |
|  | 4. | Selects a product and enters price and quantities ordered and received. | Product must be selected.  Price and quantities must be entered  Data is valid  Extended price is calculated (price \* quantity ordered)  Taxes are calculated and displayed  Purchase total is updated with the extended price + taxes  Purchase tax is updated with the tax amount  Displays purchase including totals, date and list of products.  Prompts to add another product |
|  | End | When all products selected | Displays purchase including totals, date, and list of products.  Prompts to save purchase |
|  | 5. | Chooses to save | Saves the purchase and returns to the main menu |
| Exception Conditions | * Owner chooses to cancel adding the purchase | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Name | Query Purchases | | |
| Triggering Event | Owner requires a list of purchases for a date period listing Supplier, Products quantity purchased, price paid and the extended amount (price \* quantity) | | |
| Brief Description | Allows the Owner to retrieve inventory items purchased for a specified date range | | |
| Actors | Owner | | |
| Related Use Cases |  | | |
| Preconditions | Owner has opened the Main Menu. | | |
| Post Conditions | purchases are retrieved, totaled, and displayed | | |
| Flow of activities | Actor | | System |
|  |  | Requests to query purchase (by date) transactions | Displays a calendar |
|  |  | Selects date range | Verifies that dates are selected  Retrieves items purchased in the specified date range  Prompts to exit |
|  |  | Request to cancel | returns to the main menu |
| Exception Conditions |  | | |

**Your tasks:**

1. Create a class diagram to support the above case study and Systems Use Case Specifications
2. Create an object level sequence diagram, detailing the *Add New Product* systems use case specification
3. Create an object level sequence diagram, detailing the *Add Items to Inventory* systems use case specification
4. Create an object level sequence diagram, detailing the *Query Purchases* system use case specification.

🡪Class Diagram

Diagram

Description automatically generated

🡪Add new product

Diagram, timeline

Description automatically generated

🡪Add Items/Addpurchase

Timeline

Description automatically generated

🡪Query purchase

Timeline

Description automatically generated