**Inventory Module Lab**

This is an individual lab.

Sarah and Ted buy products from local farmers and crafters. One of their frequent customers has been diagnosed with celiac disease and has approached them to include gluten free products.

Also, Sarah and Ted wonder about food recalls and how would they be able to inform their customers if they have purchased a recalled product.

Sarah and Ted would like a system that helps them organize their purchases by location, instead of having to look through a combination of online orders and paper receipts. They would like the ability to attach a copy or picture of the receipt to the purchase for tax purposes.

Your task is to read the User Story below and create a class diagram and sequence diagrams to support the scenario.

Copy your diagrams to a word file. Analyze your model and outline what the .h files would look like if you generated code from your model. Include pseudo code to indicate what each method would do. Attach this word file and your visual paradigm file to your submission.

**Use Case: Maintain Products**

User Story

As the owner of this business, I would like to record products so that I can easily see what I’ve purchased, what I’ve sold and how much inventory I have at each location.

Acceptance Criteria:

1. Must be able to record critical information about each product.
2. Allow deletion of product in case the owner makes a mistake. The owner must be prompted to confirm, and the product must not be involved in any purchases or sales.
3. Must be able to easily retrieve product information.
4. Must be able to retrieve a list of products by product type.

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| --- | --- | --- | --- |
| **Use Case Name** | **Create Product Information** | | |
| Triggering Event | A new product of interest to the business | | |
| 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. | | |
| Flow of activities | Actor | | System |
|  |  | Requests to add a new product | Displays a list of product types and prompts for selection.  Prompts for product name, ingredients, description, price |
|  |  | Enter name, description, price, and ingredients.  Selects product type | name, description and price must be entered.  Product type must be selected.  Generates identifier.  Data is valid.  Displays product.  Prompts to save |
|  |  | Request to save | Saves the product and returns to the main menu |
| Exception Conditions | * Owner chooses to cancel adding the product | | |

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| **Use Case Name** | **Query Products by Product Type** | | |
| Triggering Event | List of products required | | |
| Brief Description | Allows the Owner to query products | | |
| Actors | Owner | | |
| Related Use Cases |  | | |
| Preconditions | Owner has opened the Main Menu. | | |
| Post Conditions | Product information provided to the actor. | | |
| Flow of activities | Actor | | System |
|  | 1. | Requests for products | Displays a list of product types and prompts for selection |
|  | 2. | Selects product type | Displays a list of products for that product type |
| Exception Conditions | * Owner chooses to cancel query products | | |

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**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. With each purchase, I want to record which location received the product. Because I like to order in bulk, I must be able to record multiple locations for each product.

Acceptance Criteria:

1. Must be able to record purchases by supplier.
2. Must be able to query purchase details by location.

Use Case Descriptions

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Name** | **Create Purchase** | | |
| Triggering Event | Purchase of products. | | |
| Brief Description | Allows the Owner to record a new purchase. | | |
| Actors | Owner | | |
| Related Use Cases |  | | |
| Preconditions | Owner has opened the Main Menu. | | |
| Post Conditions | Purchase is saved to the database and now can be queried. | | |
| Flow of activities | Actor | | System |
|  | 1. | Requests to add a new purchase | Displays a list of suppliers and prompts for selection. Prompts for purchase date and selection of receipt file location. |
|  | 2. | Selects a supplier.  Enters purchase date and receipt file selected. | Verifies that a supplier was selected Verifies that date was entered and receipt selected.  Creates a unique identifier for the purchase.  Displays the purchase .  Prompts to enter purchase details. |
|  | Loop | Chooses new product | Displays a list of products, sorted by product type, and prompts for selection. |
|  | 3. | Selects a product | Display a list of locations and prompts for selection.  Prompts for quantity. |
|  | 4 | Selects location and enters quantity and price | Creates a unique identifier for the detail.  Data is valid.  Extended price is calculated (price \* quantity ordered)  Taxes are calculated and displayed.  The purchase total is updated with the extended price + taxes.  Purchase tax is updated with the tax amount.  Displays purchase including totals, date, list of products and locations.  Prompts to add another location |
|  |  | Repeats above step until all locations for a product were selected | Display a list of products and prompts for selection |
|  | End | When all products are selected | 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 | | |

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| **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 purchases 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 |
|  | 1. | Requests to query purchase (by date) transactions | Displays a calendar. |
|  | 2. | Selects date range. | Verifies that dates are selected.  Retrieves purchases in the specified date range, calculating totals.  Prompts to exit |
|  | 3. | Request to cancel | returns to the main menu |
| Exception Conditions |  | | |

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.h prototypes

.h files

**Product.h**

class ProductType;

class ProductDetails;

class Product {

int productId;

std::string productName;

std::string ingredients;

std::string description;

double price;

public:

void addProductType(ProductType\* type);

void getProduct();

};

**ProductType.h**

class ProductType {

int productTypeId;

string> productTypeList;

public:

void getProductType();

};

**ProductDetails.h**

class ProductDetails {

int productDetailsId;

std::string product;

double price;

int quantity;

std::string purchaseDetailer;

std::string location;

public:

void getProductDetails();

**Your tasks:**

1. Create a class diagram to support the above case study and Systems Use Case Specifications
2. Create sequence diagrams for the above Systems Use Case Specifications.
3. Analyze your model and outline what the “.h” files would look like if you generated code from your model.