GROUP 10

SUSTAINABLE SHOPPING ASSISTANT

TEAM MEMBERS:

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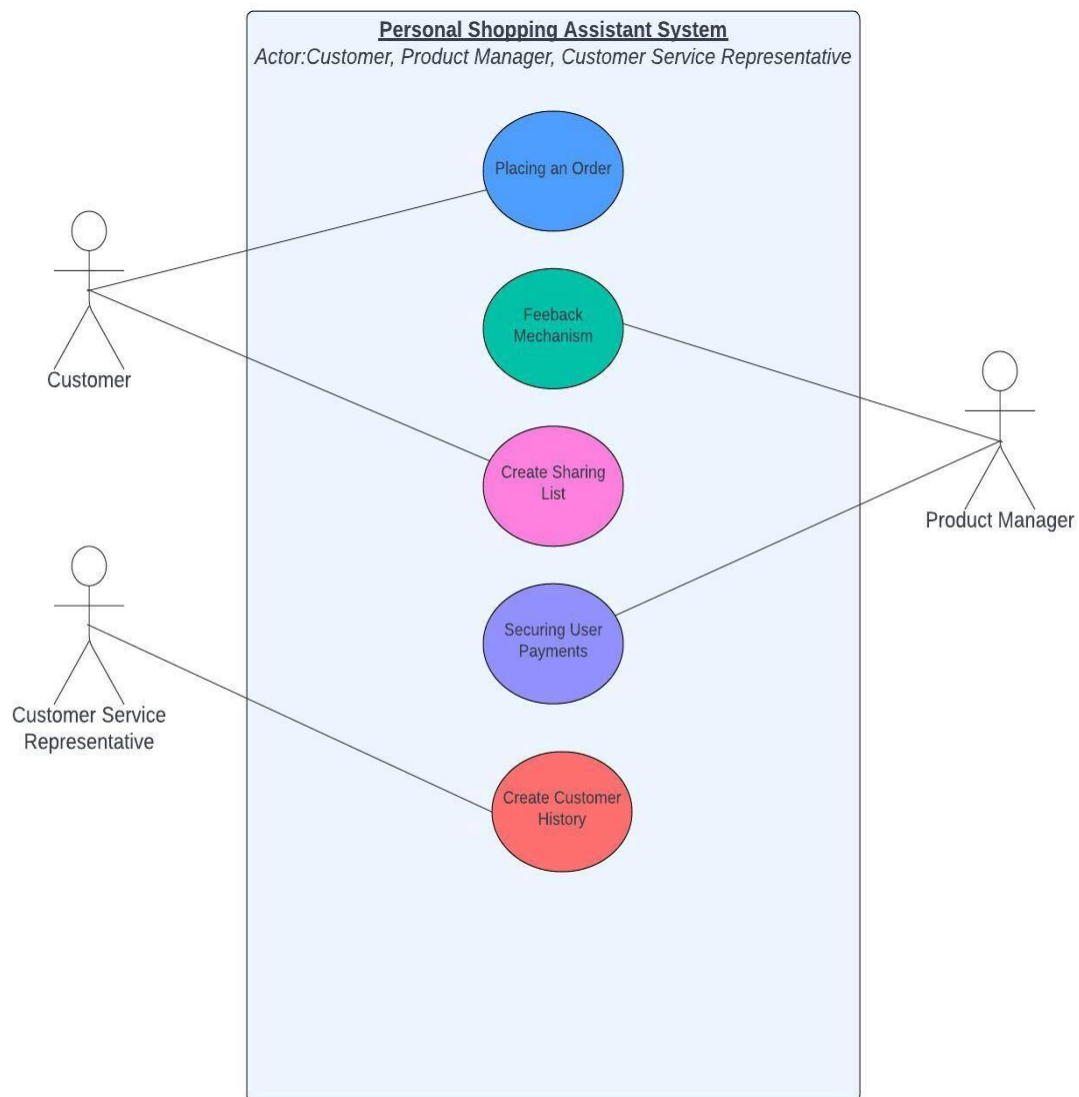
ASSIGNMENT 2

1.

a)

Use Case Name	Actors	Brief Use Case Description
Placing an Order	Customer	Allows the customers to select the items provided with the help of a shopping assistant and place an order.
Create Sharing List	Customer	Allows consumers to share their lists with their family and friends using collaborative tools.
User Registration Process	Business Administrator	Enables Administration to oversee the user registration process and ensure protection and privacy of consumer data.
Securing User Payments	Product Manager	Enhancing performance and security of payment methods to facilitate consumer satisfaction and minimize payment-related issues.
Monitoring Presentation	Marketing team	Purchasing decisions can be influenced by presenting products and data in an appealing yet informative manner.
Creating Search and Navigation Interface	UI Designer	Allows designing a search and navigation interface which enhances overall user experience.
Feedback Mechanism	Product Manager	Constantly gathering feedback from users in the early stage to make necessary updates.
Integration of Cloud Service Providers	IT Team	Allows combining external services for hosting data storage and security of the system.
Implementing a Reliable System	IT Administrator	Instantiating mechanisms for system recovery and data integrity.
Create Customer History	Customer Service Representative	Requirement of tracing records of any customer, to better assist them with the help of customer order history.
Brand Building	Social Media Manager	Allows integrating social media into daily practices, increase brand visibility and engage users on social media platforms.

b)

Personal Shopping Assistant System
Actor:Customer, Product Manager, Customer Service Representative

- Placing an Order
- Feeback Mechanism
- Create Sharing List
- Securing User Payments
- Create Customer History

Customer

Product Manager

Customer Service Representative

2. Using a checklist of all the usual types of things typically found in a system, categorized under tangible things, organizational units, site locations, and incidents/events:

Tangible Things:

User: Represents individuals using the Shopping Assistant software.

Attributes: UserID, Username, Email, Password, Preferences, ShoppingHistory.

Notes: Each user will have unique preferences and shopping habits that can be utilized for personalized recommendations.

Inventory: Represents the collection of products that a user has at home.

Attributes: InventoryID, Products, ExpirationReminders, LowSupplyThreshold.

Notes: Tracking inventory helps in generating alerts for low supplies and expiration reminders.

Product: Represents individual items available for purchase.

Attributes: ProductID, Name, Category, Price, Quantity, ExpiryDate.

Notes: Each product will have attributes such as name, category, price, and possibly additional details like nutritional information or allergens.

Shopping List: Represents a list of products that a user intends to buy during a shopping trip.

Attributes: ListID, Items, DateCreated, DateModified.

Notes: Shopping lists can be manually created by users or generated automatically based on inventory status and preferences.

Recommendation: Represents suggestions for products based on user preferences and inventory status.

Attributes: RecommendationID, RecommendedProducts, RecommendationScore.

Notes: Recommendations aim to streamline the shopping process by suggesting relevant items to users.

Sale: Represents information about discounted products available in stores.

Attributes: SaleID, ProductID, DiscountPercentage, SaleStartDate, SaleEndDate.

Notes: Voice commands enable hands-free interaction, allowing users to add items to their lists or inquire about inventory status using natural language.

Expiry Date: Represents the date when a product expires.

Attributes: ExpiryDateID, ProductID, ExpiryDate.

Notes: Tracking expiry dates helps users avoid purchasing expired items and minimizes waste.

Organizational Units:

None identified in the brainstorming technique for this system.

Site Locations:

None identified in the brainstorming technique for this system. However it would be hosted on a server.

Incidents/Events:

Voice Command: Represents a spoken command recognized by the Shopping Assistant system.

Attributes: CommandID, CommandText, Action, Description

Notes: Voice commands are fundamental to user interaction with the Shopping Assistant system, enabling users to perform various actions and tasks using natural language.
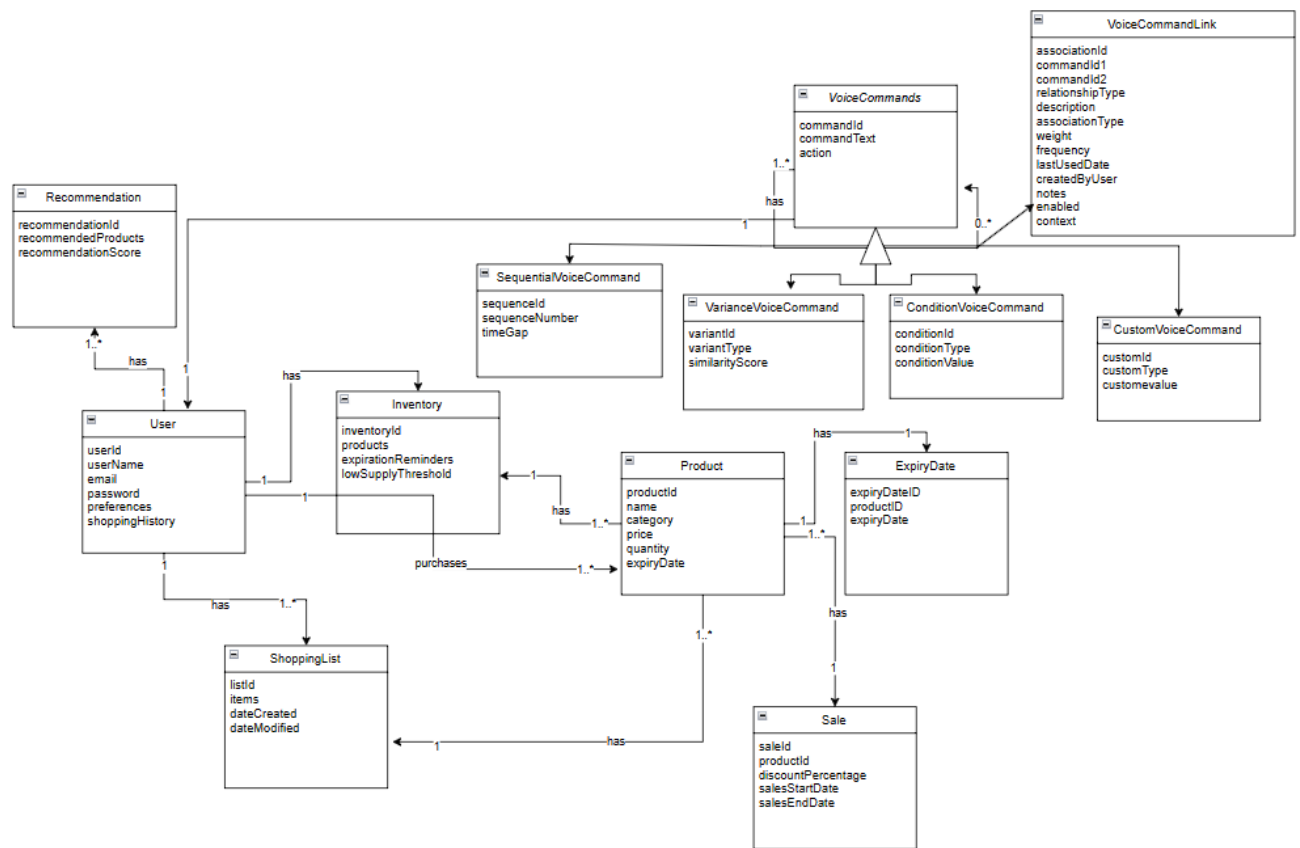
b. The final list of things

User

Inventory

Product

Shopping List

Recommendation

Voice Command

Sale

Expiry Date

GENERALIZATION/SPECIALIZATION AND ASSOCIATION

Superclass: VoiceCommand

Associationclass: VoiceCommandLink

Attributes: AssociationID, CommandID, RelationshipType, Description, AssociationType, Weight, Frequency, LastUsedDat, CreatedByUser, Notes, Enabled, Context

Subclass1: SequentialVoiceCommand

Attributes: SequenceID (Inherited), SequenceNumber, TimeGap

Subclass2: VariantVoiceCommand

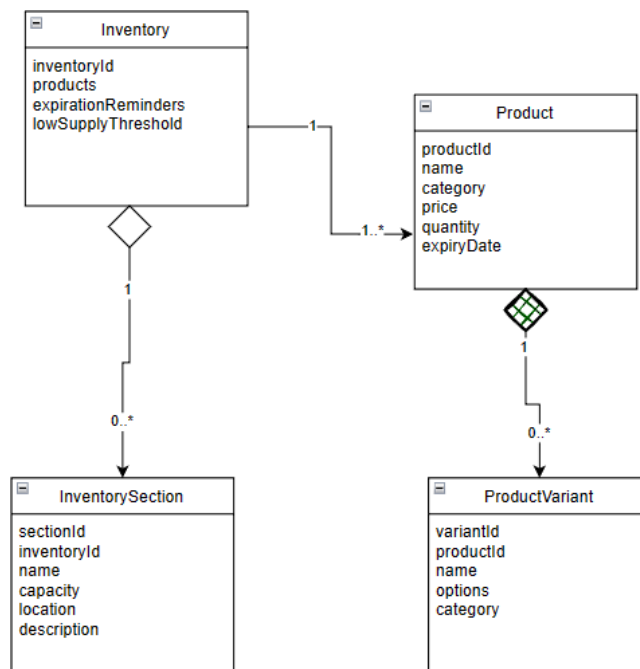Attributes: VariantID (Inherited), VariantType, SimilarityScore

Subclass3: ConditionalVoiceCommand

Attributes: ConditionID (Inherited), ConditionType, ConditionValue

Subclass4: CustomVoiceCommand

Attributes: CustomID (Inherited) CustomType, CustomAttributes

Notes: These attributes capture various details about associations between voice commands, including identifiers, relationship types, descriptions, weights, frequencies, and contextual information.

WHOLE/PART RELATIONSHIP ASSOCIATION DIAGRAM

Whole: Product

Part: ProductVariant

Association:

- Each Product can have multiple ProductVariants.

- Each ProductVariant belongs to one Product.

Explanation:

- Product represents a generic item.

- ProductVariant represents a specific variation.

- ProductVariants are aggregated within Products.

- ProductVariants can have unique attributes and quantities.

Aggregation Relationship:

- Product and ProductVariant relationship is aggregation because ProductVariants can exist independently but are grouped within Products for management and use.

Whole: Inventory

Part: InventorySection

Association:

- Each Inventory can have multiple InventorySections.

- Each InventorySection belongs to one Inventory.

Example:

- Inventory "Warehouse A"

- Sections: "Aisle 1", "Aisle 2", "Storage Room"

Explanation:

- Inventory "Warehouse A" encompasses entire warehouse.

- InventorySections represent parts of the warehouse.

- Each InventorySection has its capacity and details.

- InventorySections are linked to parent Inventory.
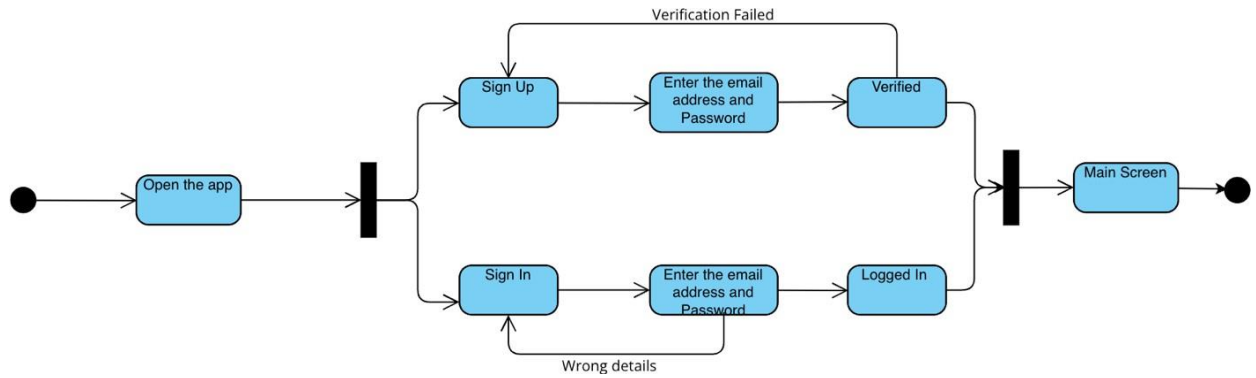
Composition Relationship:

Since InventorySections are likely tightly coupled with the Inventory and are created, managed, and destroyed along with it, the relationship between Inventory and InventorySection is better represented as composition.

4. List of the States and the Exit Transition State.
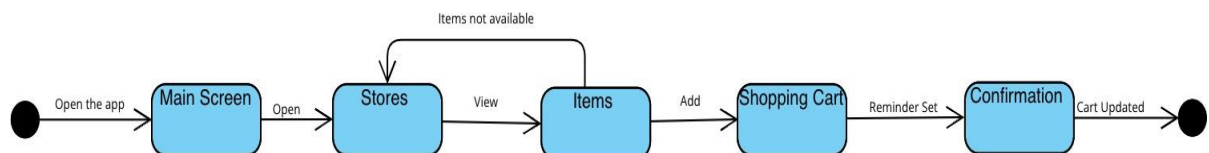

User Signing in and Sign up

State	Exit Transition
Open the app	Choose Sign In or Sign Up
Enter email details with password	In Sign up if the verification is failed user go back to Sign up and if sign in failed try again till the successful log ins
Logged in	Confirmed
Main Screen	Account Activated

One of the basic State Machine Diagram that will be the first before every state is the signing and signup for the app. And this is the state machine diagram.
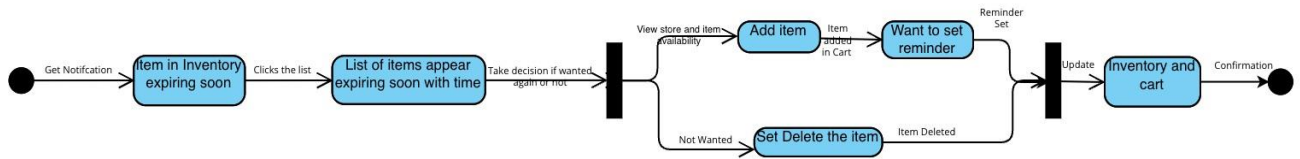
2. The first State machine Diagram is the adding products in the shopping cart and setting the reminder for the product:

State	Exit Transition
Open the App	No exit
Main Screen	View desired stores
Open Desired Stores	Look for desired items
View the items	Add it to Shopping cart
Items not available	Back to store
Open Shopping Cart	Set reminder for the items
Confirm changes in the shopping cart	Cart Updated

The Second State Machine Diagram is the Restocking or deleting the item from the inventory:

State	Exit Transition
Get Notification on Items Expiring in the Inventory	Click the list of the items
List opened	User decision to if buy the product again or delete it from the item.
Wanted to buy the item	Item added to cart
Wanted to set Reminder	Reminder Set
Or may want to delete the item	Item deleted from the inventory
Inventory and Shopping Cart Updated	Confirmation notified

The Third State Machine knowing the items that are on the sale:

State	Exit Transition
Open the app	Main Screen
Either want to buy items for items that are expiring or the discounted items	Select Sale
Sale flyer opens	Mark the desired items with dates
Wanted to set Reminder	Reminder Set
Reminder Alert	Notified with items details
Item list appear	Bought Items