Assessment 2: Software Design

Pre-Assessment Activity: Dictionary of Abstraction

Monash Merchant is a brick-and-mortar supermarket, and in order to provide customers with a more convenient way to shop, this project will design an online shopping platform for it. In this platform, customers can purchase goods and choose the payment method to checkout. After that they can check their orders. The platform also provides the option to buy membership. The administrator can manage and edit the products in the platform.

In this platform, users can be categorized as administrators and customers. Each user has their personal information including username, password, user ID, date of birth, phone number, email and user role. As a customer, they can check their balance at any time and also, they can set their delivery address so that they can use it directly at checkout. Membership status is also recorded in their account information. If the customer is a member, then they can view their membership points and membership level at any time. There are also different benefits for different levels of membership, including discounts, vouchers,coupon etc. Also, members can view their joining date and expiration date in order to manage their renewal time.

When customers are shopping for products, they have the option to either buy the product directly or add multiple products to their shopping cart and checkout together. Customers can see the list of products and the quantity of products in the shopping cart, as well as the total price of all products. Also, customers can see the last modify day of the cart. After checking out, customers can choose to have the products delivered to their home or choose a pickup address to pick up the products. They can see the country, post code, city, region and specific address in the pickup address. After completing the purchase, the customer can choose the payment method, such as bank card, paypal, etc. Each payment will have the corresponding amount and payment date

For easy management and customer browsing, each product will have a product name and ID, and for easy selection, the products will also have their categories. Customers can see the price and stock quantity of each product when they browse the products. If customers want to know more about a product, they can see the product's production date, brand and some descriptions about the product in the product's detail page.

After a customer completes a purchase, the system will automatically generate an order. Customers can view their order details in their purchase history, which includes order ID, order status (e.g. ready, shipped, completed), order details (including product name and corresponding quantity), total price, delivery method, address, and order date. This information makes it easier for customers to view and manage their orders.

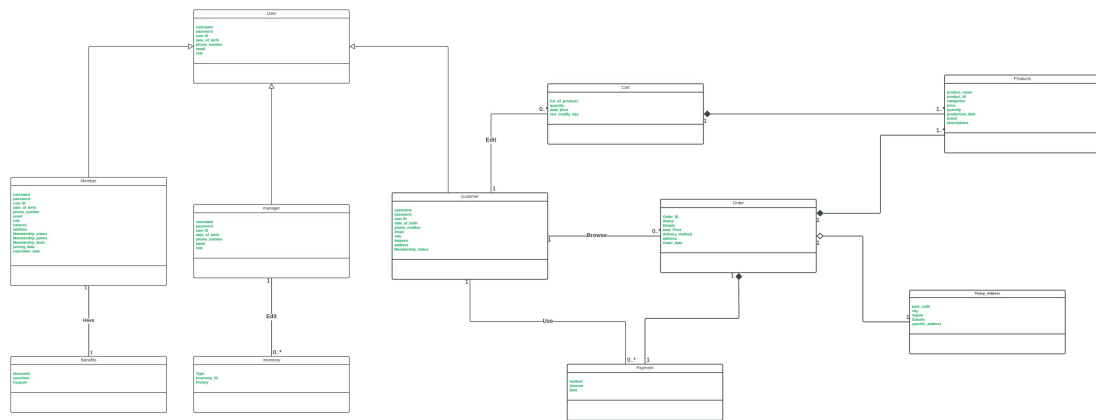**As an administrator, they manage the store's inventory. Different type of inventory may have different kinds of goods, and each inventory also has a corresponding ID. The history of goods entering and leaving the inventory will be recorded in it.**
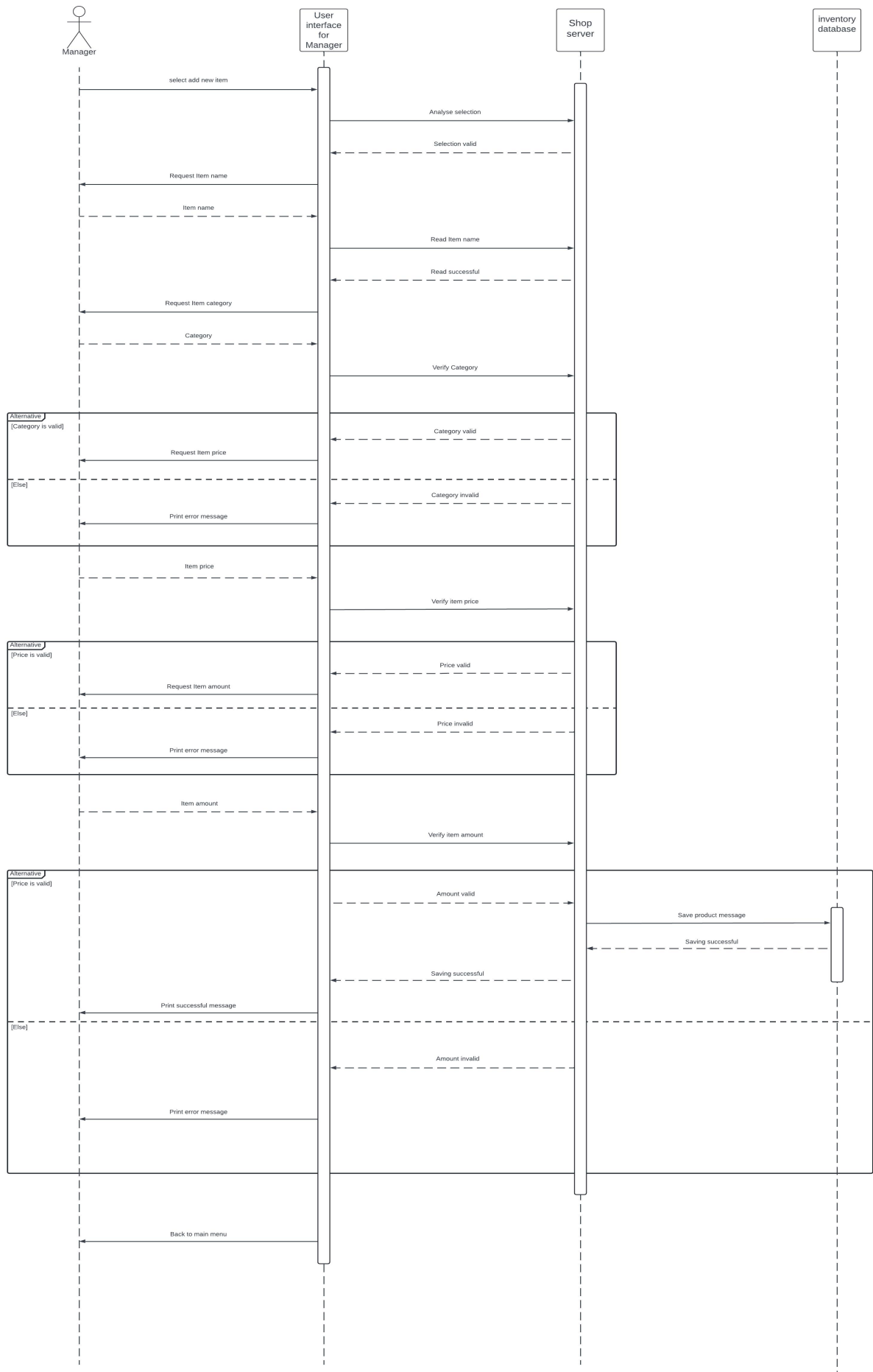
Task 1: Use case diagram
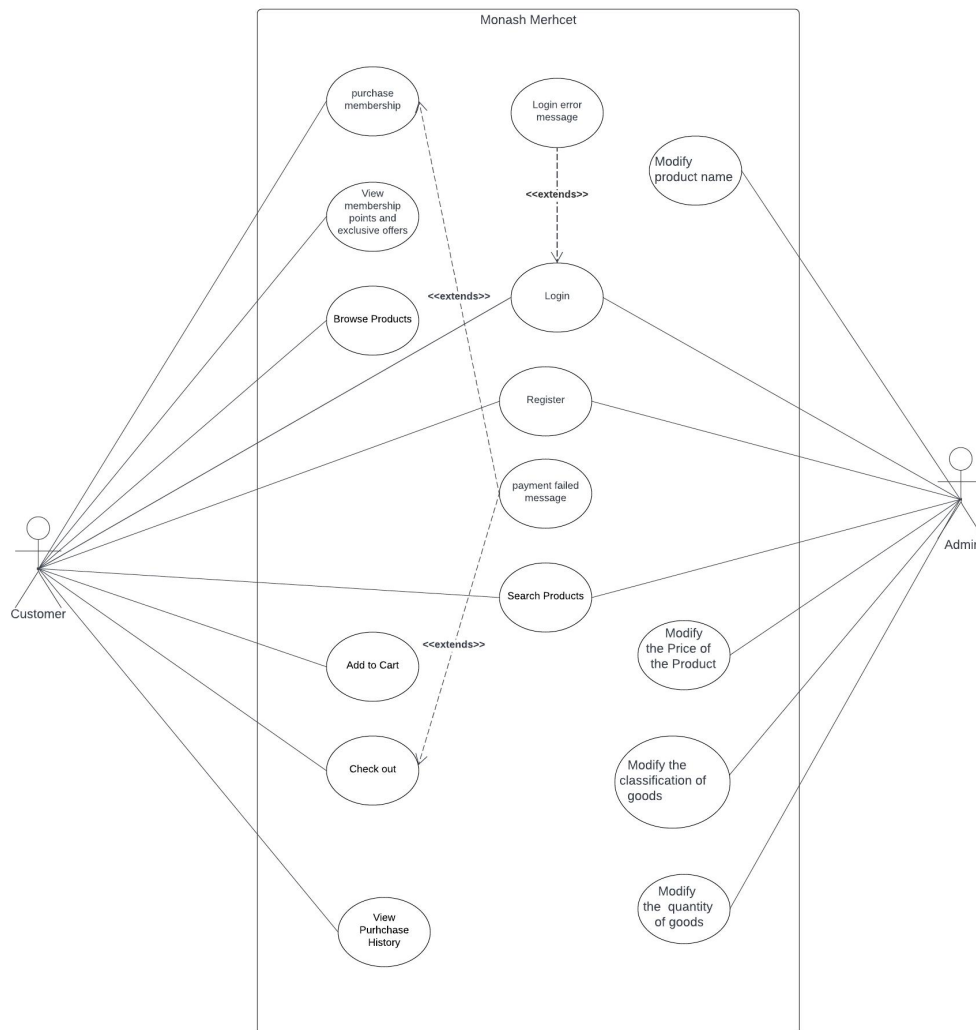
Task 2: Initial Class Diagram

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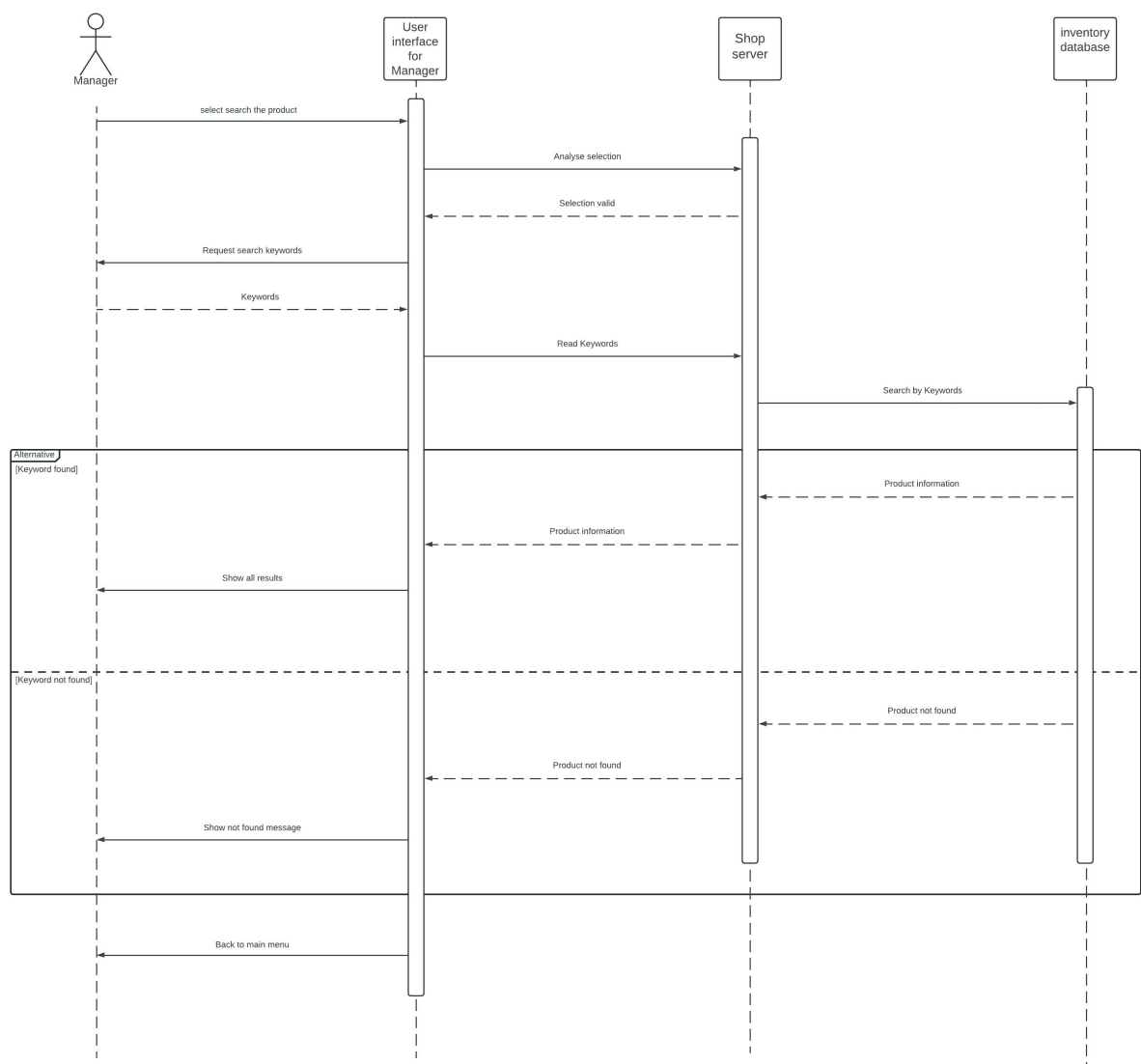
Use Case Name	Add New Product
Scenario	Product manager add a new product to the inventory.
Trigger	Product manager navigates to the "Add New Product" page.
Brief description	The product manager inputs the product details, including name, category, price, and quantity, to add a new product to the inventory.
Actors	Product Manager
Related use cases	Manage Inventory,Update Product Remove Product,Categorize Product
Preconditions	The product manager is logged in to the system. The product manager has the necessary permissions to add new products.
Postconditions	The new product is added to the inventory. The system displays the updated inventory

Flow of events	Actor	System
	1.The product manager navigates to the "Add New Product" page. 2.The product manager inputs the product name, category, price, and quantity. 3.The product manager confirms the entered details.	1.1The system validates the input data. 1.2The system creates a new product record in the inventory. 2.1The system associates the new product with the specified category. 2.2The system updates the inventory quantities. 3.1The system displays a success message to the product manager. 3.2The system redirects the product manager to the updated inventory page.
Exception conditions	If the product manager inputs invalid data (e.g., negative price or quantity), the system displays an error message and prompts the product manager to correct the input. If the product name already exists in the inventory, the system displays a warning message and asks the product manager to	

	confirm whether to proceed with adding the new product or to update the existing one.

Use Case Name	Search Products
Scenario	Product manager searches for products based on various attributes to manage inventory efficiently.
Trigger	Product manager enters search criteria in the search bar on the product management interface.
Brief description	The product manager uses the search functionality to quickly locate products based on attributes such as name, category, and availability status.
Actors	Product Manager
Related use cases	Manage Inventory,Browse Products,Update Product,Remove Product
Preconditions	The product manager is logged in to the system. The product manager has access to the product management interface. The search bar is displayed on the product management interface.
Postconditions	The system displays search results that match the specified criteria. Each search result contains relevant product information such as name, category, attributes, and availability status. Flow of events

Flow of events	Actor	System
	1.The product manager navigates to the product management interface. 2.The product manager enters search criteria (e.g., product name, category) in the search bar. 3.The product manager submits the search request.	1.1The system receives the search request and validates the input. 1.2The system queries the inventory database based on the specified search criteria. 2.1The system retrieves the matching products from the inventory. 2.2The system dynamically updates the search results to reflect real-time inventory changes. 3.1The system displays the search results on the product

	management interface, including relevant product information such as name, category, attributes, and availability status.
Exception conditions	If the product manager enters invalid search criteria, the system displays an appropriate error message and prompts the product manager to modify the search criteria.

If no products match the specified search criteria, the system displays a message indicating that no results were found and suggests alternative search criteria or browsing options.
If the search request encounters any system errors or timeouts, the system displays an error message and provides options to retry the search or contact support. |

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