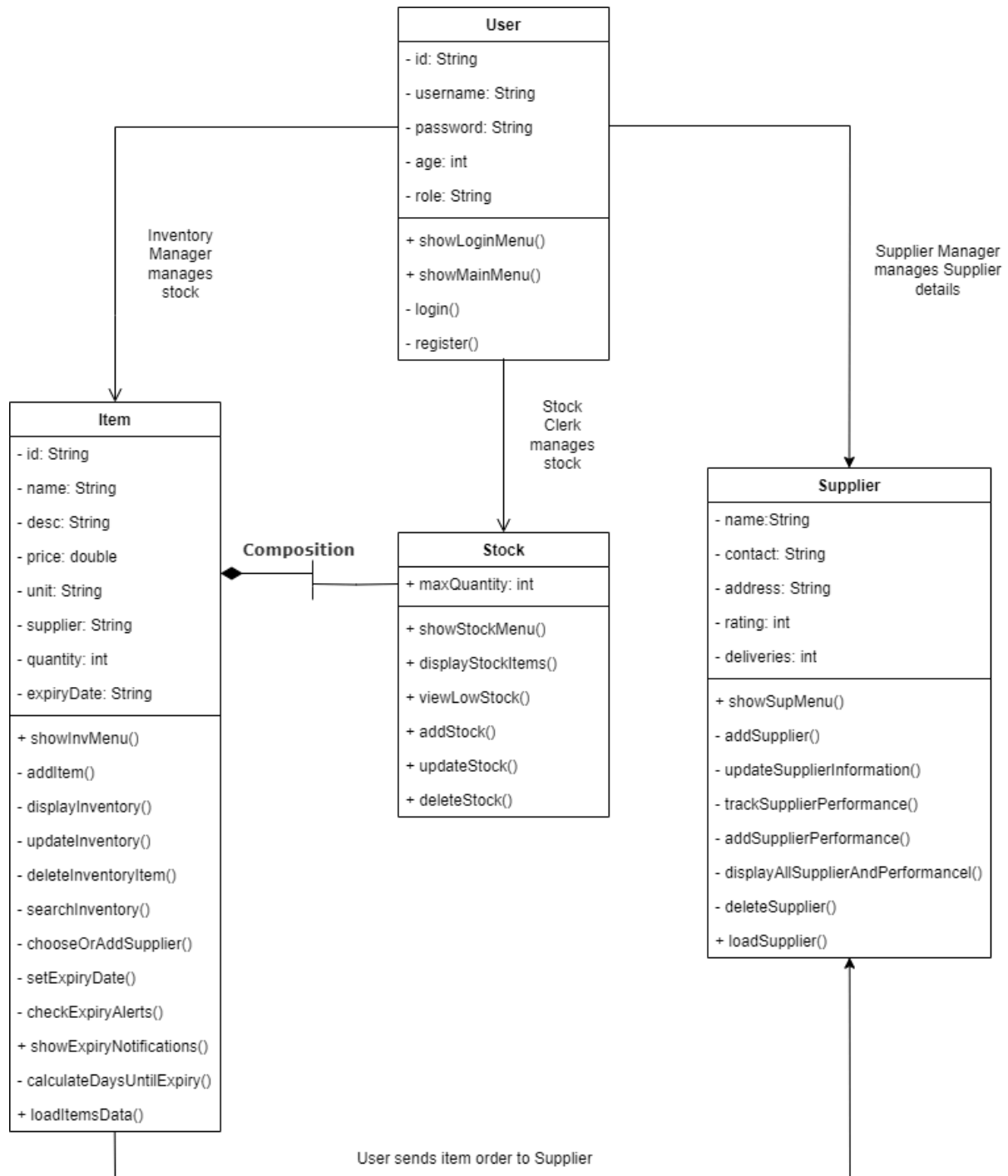**TUNKU ABDUL RAHMAN UNIVERSITY OF MANAGEMENT & TECHNOLOGY**

AACS2204

Object-Oriented Programming Techniques

Programme	:	DFT1
Tutorial Group	:	Group 19
Tutor	:	WONG WAI ZHONG
Date Submitted	:	22 September 2024

Name	Student ID	Marks		
		Section A (25%)	Section B (45%)	Section C (35%)
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User

- id: String
- username: String
- password: String
- age: int
- role: String

+ showLoginMenu()
+ showMainMenu()
- login()
- register()

Item

- id: String
- name: String
- desc: String
- price: double
- unit: String
- supplier: String
- quantity: int
- expiryDate: String

+ showInvMenu()
- addItem()
- displayInventory()
- updateInventory()
- deleteInventoryItem()
- searchInventory()
- chooseOrAddSupplier()
- setExpiryDate()
- checkExpiryAlerts()
+ showExpiryNotifications()
- calculateDaysUntilExpiry()
+ loadItemsData()

Stock

+ maxQuantity: int

+ showStockMenu()
+ displayStockItems()
+ viewLowStock()
+ addStock()
+ updateStock()
+ deleteStock()

Supplier

- name:String
- contact: String
- address: String
- rating: int
- deliveries: int

+ showSupMenu()
- addSupplier()
- updateSupplierInformation()
- trackSupplierPerformance()
- addSupplierPerformance()
- displayAllSupplierAndPerformanceI()
- deleteSupplier()
+ loadSupplier()

Inventory Manager manages stock

Supplier Manager manages Supplier details

Stock Clerk manages stock

Composition

User sends item order to Supplier

The F&B Inventory Management System is designed to efficiently manage stock, suppliers, and inventory for a food and beverage business. This system aims to streamline stock control processes by tracking the availability, price, and details of various products, while ensuring accurate record-keeping of suppliers.

Modules:

Stock Module:

This module manages the details of all stock items within the inventory. Each stock item includes attributes like id, name, description, price, unit, supplier, quantity, and expiryDate. The system allows for adding, removing, and updating stock information.

Supplier Module:

The Supplier module focuses on managing supplier information, including supplier names and contact details. Suppliers provide the products used within the system. The relationship between stock items and suppliers ensures that each product is associated with a valid supplier, making it easy to track where each item is sourced from.

Inventory Module:

The Inventory module functions as the core component of the system, overseeing both the Stock and Supplier modules. It provides the functionality to track stock levels and ensure efficient management of items.

Login and Register Module —— Koh Kai Minn

This is the login page, users can choose to login or register if they don't have an

```
Welcome to F&B Inventory Management System
===========================================
1. Login
2. Register
3. Exit
Enter your choice >
```

account.

This is the Register page, all of the input part have done validations

```
REGISTER
============
Enter username: Ian
Enter password (6-10 characters): 123456
Enter your age: 19
Choose your role:
1. Admin
2. Inventory Manager
3. Stock Clerk
4. Supplier Manager
Your choice > 3
```

So here is the Login page

```
LOGIN
============
Username: Ian
Password: 123456
```

Will display login successful message

```
Login Successful!
Logged in as Ian
```

This module handles user authentication. It allows new users to register by creating an account with a username and password(and also choosing their roles), while the login feature verifies credentials for secure system access.

You will only have access to certain modules depending on your role within the system.

After login to the system, you will get a notification for expiry date alerts, the date which is near to current date will be displayed there.(within 30 days)

```
========== Expiry Date Alerts ==========
WARNING: Carrot is close to expiry! Expiry Date: 30/9/2024 (7 days remaining)
WARNING: Chicken Breast is close to expiry! Expiry Date: 26/09/2024 (3 days remaining)
========================================
Press Enter to continue to the main menu...
```

Main Menu – Koh Kai Minn

Here now is our system main menu

```
F&B Inventory Management System
1. Inventory Management
2. Stock In & Restock
3. Supplier Management
4. Logout
Enter your choice >
```

This is the main menu. Everytime you start the system there will be a warning if there is stock that is approaching expiry date.

Inventory Management Module – Koh Kai Minn

So here is the inventory management module main menu

This is the first method, which is use to display all the inventory items

This is the second method, which is use to add new inventory items. All of the input has done validations.

```
ADD NEW INVENTORY ITEMS
============================
Enter item name: Cucumber
Enter item description: -
Enter item price: 4.5
Enter item unit: G
1. Choose from previous suppliers
2. Add a new supplier
Enter your choice (1 or 2): 1
Choose a supplier from the list:
1. Dairy Product
2. Grocer SDN BHD
3. Vege SDN BHD
4. FROZEN SDN BHD
5. FreshMart SDB BHD
6. Dairy Product
7. Chop SDN BHD
8. Mushroom SDB BHD
9. FarmGreen SDN BHD
Enter your choice: 3
Item added successfully!
```

This is the third method, which is use to update the information of item

```
Selected Item: Dairy Milk
1. Update Name
2. Update Description
3. Update Price
4. Update Unit
5. Update Supplier
6. Update Quantity
Enter field number to update >
```

This is the method which is used to search item in the inventory

```
SEARCH INVENTORY
========================
Enter keyword to search (name, description, or supplier): Tomato
Matching Inventory Items:

=====================================================================================
ID          Name              Description       Price     Unit     Supplier              Quantity
=====================================================================================
A002        Tomato            Vegetable         5.00      KG       Grocer SDN BHD        0
=====================================================================================
Press any key to continue....
```

This is the method that use to check the expiry date of all the items, and will display the remaining days and will display in red colour if near expiry or expired

```
CHECK EXPIRY ALERTS

=====================================================================================
ID          Name              Expiry Date       Days Remaining  Alert
A002        Tomato            23/05/2025        242             Safe
A003        Carrot            30/9/2024         7               Near Expiry
A004        Chicken Breast    26/09/2024        3               Near Expiry
A005        Potato            N/A               Expired         Expired
A006        Chicken Chop      N/A               Expired         Expired
A007        Lamp Chop         N/A               Expired         Expired
A008        Salmon Slice      N/A               Expired         Expired
A009        Mushroom          N/A               Expired         Expired
A010        Pumpkin           N/A               Expired         Expired
=====================================================================================
Press any key to continue....
```

The last method is used to set the expiry date as all the item will be set to a N/A expiry date by default

```
SET EXPIRY DATE
=====================
=====================================================================================
ID       Name             Description      Price     Unit    Supplier              Quantity   Expiry Date
=====================================================================================
A001     Dairy Milk       MILK             10.00     ML      Dairy Product         10         05/12/2024
A002     Tomato           Vegetable        5.00      KG      Grocer SDN BHD        0          23/05/2025
A003     Carrot           hmm              20.00     KG      Vege SDN BHD          0          30/9/2024
A004     Chicken Breast   N/A              25.00     KG      FROZEN SDN BHD        0          26/09/2024
A005     Potato           N/A              25.00     KG      FreshMart SDB BHD     0          N/A
A006     Chicken Chop     Black pepper     15.90     G       Dairy Product         0          N/A
A007     Lamp Chop        Mint Flavour     19.90     G       Chop SDN BHD          0          N/A
A008     Salmon Slice     150g             12.30     G       FROZEN SDN BHD        0          N/A
A009     Mushroom         150g             3.50      G       Mushroom SDB BHD      0          N/A
A010     Pumpkin          400g             17.16     G       FarmGreen SDN BHD     0          N/A
A011     Cucumber         -                4.50      G       Vege SDN BHD          0          N/A
=====================================================================================
Enter item ID to set expiry date > A011
Enter expiry date (dd/MM/yyyy): 03/10/2024
Expiry date set successfully.
```

Stock management menu

View stock with low levels (Stock with quantity lower than 10% of max quantity)

Adding stock to Inventory

Supplier management menu

Adding new supplier

Display all Suppliers and Performance

```
=================
Name                          Contact          Address                    Rating    Deliveries
-----------------------------------------------------------------------------------------------
Name: Dairy Product           Contact: N/A     Address: N/A               Rating: 0  Deliveries: 0
Name: Grocer SDN BHD          Contact: N/A     Address: N/A               Rating: 0  Deliveries: 0
Name: Vege SDN BHD            Contact: N/A     Address: N/A               Rating: 0  Deliveries: 0
Name: FROZEN SDN BHD          Contact: N/A     Address: N/A               Rating: 0  Deliveries: 0
Name: FreshMart SDB BHD       Contact: N/A     Address: 0                 Rating: 0  Deliveries: 0
Name: Dairy Product           Contact: N/A     Address: N/A               Rating: 0  Deliveries: 0
Name: Chop SDN BHD            Contact: N/A     Address: N/A               Rating: 0  Deliveries: 0
Name: Mushroom SDB BHD        Contact: N/A     Address: N/A               Rating: 0  Deliveries: 0
Name: FarmGreen SDN BHD       Contact: N/A     Address: N/A               Rating: 0  Deliveries: 0
Name: BingXue                 Contact: N/A     Address: Pv15              Rating: 0  Deliveries: 0
===============================================================================================
Press any key to continue...
```

Update supplier Mixue to BingXue and add the address

```
Supplier Management
=======================
1. Add Supplier
2. Update Supplier Information
3. Track Supplier Performance
4. Add Supplier Performance
5. Display All Supplier and Performance
6. Delete Supplier
7. Exit
Enter your choice > 4
Enter the name of the supplier to update performance: BingXue
Enter new rating (current: 0): 9
Enter new deliveries count (current: 0): 50
```

Add the BingXue performance, rating can be 1 to 10 or in percentage number.

The delivery can be 0 - 99 which mean the count times of delivery.

```
All Suppliers and Performance:
=============================================================================================
Name                        Contact           Address                  Rating     Deliveries
---------------------------------------------------------------------------------------------
Name: Dairy Product         Contact: N/A      Address: N/A             Rating: 0  Deliveries: 0
Name: Grocer SDN BHD        Contact: N/A      Address: N/A             Rating: 0  Deliveries: 0
Name: Vege SDN BHD          Contact: N/A      Address: N/A             Rating: 0  Deliveries: 0
Name: FROZEN SDN BHD        Contact: N/A      Address: N/A             Rating: 0  Deliveries: 0
Name: FreshMart SDB BHD     Contact: N/A      Address: 0               Rating: 0  Deliveries: 0
Name: Dairy Product         Contact: N/A      Address: N/A             Rating: 0  Deliveries: 0
Name: Chop SDN BHD          Contact: N/A      Address: N/A             Rating: 0  Deliveries: 0
Name: Mushroom SDB BHD      Contact: N/A      Address: N/A             Rating: 0  Deliveries: 0
Name: FarmGreen SDN BHD     Contact: N/A      Address: N/A             Rating: 0  Deliveries: 0
Name: BingXue               Contact: N/A      Address: Pv15            Rating: 9  Deliveries: 50
=============================================================================================
Press any key to continue...
```

When added the performance the performance will updated

```
Supplier Management
=======================
1. Add Supplier
2. Update Supplier Information
3. Track Supplier Performance
4. Add Supplier Performance
5. Display All Supplier and Performance
6. Delete Supplier
7. Exit
Enter your choice > 3
Enter the name of the supplier you want to track: Chop SDN BHD
Supplier performance:
Name: Chop SDN BHD
Contact: N/A
Address: N/A
Rating: 0
Deliveries: 0
```

Track the supplier performance it will display the performance detail

```
Supplier Management
=======================
1. Add Supplier
2. Update Supplier Information
3. Track Supplier Performance
4. Add Supplier Performance
5. Display All Supplier and Performance
6. Delete Supplier
7. Exit
Enter your choice > 6
Enter the name of the supplier to delete: BingXue
Supplier deleted successfully!
```

When delete the supplier BingXue

```
All Suppliers and Performance:
==================================================================================================
Name                        Contact         Address                  Rating      Deliveries
--------------------------------------------------------------------------------------------------
Name: Dairy Product         Contact: N/A    Address: N/A             Rating: 0  Deliveries: 0
Name: Grocer SDN BHD        Contact: N/A    Address: N/A             Rating: 0  Deliveries: 0
Name: Vege SDN BHD          Contact: N/A    Address: N/A             Rating: 0  Deliveries: 0
Name: FROZEN SDN BHD        Contact: N/A    Address: N/A             Rating: 0  Deliveries: 0
Name: FreshMart SDB BHD     Contact: N/A    Address: 0               Rating: 0  Deliveries: 0
Name: Dairy Product         Contact: N/A    Address: N/A             Rating: 0  Deliveries: 0
Name: Chop SDN BHD          Contact: N/A    Address: N/A             Rating: 0  Deliveries: 0
Name: Mushroom SDB BHD      Contact: N/A    Address: N/A             Rating: 0  Deliveries: 0
Name: FarmGreen SDN BHD     Contact: N/A    Address: N/A             Rating: 0  Deliveries: 0
==================================================================================================
Press any key to continue...
```

The supplier BingXue will be remove

```
Supplier Management
=======================
1. Add Supplier
2. Update Supplier Information
3. Track Supplier Performance
4. Add Supplier Performance
5. Display All Supplier and Performance
6. Delete Supplier
7. Exit
Enter your choice > 4
Enter the name of the supplier to update performance: ali
Supplier not found.
```

```
Supplier Management
========================
1. Add Supplier
2. Update Supplier Information
3. Track Supplier Performance
4. Add Supplier Performance
5. Display All Supplier and Performance
6. Delete Supplier
7. Exit
Enter your choice > 3
Enter the name of the supplier you want to track: ali
Supplier not found.
```

When you track/add the supplier performance that did not added, it will print an error message.