FACULTY OF COMPUTING
UTM Johor Bahru

SESSION 2023/2024 SEMESTER 1

SECJ - DATA STRUCTURE AND ALGORITHMS

ASSIGNMENT 1

Group Name: Center Point

Topics: Inventory Management System

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1. Objective

In our data structure and algorithm assignment 1, the main objectives of developing the Inventory management system are :

- To manage inventory in a warehouse
- To apply the sorting and searching technique in the system

2. Synopsis

The inventory management system is essential for one business or organization to track or manage its warehouse. Our inventory management system is designed to search or organize (sort) the inventory by its certain keys such as code, name, type, quantity, price in either ascending or descending order. These two methods are important because they not only save time but also offer convenience to users in managing the inventory effectively.

The menu is provided for the user. The user may select whether they want to sort the inventory list, search specific inventory, or exit the system.

```
~~~~~~~~~~~~~~~~~~~~~  WELCOME TO INVENTORY MANAGEMENT SYSTEM  ~~~~~~~~~~~~~~~~~~~~~

                        :::::::Inventory List:::::::

-------------------------------------------------------------------------------------
Inventory Code      Inventory Name      Inventory Type      Quantity       Price
-------------------------------------------------------------------------------------
I001                Laptop              Computer            20             23.00
I002                Story Book          Book                10             100.00
I003                Novel               Book WE             20             120.30
I005                Mouse               Computer            30             19.80
I004                Key Pad             Computer            22             77.70

Do you want to
[1] Sorting
[2] Searching
[3] Exit
Option:
```

If the user chooses the sorting option, they will be provided several criteria to sort the inventory list including **code**, **name**, **type**, **quantity** and **price**. Then the user is asked to choose whether the sorting should be sorted in ascending or descending order. The system will then automatically sort the inventory list based on the chosen criteria.

```
<<< Sorting Process >>>
[1] By Inventory Code
[2] By Inventory Name
[3] By Inventory Type
[4] By Quantity
[5] By Price
Option:
```

Below is the example output of sorting by **Quantity** in **ascending order**:

```
::Sort By Quantity in Ascending Order

                    :::::::Inventory List:::::::

--------------------------------------------------------------------------------
Inventory Code      Inventory Name      Inventory Type      Quantity       Price
--------------------------------------------------------------------------------
I002                Story Book          Book                10             100.00
I003                Novel               Book WE             20             120.30
I001                Laptop              Computer            20             23.00
I004                Key Pad             Computer            22             77.70
I005                Mouse               Computer            30             19.80
```

Below is the example output of sorting by **inventory type** in **descending order**:

```
::Sort By Inventory Type in Descending Order

                    :::::::Inventory List:::::::

--------------------------------------------------------------------------------
Inventory Code      Inventory Name      Inventory Type      Quantity       Price
--------------------------------------------------------------------------------
I001                Laptop              Computer            20             23.00
I004                Key Pad             Computer            22             77.70
I005                Mouse               Computer            30             19.80
I003                Novel               Book WE             20             120.30
I002                Story Book          Book                10             100.00
```

Other than that, if the user selects the searching option, They will be presented with 2 choices, whether they want to search by **code** or **name**. Following this, the user then enter the desired code or the name they want to search for. The system will display the relevant information for the specific inventory item to the user.

```
<<< Searching Process >>>
[1] By Inventory Code
[2] By Inventory Name
Option:
```

Below is the example output of searching by **code "I003"** :

```
Enter your search key: I003

::Search By Inventory Code

                       :::::::Inventory List:::::::

-------------------------------------------------------------------------------
Inventory Code      Inventory Name      Inventory Type      Quantity       Price
-------------------------------------------------------------------------------
I003                Novel               Book WE             20             120.30
```

Below is the example output of searching by **name "Story Book"** :

```
Enter your search key: Story Book

::Search By Inventory Name

                       :::::::Inventory List:::::::

-------------------------------------------------------------------------------
Inventory Code      Inventory Name      Inventory Type      Quantity       Price
-------------------------------------------------------------------------------
I002                Story Book          Book                10             100.00
```

* Note that the name entered is not case sensitive

If the user choose to exit the system, the system will display a goodbye message to user

```
Bye Bye!!!
```

3. System Design