Post Lab (40 marks)

Post-Lab Exercise – 3 - Identifying classes and drawing class diagram (15 Marks)

In this exercise, you are going to:

Task 1: Determine what classes should be used and identify attributes and methods for each class from the requirement description.

Task 2: Draw the class diagram using UML notations.

Requirement description - A small retail shop that sells tools requires an application to manage inventory of different types of tools it sells. The store owner wants to be able to modify the store's inventory by adding new tools, and deleting tools. The owner also wants to be able to search the inventory for tools by tool name, and by tool id. Currently, the information about tools available in the shop and suppliers is stored in two text files which are given on D2L: `items.txt`, and `suppliers.txt`.

The order and type of data given in these files are:

`items.txt`:

```
(id; description or name of tool; quantity in stock; price;
supplier id number)
```

`Suppliers.txt`:

```
(id; company name; address; sales contact)
```

The owner would also like to check the quantity of each item in stock. If the quantity of each item in stock goes below 40 items, then the program should automatically generate an order line for that item. The order line will have the supplier information and the required quantity for that item (The default quantity ordered by each item = 50 – number of existing items). All items ordered each day should be included in an order which has a randomly generated 5-digit id, and the date that was ordered. The order should be written to a text file called `orders.txt`. A sample order file is as follows:

```
**********************************************************************
ORDER ID:               15181
Date Ordered:           January 18, 2016

Item description:       Nic Nacs
Amount ordered:         250
Supplier:               Widgits Inc.

Item description:       Twinkles Inc.
Amount ordered:         50
Supplier:               Air Drills
**********************************************************************
ORDER ID:               26490
Date Ordered:           January 26, 2016

Item description:       Wog Wits
Amount ordered:         100
Supplier:               Winork Manufacturing Inc.
**********************************************************************
```

What to hand in: Submit a PDF file that contains your class diagram for the above problem.

Post-Lab Exercise- 1: Implementing the retail store program (30 Marks)

You are asked to implement your design of the retail store for Exercise 3 of lab 2.

Task 1: Implementing the Backend

Implement your class diagram. Note: your implementation must follow your design exactly. Your classes and methods must be highly cohesive and must adhere to the *single responsibility principle.*

Task 2: Implement the Frontend:

Implement a main function to test your program using the two textfiles (i.e. `items.txt`, and `suppliers.txt`) from D2L. These files are posted under the lab 2 folder on D2L. You can download the input files for the items to test your application.

To probably test your application, you are to crate an interactive console-based menu. The program should keep on running (i.e. should keep presenting the user with the menu) until the user quits. You can design your menu and make changes, but the following items should be represented in your menu:

1. List all tools (this must be handled by the proper `toString` methods in the backend).
2. Search for tool by toolName
3. Search for tool by toolID
4. Check item quantity
5. Decrease Item quantity (This is to simulate a sale of the item. Once the item count goes under 40, this function should trigger the creation of an order as shown in lab 2) .
6. Quit

Hint: Use a while loop and switch statement to design your menu

Task 3: Add Java documentation to your source code and generate Java doc files.

What to hand in: Submit your source code and all required files for this exercise. Include your Javadoc file in your project file.