Birzeit University
Department of Electrical & Computer Engineering
Summer Semester, 2021/2022 ENCS3130
Linux Laboratory
Python Project – Sales Management Software

Problem Overview:

A large company owns a series of supermarkets. The company buys products wholesale from manufacturers and stores them in a large warehouse and then distributes specific quantities of each product to supermarkets. In this project, you are required to build management software to manage the product items in the warehouse and the distribution of these product items to the supermarkets. According to the company, the management software should have the following option:

1. Add product items to the warehouse;
2. Add a new supermarket to the management system;
3. List of items in the warehouse based on expiry date;
4. Clear an item from the warehouse;
5. Distribute products from the warehouse to a supermarket;
6. Generate a report about the sales status of the warehouse;
7. Exit.

The specifications of each option are set by the company as follows:

1. Add a product item to the warehouse

To a product item to the warehouse, the user must insert the following information using the standard input

- Item Code: 4 digits that represent the item such as orange juice bottles (**0129**), apple juice bottles (**1121**), banana (**4223**), minced meat (1kg) (**3333**), teeth brush (**0020**), …, etc;
- Item Name;
- Item Expiry Date;
- Item Wholesale Unit Cost: cost of purchasing the item by the company;
- Item Sales Unit Cost: cost of selling the item by the company;
- Item Quantity: the quantity of the item added. I.e. number of orange juice bottles.

All items in the warehouse must be saved in a text file (“warehouse_items.txt”) according to the following format:

Item Code;Item Name;Item Expiry Date;Item Wholesale Unit Cost;Item Sales Unit Cost;Item Quantity
0129;Orange Juice Bottles;20/1/2023;1.5;2;1200

2. Add a new supermarket to the system

To add a new supermarket to the system, the user must enter the following information using the standard input

- Supermarket Name;
- Supermarket Code;
- Supermarket Address;
- Added Date: this is the date at which the supermarket is added to the system.

3. List of items in the warehouse based on expiry date

In this option, the software should ask the user to input a specific date (DD/MM/YYYY) and print on the screen

- A list of product items in the warehouse that have an expiry date before the input date;
- The total wholesale cost of these items;
- The total sales cost of these items.

4. Clear an item from the warehouse

To execute this option, the following procedure should be implemented:

1. The software should ask the user to input the code of an item;
2. if the item exists in the warehouse, the software then will print on the screen the information about the item. Then it will ask the user to input the quantity that needs to be cleared (which should be at most the available quantity). Then the software will clear the item and print a confirmation message.
3. if the item does not exist, the software should print an error message on the screen.

5. Distribute products from the warehouse to a supermarket

To execute this option, the following procedure should be implemented:

1. The software should ask for the code of the supermarket to distribute products to;

2. Then, it will load a text file ("DistributeItems_<SupermarketCode>.txt") that includes a list of item codes and quantity for each item requested by that supermarket;
3. The software, will then check the warehouse and distribute the requested quantities of each item. It will also add these items to the list of items available at the supermarket and remove them from the warehouse;
4. If the requested quantity of any item is not enough, the software will distribute only the available quantity. It will also print on the screen, a message about the item and the number of requested but not distributed quantities of this item;
5. If an item is not available at the warehouse or the code is wrong, the software should print a message on the screen with the code of this item and the requested amount on screen.

The format of the "DistributeItems_<SupermarketCode>.txt" must be similar to the "warehouse_items.txt" file.

6. Generate a report about the sales status of the warehouse

The execution of this option will generate a report that includes the following:

1. Number of items in the warehouse;
2. Total wholesale cost of all items in the warehouse;
3. Total sales cost of all items in the warehouse;
4. Expected profit after selling all items in the warehouse.

7. Exit

The execution of this command will terminate the software.

Submissions:

- You need to submit the code in .py format.
- You also need to submit a "warehouse_items.txt" file and at least three "DistributeItems_<SupermarketCode>.txt" files.
- Write a report with
    - screenshots for the main menu and any other submenus and the description of each of them;
    - screenshots for the output of the options in the software mentioned above.

Important notes:

- Write the code for the Python program to satisfy the requirements described above.
- You must use functions (at least one function for each option).
- **You must use OOP concepts (classes, inheritance …).**

- **You must organize your project in modules. I. e. have each class and the main function in separate modules (python scripts).**
- Make sure your code is clean and well indented; variables have meaningful names, etc.
- Make sure your script has enough comments inserted to add clarity.
- Work in groups of at most two students (it is ok to make groups from different sections)
- Deadline: Saturday, 27 August 2022 at 11:59 pm. Please submit your project through Ritaj as a reply to this message.
- This project is per group effort: instances of cheating will result in you failing the lab.

Grading Policy (to be updated):

Item	**Weight**
Add product item to the warehouse	10
Add new supermarket to the management system	10
List of items in the warehouse based on expiry date	10
Clear an item from the warehouse	10
Distribute products from the warehouse to a supermarket	10
Generate a report about the sales status of the warehouse	10
Using OOP	10
Use modules	10
Code Structur0	10
Discussion	10
Total	**100**