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# ASSIGNMENT 1

**Program Requirement:**

**Purpose:**

The purpose of this program is to implement a shopping calculator that includes the feature of providing discounts for a list of items.

**Scope :**

The program will allow the user to enter an item, its quantity and price per item. If the item is in the list of items eligible for discount, then appropriate calculations needs to be done. Finally a receipt needs to be printed. Each item will be printed along with the quantity purchased and price which is the discounted price if the item is eligible for discount. Also in a new line, total cost and a line below this, total amount saved also need to be printed.

**Required Features and Implementation:**

1. Create a list of items eligible for discount.
2. The user needs to enter the item name along with price for the item per quantity and the total quantity of the item purchased.
3. Check whether the item entered, is in the list of items eligible for discount. If so, the following conditions needs to be implemented.
4. If only 1 quantity of the item is purchased, then not eligible for discount.
5. If 2 quantities, eligible for 5% discount.
6. If 3 quantities, eligible for 10% discount.
7. If 4 quantities, eligible for 15% discount.
8. If 5 and above, eligible for 20% discount.
9. The above 2 steps, Step 2 & 3 should run in a loop until the user enters all the items purchased by the customer.

**Valid questions to ask before implementation**

1. Is the list of discounted items static; or needs to be updated dynamically?
2. Is it required to change the discount percentage dynamically?
3. Should the list of items need to be saved in a file?
4. What if an item name is entered twice?
5. What if the item quantity entered is a negative number or a decimal number?
6. What if the user enters a number as an item name?
7. What if the user enters an item which is not in the list of items of the shop?
8. What if characters are entered for the quantity of item purchased and cost per quantity.

**Data types :**

1. List: One for storing the list of items(strings) eligible for discount.

Another one which is a dynamic list for storing the details of the items purchased; this list has a dictionary as its member

1. Dictionary : For storing the details of the item purchased which include name of the item, no: of items purchased, price per quantity after discount and the total price .
2. Int : For the Number of items purchased.
3. Float : For the price per item, total cost and total saved.
4. Strings : For the item name

**What needs to be saved finally?**

Each item purchased, quantity of item, price per item after discount if eligible for discount, total cost for the item (round to 2 decimal places),amount saved . These need to be saved in a dictionary. Each dictionary is made the member of a dynamic list.

**What can go wrong?**

1. User enters a number for the item name.
2. User enters characters(string) for no: of items and cost per item.
3. User enters 0$ as cost.
4. User enters 0 for quantity.
5. User accidentally press enter key and exit.

**What different checks needs to be implemented ?**

1. Check for item name is a string
2. Check for No: of quantities is a number > = 1.
3. Check for Cost per Quantity > 0.
4. Check for pressing enter key to exit the program.