

# Rajalakshmi Engineering College

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Batch: 2028

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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 7\_Q4

Attempt : 1

Total Mark : 10

Marks Obtained : 10

#### **Section 1 : Coding**

##### **1. Problem Statement**

Maria, a software developer, is working on an inventory management system project using Java that utilizes an inventory interface to manage a store's products.

The interface should define two methods: `addProduct`, which adds a product by accepting its name, price, and quantity, and `calculateTotalValue`, which computes the total value of all products in the inventory. Implement the interface in a class called `SimpleInventory`, which internally manages a list of `Product` objects.

Each `Product` object should encapsulate the product's name, price, and quantity and include a method to calculate its value as  $\text{price} \times \text{quantity}$ . The system should allow users to dynamically add products to the inventory and calculate the total value of all products stored.

Help Maria achieve the task.

### ***Input Format***

The first line of input consists of an integer to choose one of the following options:

1 - to add a product to the inventory.

2 - to calculate and view the total inventory value.

3 - to exit the program.

For Choice 1 (Add Product):

The next input line is the string representing the product name as a string (single or multi-word, without quotes).

The next line is a double value representing the price as a decimal value

The next line is an integer value representing the quantity as an integer

For Choices 2 and 3, no additional input is required

### ***Output Format***

The output displays the results of the commands as follows:

- For the addProduct command, the program should display "Product added to inventory."
- For choice 2, the program should display "Total inventory value [totalvalue]."  
"The total value should be displayed with one decimal place. If there is no product in the inventory, print the total as 0.0.
- For choice 3, the program should exit

If the choice is not 1, 2, or 3, then print "Invalid choice. Please select a valid option (1/2/3).".

Refer to the sample output for the formatting specifications.

### Sample Test Case

Input: 1

Laptop

800.0

3

2

5

3

Output: Product added to inventory.

Total inventory value: \$2400.0

Invalid choice. Please select a valid option (1/2/3).

### Answer

```
import java.util.Scanner;  
  
// You are using Java  
interface Inventory{  
    public void addProduct(String n,double p,int q);  
    public double calculateTotalValue();  
}  
class SimpleInventory implements Inventory{  
    String n;  
    double p;  
    int q;  
    int o;  
    double m;  
    SimpleInventory(int o){  
        this.o=o;  
    }  
    public void addProduct(String n,double p,int q){  
        this.n=n;  
        this.p=p;  
        this.q=q;  
        this.m+=p*q;  
        System.out.println("Product added to inventory.");  
    }  
    public double calculateTotalValue(){  
        return m;  
    }  
}  
public class Main {
```

```
public static void main(String[] args) {
    Scanner scanner = new Scanner(System.in);
    Inventory inventory = new SimpleInventory(10);
    while (true) {
        int choice = scanner.nextInt();
        if (choice == 1) {
            scanner.nextLine();
            String productName = scanner.nextLine();
            double price = scanner.nextDouble();
            int quantity = scanner.nextInt();
            inventory.addProduct(productName, price, quantity);
        } else if (choice == 2) {
            double totalValue = inventory.calculateTotalValue();
            System.out.println("Total inventory value: $" + totalValue);
        } else if (choice == 3) {
            break;
        } else {
            System.out.println("Invalid choice. Please select a valid option
(1/2/3).");
        }
    }
    scanner.close();
}
```

**Status :** Correct

**Marks :** 10/10