PROJECT OF ICT

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PROJECT OF: Product Price Calculator with Bulk Discount.

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Introduction

The Product Price Calculator with Bulk Discount is a C++ program designed to assist users in calculating the total price of products based on their quantity and applicable discounts. This program is particularly useful for businesses and consumers who wish to understand pricing structures when purchasing in bulk. By allowing users to input the product price and quantity, the program provides a clear and accurate total price, taking into account different discount tiers based on the quantity purchased.

2. Objectives

The primary objectives of this program are:

- To allow users to input the price of a product and the quantity they wish to purchase.
- To calculate the total price based on the input values.
- To apply bulk discounts based on predefined quantity ranges.
- To display the final total price in a user-friendly format.

3. Program Structure

The program is structured into two main components: The **calculate Total Price** function and the **main** function. The **calculate Total Price** function handles the logic for calculating the total price and applying discounts, while

the **main** function manages user interaction and input/output operations.

4. Detailed Code Explanation

Header Files

cpp

Code EXPLAINANTION

1#include <iostream>

2#include <iomanip>

- The **iostream** header is included for input and output operations, allowing the program to read user input and display results.
- The **iomanip** header is included to manipulate the output format, particularly for setting decimal precision.

Namespace Usage

C++

1using namespace std;

- This line allows the use of standard library features without needing to prefix them with **std::**, simplifying the code.

Function Definition

C++

1double calculateTotalPrice(double price, int quantity) {

2   double totalPrice = price * quantity;

3 double discount = 0.0;

- The **calculateTotalPrice** function takes two parameters: **price** (the price of a single product) and **quantity** (the number of products being purchased). It returns a **double** representing the total price after any discounts.

Discount Logic

C++

```
1if (quantity >= 10 && quantity < 20) {
2    discount = 0.1; // 10% discount
3} else if (quantity >= 20 && quantity < 50) {
4    discount = 0.2; // 20% discount
5} else if (quantity >= 50) {
6    discount = 0.3; // 30% discount
7}
```

- This block of code checks the quantity of products purchased and assigns a discount rate based on predefined ranges.

Total Price Calculation

C++

```
1totalPrice -= totalPrice * discount; // Apply discount
2return totalPrice;
```

- The discount is applied to the total price, and the final amount is returned.

Main Function Implementation

C++

```
1int main() {
2    double price;
3    int quantity;
```

- The **main** function declares variables for price and quantity, prompting the user for input.

C++

```
1cout << "Enter the product price: $";
2cin >> price;
3cout << "Enter the quantity: ";
4cin >> quantity;
```

- The program prompts the user to enter the product price and quantity, storing the values in the respective variables.

C++

```
1double totalPrice = calculateTotalPrice(price, quantity);
2cout << fixed << setprecision(2); // Set precision for currency format
3cout << "Total price after discount: $" << totalPrice << endl;
```

- The total price is calculated and displayed with two decimal places for clarity.

Code of this project

```
#include <iostream>
#include <iomanip>

using namespace std;
double calculateTotalPrice(double price, int quantity) {
   double totalPrice = price * quantity;
   double discount = 0.0;
   if (quantity >= 10 && quantity < 20) {
      discount = 0.1;
   } else if (quantity >= 20 && quantity < 50) {
      discount = 0.2;
   } else if (quantity >= 50) {
      discount = 0.3;
   }

   totalPrice -= totalPrice * discount; return totalPrice;
}
```

```
int main() {
    double price;
    int quantity;
    cout << "Enter the product price: $";
    cin >> price;
    cout << "Enter the quantity: ";
    cin >> quantity;
    double totalPrice = calculateTotalPrice(price, quantity);
    cout << fixed << setprecision(2);
    cout << "Total price after discount: $" << totalPrice << endl;

    return 0;
}
```

5. User Interaction

The program interacts with users through console prompts. Users are asked to input the product price and the quantity they wish to purchase. After processing the input, the program outputs the total price after applying any applicable discounts, formatted to two decimal places.

6. Conclusion

The Product Price Calculator with Bulk Discount is a straightforward yet effective tool for calculating total prices based on user input. By implementing a tiered discount system, the program provides users with a clear understanding of how bulk purchases can lead to savings. This program can be further enhanced by adding features such as error handling for invalid inputs, support for multiple products, or integration with a database for product management.

Summary of the Product Price Calculator with Bulk Discount in C++

The Product Price Calculator with Bulk Discount is a C++ program designed to facilitate the calculation of total product prices based on user-defined quantities and applicable discounts. The program allows users to input the price of a product and the quantity they wish to

purchase, then computes the total cost while applying tiered discounts based on the quantity.

Key features of the program include:

- **User Input**: The program prompts users to enter the product price and quantity.
- **Discount Tiers**: It implements a discount system where:
    - A 10% discount is applied for quantities between 10 and 19.
    - A 20% discount is applied for quantities between 20 and 49.
    - A 30% discount is applied for quantities of 50 or more.
- **Total Price Calculation**: The program calculates the total price by multiplying the unit price by the quantity and then applying the relevant discount.
- **Formatted Output**: The final total price is displayed in a user-friendly format, rounded to two decimal places for clarity.

The program is structured with a dedicated function for price calculation and a main function for user interaction, making it modular and easy to understand. Overall, this calculator serves as a practical tool for consumers and businesses alike, demonstrating the application of basic programming concepts in C++. Future enhancements could include features like error handling, support for multiple products, and integration with databases for improved functionality.

THANKYOU .