

Java Assignment

The Big Diwali Sale: BOGO Offer

For the upcoming Diwali sale, we have a "Buy One Get One Free" (BOGO) campaign. Here's a simple explanation of how it works and how customers can maximize their discounts.

Offer Rules:

1. Customers can buy any number of products.
2. When a customer buys one product, they can get another product for free.
3. The free product must be of equal or lesser value than the one purchased.

Customer Objective:

- Customers should pair items to maximize their discount. This means selecting the most expensive eligible items as the free ones.

Examples:

Example 1:

• Input:

- Product Price List: [10, 20, 30, 40, 50, 60]

• Output:

- Discounted Items (Free): [50, 30, 10]
- Payable Items: [60, 40, 20]

Explanation:

- Pair the highest price items with the next highest eligible for free:
 - Buy 60, get 50 free
 - Buy 40, get 30 free
 - Buy 20, get 10 free

Example 2:

• Input:

- Product Price List: [10, 20, 30, 40, 50, 50, 60]

• Output:

- Discounted Items (Free): [50, 40, 20]
- Payable Items: [60, 50, 30, 10]

Explanation:

- Pair the highest price items with the next highest eligible for free:
 - Buy 60, get 50 free
 - Buy 50, get 40 free
 - Buy 30, get 20 free
 - Buy 10 (no eligible free item left, hence just paid for)

How to Maximize the Discount:

1. Sort the product prices in descending order.
2. Pair the highest priced items first, making sure the free item is the most expensive possible within the rules.
3. Continue this process until all items are paired or no more eligible pairs can be made.

By following these steps, customers can ensure they get the maximum possible discount during the Diwali sale.