API code challenge

Problem Statement

You have a shopping Cart that has some items. Write a method that returns the total price of items in the cart. The merchant may offer various types of promotions at any point in time.

We want your price calculation to take into account the promotions below:

- Buy A and get B for half price. Half price is applied to B items based on the number of A items.
- Buy any 3 items from A, B, C, D & E list of products and get the cheapest one for free.

Requirement

Provide a way to calculate the final price. The products and prices should be configurable.

Notes

Please create such promotions in your code with any item prices of your choice and calculate the total cart price based on those. You can safely assume that the merchant will not set up the same item to be part of different promotions at the same time. You do not need to provide any input interface e.g cli or file-based.

Example 1

Products:

- A = $10.00
- B = $9.00

Cart has A (1 item) and B (2 item)

Output: Total = 23.50

Explanation:

Half price is only applied to 1 B because there is only 1 A, the other B is full price.

Price = 10.00 + (9.00 / 2) + 9.00 = 23.50

Example 2

Products:

- A = $10.00
- B = $5.00
- C = $4.00
- D = $3.00
- E = $8.00
- F = $2.00

Cart has A (1 item), B (1 item), C (1 item) and F (1 item)

Output: Total = 17.00

Explanation:

We have 4 items in the cart. F is not part of promotion. Cheapest based on promotion products is C so it will be free

Price = 10.00 + 5.00 + 0.00 + 2.00 = 17.00

Rules

1. You have 2 hours to complete the exercise. Please time yourself and try to limit coding to the specified time.
2. We are really interested in your object oriented or functional design skills so please write your best code possible
3. Your solution should have good quality as any mature project including good directory structure, build (make, gradle, mvn etc) and a README.md
4. Please do not use any external libraries, except for testing if required
5. Please write extensive unit tests
6. Please use Git and also package it in the same zip file you will be sending us. We would like to see the commits
7. Please write your solution in Java (8 or above)
8. Please do not make this problem statement and your solution public
9. Please zip all the files and send it to this email: qkr.interviews@gmail.com.