

Q10. Minimum Amount of Bill (50 Marks)

Most of the restaurants have resumed their businesses after MCO is over. In order to boost up the sales, Mala Restaurant is having a special promotion as stated below:

“When the total of every three dishes is more than or equal to RM80.00, the fourth dish is half price.”

Assume that you are having dinner at the Mala Restaurant with your family, and you have ordered 8 dishes. Given the price of each dish is in the range from RM1 to RM120, you would like to find out the minimum amount that you need to pay for the bill.

For example, if the prices of the dishes that you order are provided as follows: –

Dish 1 – RM10, Dish 2 – RM78, Dish 3 – RM50, Dish 4 – RM20,
Dish 5 – RM40, Dish 6 – RM5, Dish 7 – RM67, Dish 8 – RM35.

An optimal way to minimize your bill is to do the following:

Grouping the 3 dishes with prices 10, 50 and 20 to be the 1st set of dishes.

Later, grouping the 3 dishes with prices 40, 5 and 35 to be the 2nd set of dishes.

In this case, you will get Dish 2 and Dish 7 in half price.

Hence, the minimum amount of bill is

$$10 + 50 + 20 + 40 + 5 + 35 + ((78 + 67) / 2) = 232.50.$$

An intelligent programme will be able to determine the minimum amount of bill that you are required to pay.

Write a program to

Input a set of prices for the dishes (8 dishes) that you have ordered.

Output the minimum amount of bill (with two decimal places) that you need to pay for the food ordered.

Q10. 最低账单金额（50 分）

行动管制令（MCO）结束之后，大部分餐厅已恢复营业。 为了提升销量，麻辣餐厅特推出以下优惠活动：

“当每三道菜的总和超过或等于 RM80.00 时，第四道菜半价。”

假设您在该餐厅订购了 8 道菜，每道菜的价格是介于 RM1 至 RM120 之间，而您想找出为账单支付的最低金额是多少。

例如，您订购的 8 道菜的价格是：

第 1 道菜 - RM10，第 2 道菜 - RM78，第 3 道菜 - RM50，第 4 道菜 - RM20，
第 5 道菜 - RM40，第 6 道菜 - RM5，第 7 道菜 - RM67，第 8 道菜 - RM35。

若想要最低化您所须付的钱，您可以用以下的优化组合方法：

把价格为 10、50 和 20 的三道菜组合成第一套。

接着，把价格为 40、5 和 35 的三道菜组成第二套。

如此一来，第 2 道菜和第 7 道菜将会是半价。

因此，最低的消费账单金额为

$$10 + 50 + 20 + 40 + 5 + 35 + ((78 + 67) / 2) = 232.50。$$

一个智能程序将能为您算出您所需要支付的最低账单金额。

试写一程式以

依序输入您订购的 8 道菜肴个别的价格。

输出您所需支付这些菜肴的最低账单金额（输出必须显两位小数）。

Test Cases

Input (輸入)	Output (輸出)
1 2 3 4 5 6 7 8	36.00
80 90.50 88.80 105 105 95 111.10 120	679.85
1 2 50 4 7 30 4 1	95.50
10 78 50 20 40 5 67 35	232.50
7 50 30 20 10 100 60 15	227.00

Input (输入)	Output (输出)
45.50 34.80 23.90 30.50 42.50 25.90 14.80 20.50	199.75
10 10 30 5 10 20 10 10	105.00
10 45 20 10 10 15 27 15	138.50