

Qualification Round Africa and Arabia 2011

[A. Closing the Loop](#)

B. Investing at the Market

[C. Building a House](#)

[Contest Analysis](#)

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Submissions

Closing the Loop

10pt	Not attempted 285/375 users correct (76%)
23pt	Not attempted 267/285 users correct (94%)

Investing at the Market

10pt	Not attempted 234/303 users correct (77%)
23pt	Not attempted 223/234 users correct (95%)

Building a House

10pt	Not attempted 164/189 users correct (87%)
23pt	Not attempted 148/165 users correct (90%)

Top Scores

oa12gb	99
ahmed.aly	99
naguib	99
marcog1	99
amrSamir	99
mohammad.kotb	99
abdo88	99
AhmedSalem	99
OzzyH	99
Abdurrahman	99

Problem B. Investing at the Market

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](#) to get started.

Small input
10 points

Solve B-small

Large input
23 points

Solve B-large

Problem

You have money **M** to invest and a forecast of a commodity price **P** for each month in the coming year. Of course you want profit! Figure out when to buy and sell in order to maximize your profit. You cannot buy a fraction of an item. You can assume that the price will be different each month. If two scenarios exist that result in the same profit, you should choose to buy at the lowest price per unit. You can only make a single purchase. If it is impossible to make a profit given the market trends, you should output IMPOSSIBLE.

Input

The first line of input gives the number of cases, **N**.
N test cases follow. For each test case there will be:

- One line containing the amount of money **M** that you have to invest.
- One line containing a space separated list of 12 integers **P** indicating the price at the beginning of each month.

Output

For each test case, output one line containing "Case #x: " followed by either the word "IMPOSSIBLE" or three space separated integers:

- The index **B** of the month when you should buy the goods. An integer between 1 and 11 (inclusive).
- The index of the month when you should sell the goods. An integer between (**B** + 1) and 12 (inclusive).
- The amount of profit that your investment plan will return.

Limits

$100 \leq M \leq 500$
 $1 \leq P \leq 250$

Small dataset

$N \leq 10$

Large dataset

$N \leq 200$

Sample

```
Input
3
100
1 2 3 4 5 6 7 8 9 10 11 12
100
52 50 25 100 61 63 70 51 71 55 10 5
100
200 150 250 132 125 110 210 220 180 176 108 113

Output
Case #1: 1 12 1100
Case #2: 3 4 300
Case #3: IMPOSSIBLE
```

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