## Problem : Portfolio

Imagine a typical stock market scenario

- Trading happens 5 days a week. Exchanges are closed on weekends
- There are a fixed set of securities on which trading happens
- If one buys at low price and sells at a high price, one makes a profit. Vice-versa results in a loss

For purpose of this problem, assume that

- 1st of the month is a Monday and a month comprises of 30 days. Hence there are 22 working days
- There are no holidays on any week day
- There are only 5 securities listed on the exchange
- Price of a given security is constant for a given day

Given above assumptions, the following conventions are followed

- Input data comprises of price of the securities for all 22 working days of the month and your trade records
- Output is to find out position in terms of securities held and / or Profit/ Loss at the end of the month

Your task is to crunch the input data and produce the output in required format. Input and output are as specified below.

**Input Format:**

- First 5 lines of the input provides security name and its prices for the whole month
- Columns in these lines are space delimited. First column provides security name and next 22 columns has price for 22 working days of the month
- Sixth line onwards is your trade data in ascending order of trade dates
- Trade data comprises of 4 values viz. <date, Buy(B)/ Sell(S), Security name, quantity>
- Trade data is terminated by a line comprising -1
- Refer example section on how to read input

**Output Format:**

1. Print security name and holdings for all securities where holding is non-zero, delimited by space. Print order for securities where holdings are non-zero is governed by the rule -
    a. Securities and their holdings should be printed in the order in which their prices are provided in input.
    b. See Explanation section below for better understanding.
2. Print Profit or Loss incurred due to trades in the format "Profit = <Value>" or "Loss = <Value>"

**Constraints:**

**Date will be always be between 1 and 30 (both inclusive)**

**Sample Input and Output**

| | | |
|---|---|---|

| SNo. | Input | Output |
|---|---|---|
| 1 | tcs 220 250 260 230 200 210 250 260 230 200 260 230 200 220 250 270 260 230 200 260 230 200<br>inf 220 250 260 230 200 260 230 200 220 270 250 260 230 200 220 250 270 260 230 260 230 200<br>cts 260 230 200 220 250 270 260 230 200 220 270 250 260 230 260 230 220 250 260 230 200 260<br>xyz 220 250 260 230 200 260 230 200 220 250 270 260 230 200 220 250 250 260 230 260 230 220<br>pqr 220 250 270 260 230 200 220 270 250 260 230 260 230 220 250 200 220 250 250 260 230 260<br>1 B tcs 100<br>3 B tcs 150<br>5 B xyz 40<br>8 S tcs 50<br>9 B pqr 70<br>-1 | tcs 200<br>xyz 40<br>pqr 70<br>Loss = 1700 |
| 2 | tcs 220 250 260 230 200 510 250 260 230 200 260 230 200 220 250 270 260 230 200 260 230 200<br>inf 220 250 260 230 200 260 230 200 220 270 250 260 230 200 220 250 270 260 230 260 230 200<br>cts 260 230 200 220 250 270 260 230 200 220 270 250 260 230 260 230 220 250 260 230 200 260<br>xyz 220 250 260 230 200 260 230 200 220 250 270 260 230 200 220 250 250 260 230 260 230 220<br>pqr 220 250 270 260 230 200 220 270 250 260 230 260 230 220 250 200 220 250 250 260 230 260<br>1 B tcs 100<br>5 B xyz 40<br>8 S tcs 50<br>9 B pqr 70<br>-1 | tcs 50<br>xyz 40<br>pqr 70<br>Profit = 14500 |
| 3 | tcs 300 290 350 300 300 390 250 250 230 200 260 230 200 320 250 270 260 230 200 260 230 200<br>wip 350 250 260 330 370 270 280 300 230 390 350 360 230 350 220 250 270 260 230 260 230 200<br>Per 370 330 280 370 250 370 360 330 280 220 270 350 260 260 260 330 290 250 260 330 230 260<br>syn 240 290 380 240 230 260 300 250 250 250 270 260 230 200 220 250 250 260 230 260 230 220<br>sie 250 350 270 260 240 260 220 270 250 260 230 260 230 240 250 280 240 250 250 260 230 260<br>3 B tcs 100<br>4 S tcs 70<br>5 S tcs 30<br>-1 | Loss = 5000 |

**Explanation for sample input and output 1:**

- There are 5 securities viz. {tcs, inf, cts, xyz and pqr}
- Price for working days follow security names. First 5 prices are for dates 1 - 5. Next 5 prices are for dates 8 - 12. Next 5 prices are for dates 15 - 19. Similarly until month-end
- Trade data indicate the following
    - On 1st, there was a Buy transaction for security named tcs and quantity was 100
    - On 3rd, there was another Buy transaction for same security and quantity 150
    - On 5th, there was another Buy transaction for security named xyz and quantity 40
    - On 8th, there was a Sell transaction for security named tcs and quantity was 50
    - On 9th, there was another Buy transaction for security named pqr and quantity 70
    - End of trade data is marked by -1
- Upon looking up, prices for appropriate days and doing the maths, we get output as depicted above
- Securities prices are provided in input in order *tcs, inf, cts, xyz* and *pqr*. Since holding is non-zero only for *tcs, xyz* and *pqr*, print order is *tcs* first, followed by *xyz* and lastly *pqr*.
- Since a Loss has been incurred print it in format "Loss = <Value>" i.e. Loss = 1700

**Explanation for sample input and output 2:**

- Refer explanation 1 for instructions on how to read the input
- Upon doing the maths, we get output as depicted above
- Securities prices are provided in input in order *tcs, inf, cts, xyz* and *pqr*. Since holding is non-zero only for *tcs, xyz* and *pqr*, print order is *tcs* first, followed by *xyz* and lastly *pqr*.
- Since a profit is made, print it in format "Profit = <Value>" i.e. Profit = 14500

**Explanation for sample input and output 3:**

- Refer explanation 1 and 2 for instructions on how to read the input and compute required output
- Only notable change is, since holdings are zero for all securities, only print Loss = 5000