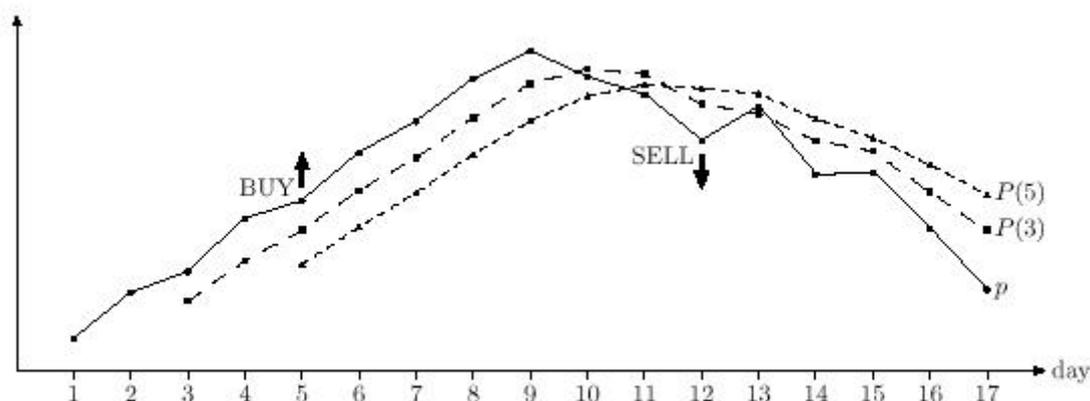


3217 Easy Trading

Frank is a professional stock trader for *Advanced Commercial Markets Limited (ACM Ltd)*. He likes “easy trading” — using a straightforward strategy to decide when to buy stock and when to sell it.

Frank has a database of historical stock prices for each day. He uses two integer numbers m and n ($1 \leq m < n \leq 100$) as parameters of his trading strategy. Every day he computes two numbers: $P(m)$ — an average stock price for the previous m days, and $P(n)$ — an average stock price for the previous n days. $P(m) > P(n)$ is an indicator of the upward trend (traders call it *bullish* trend), and $P(m) < P(n)$ is an indicator of the downward trend (traders call it *bearish* trend). In practice the values for $P(m)$ and $P(n)$ are never equal.

When a trend reverses from bearish to bullish it is a signal for Frank to buy stock. When a trend reverses from bullish to bearish it is a signal to sell.



Frank has different values for m and n in mind and he wants to *backtest* them using historical prices. He takes a set of k ($n < k \leq 10\,000$) historical prices p_i ($0 < p_i < 100$ for $1 \leq i \leq k$). For each i ($n \leq i \leq k$) he computes $P_i(m)$ and $P_i(n)$ — an arithmetic average of $p_{i-m+1} \dots p_i$ and $p_{i-n+1} \dots p_i$ respectively.

Backtesting generates trading signals according to the following rules.

- If $P_i(m) > P_i(n)$ there is a bullish trend for day i and a ‘BUY ON DAY i ’ signal is generated if $i = n$ or there was a bearish trend on day $i - 1$.
- If $P_i(m) < P_i(n)$ there is a bearish trend for day i and a ‘SELL ON DAY i ’ signal is generated if $i = n$ or there was a bullish trend on day $i - 1$.

Your task is to write a program that backtests a specified strategy for Frank — you shall print a signal for the first tested day (day n) followed by the signals in increasing day numbers.

Input

The input will contain several test cases, each of them as described below. Consecutive test cases are separated by a single blank line.

The first line of the input file contains three integer numbers m , n , and k . It is followed by k lines with stock prices for days 1 to k . Each stock price p_i is specified with two digits after decimal point. Prices in the input file are such that $P_i(m) \neq P_i(n)$ for all i ($n \leq i \leq k$).

Output

For each test case, the output must follow the description below. The outputs of two consecutive cases will be separated by a blank line.

Write to the output file a list of signals — one signal on a line, as described in the problem statement.

Sample Input

```
3 5 17
8.45
9.10
9.40
10.15
10.40
11.08
11.52
12.12
12.51
12.15
11.90
11.25
11.73
10.77
10.80
10.01
9.14
```

Sample Output

```
BUY ON DAY 5
SELL ON DAY 12
```