B Nobel (basic)

A scientist, aspiring to the Nobel Prize, made a series of n measurements and received all possible results from the set {1,2,3, ...,n-1,n}. The scientist knows that if he could only obtain s/k as a result, the Nobel Prize would be his. He decided to disregard all but k measurements, such that the average of the remaining ones is s/k. Help him with this task. The stakes are high as the scientist has offered to share the award.

Multiple test cases

The first line of the input contains $Z \leq 8000$ - the number of test cases. Z descriptions of single test cases follow.

Single test case

The input contains one line with three space-separated integers n, s and k.

Bounds

Common: $1 \leq k \leq n \leq 40000, 0 \leq s \leq 10^9$.

Output

Basic: If there exist k different elements of the set {1,2,...,n} whose average is s/k, the only line of the output should contain the word YES. Otherwise, output NO.

Professional: The first row should be as in the basic version. Additionally, if the answer is YES, output a second line containing a binary string of length n (containing ones and zeroes, not separated by spaces). A 1 on position i in the string means that the measurement i should be retained by the scientist, 0 - that it should be disregarded.

Sample input

```
3
3 6 2
5 7 3
1 1 1
```

Sample output for the professional version

```
NIE
TAK
11010
TAK
1
```