

Avoid Copyright Infringement

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

Busy Beaver has X cards with the letter M, Y cards with the letter I, and Z cards with the letter T. He wants to arrange these $X + Y + Z$ cards into a row following some constraints:

- Busy Beaver likes variety, so **no two adjacent cards can be equal**;
- Busy Beaver wants to avoid getting sued, so **no three consecutive cards in a row can read MIT or TIM**.

Determine if he can do this. If it is possible, output an example.

Input

The first line contains a single integer T ($1 \leq T \leq 50$) — the number of test cases.

The only line of each test case contains three integers X , Y , and Z ($0 \leq X, Y, Z \leq 10^5$). There is at least one card in each test case ($X + Y + Z > 0$).

The combined sum of $X + Y + Z$ across all test cases does not exceed $3 \cdot 10^5$.

Output

For each test case, if Busy Beaver cannot arrange all $X + Y + Z$ cards, output NO.

Otherwise, output YES. Then, output one line — a string of length $X + Y + Z$ consisting of characters M, I, and T, satisfying the constraints in the statement.

You can output the answer in any case (upper or lower). For example, the strings “yEs”, “yes”, “Yes”, and “YES” will be recognized as positive responses. You can also output the string in any case.

Example

standard input	standard output
2	YES
1 1 1	ITM
3 0 0	NO

Note

In the first test case, there are 4 possible combinations that will work: ITM, IMT, MTI, TMI. ITM is one of them. It does not have equal adjacent cards, and there is no MIT or TIM.

In the second test case, there is only one possible construction: MMM, but it is not valid, as there are adjacent Ms.