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E. Anna and the Valentine's Day Gift

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Sasha gave Anna a list a of n integers for Valentine's Day. Anna doesn't need this list, so she suggests destroying it by playing a game.

Players take turns. Sasha is a gentleman, so he gives Anna the right to make the first move.

- On her turn, **Anna must** choose an element a_i from the list and *reverse* the sequence of its digits. For example, if Anna chose the element with a value of 42, it would become 24; if Anna chose the element with a value of 1580, it would become 851. Note that leading zeros are removed. After such a turn, the number of elements in the list does not change.
- On his turn, **Sasha must** extract **two** elements a_i and a_j $(i \neq j)$ from the list, *concatenate* them in any order and insert the result back into the list. For example, if Sasha chose the elements equal to 2007 and 19, he would remove these two elements from the list and add the integer 200719 or 192007. After such a turn, the number of elements in the list decreases by 1.

Players can't skip turns. The game ends when Sasha can't make a move, i.e. **after** Anna's move there is **exactly** one number left in the list. If this integer is **not less than** 10^m (i.e., $\geq 10^m$), Sasha wins. Otherwise, Anna wins.

It can be shown that the game will always end. Determine who will win if both players play optimally.

Input

The first line contains an integer t $(1 \leq t \leq 10^4)$ — the number of test cases.

Then follows the description of the test cases.

The first line of each test case contains integers n, m $(1 \leq n \leq 2 \cdot 10^5$, $0 \leq m \leq 2 \cdot 10^6)$ — the number of integers in the list and the parameter determining when Sasha wins.

The second line of each test case contains n integers $a_1, a_2, \ldots, a_n$ $(1 \leq a_i \leq 10^9)$ — the list that Sasha gave to Anna.

It is guaranteed that the sum of n for all test cases does not exceed $2 \cdot 10^5$.
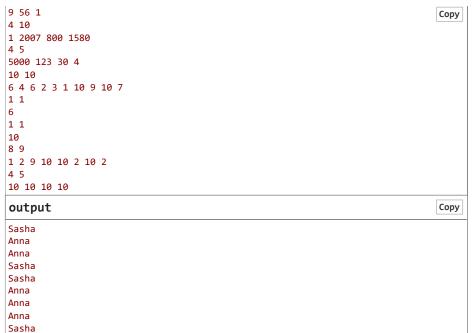
Output

For each test case, output:

- "`Sasha`", if Sasha wins with optimal play;
- "`Anna`", if Anna wins with optimal play.

Example

input

```
9
2 2
14 2
3 5
```

```
9 56 1                                                        Copy
4 10
1 2007 800 1580
4 5
5000 123 30 4
10 10
6 4 6 2 3 1 10 9 10 7
1 1
6
1 1
10
8 9
1 2 9 10 10 2 10 2
4 5
10 10 10 10
```

output   Copy

```
Sasha
Anna
Anna
Sasha
Sasha
Anna
Anna
Anna
Sasha
```

Note

Consider the first test case.

Anna can reverse the integer 2, then Sasha can concatenate the integers 2 and 14, obtaining the integer 214, which is greater than $10^2 = 100$. If Anna had reversed the integer 14, Sasha would have concatenated the integers 41 and 2, obtaining the integer 412, which is greater than $10^2 = 100$. Anna has no other possible moves, so she loses.
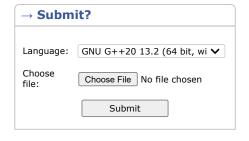
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