

Multiplication Game

Time Limit: 5 seconds

Alice and Bob are in their class doing drills on multiplication and division. They quickly get bored and instead decide to play a game they invented.

The game starts with a target integer $N \geq 2$, and an integer $M = 1$. Alice and Bob take alternate turns. At each turn, the player chooses a prime divisor p of N , and multiply M by p . If the player's move makes the value of M equal to the target N , the player wins. If $M > N$, the game is a tie.

Assuming that both players play optimally, who (if any) is going to win?

Input

The first line of input contains T ($1 \leq T \leq 10\,000$), the number of cases to follow. Each of the next T lines describe a case. Each case is specified by N ($2 \leq N \leq 2^{31} - 1$) followed by the name of the player making the first turn. The name is either `Alice` or `Bob`.

Output

For each case, print the name of the winner (`Alice` or `Bob`) assuming optimal play, or `tie` if there is no winner.

Sample Input 1

```
10
10 Alice
20 Bob
30 Alice
40 Bob
50 Alice
60 Bob
70 Alice
80 Bob
90 Alice
100 Bob
```

Sample Output 1

```
Bob
Bob
tie
tie
Alice
tie
tie
tie
tie
Alice
```