Battle of Arrays

Time limit: 3 seconds
Memory limit: 1024 megabytes

Alice and Bob play a turn-based game. Initially, Alice has an array a of n positive integers, and Bob has an array b of m positive integers. The players take turns, with Alice moving first.

On a player's turn, they must choose one element x from their own array and one element y from their opponent's array. Then they perform the following operation:

- If $y \leq x$: the element y is destroyed (removed from the opponent's array).
- If $y > x$: the element y is decreased by x (the value of y becomes $y - x$).

A player wins if, after their move, the opponent's array becomes empty.

Assuming both players play optimally, determine the winner.

Input

Each input contains multiple test cases. The first line contains the number of test cases t ($1 \leq t \leq 10^5$).

The first line of each test case contains two integers n and m ($1 \leq n, m \leq 10^5$) — the sizes of Alice's and Bob's arrays respectively.

The second line contains n integers $a_1, a_2, \ldots, a_n$ ($1 \leq a_i \leq 10^9$) — Alice's array.

The third line contains m integers $b_1, b_2, \ldots, b_m$ ($1 \leq b_i \leq 10^9$) — Bob's array.

It is guaranteed that the sum of n over all test cases does not exceed 10^5 and the sum of m over all test cases does not exceed 10^5.

Output

For each test case, print the name of the winner of the game if both players follow the optimal strategy: "`Alice`" or "`Bob`".

Example

standard input	standard output
2 1 1 70 90 2 3 30 30 20 20 40	Alice Bob

Note

In the first test Alice moves and decreases Bob's element by 70, so it becomes 20. Then Bob moves and decreases Alice's element by 20, so it becomes 50. Finally, Alice moves, destroys Bob's element, and wins.