

God of Nim

Amit is a big fan of Nim Game. Literally! He doesn't just play the game, he fantasizes it. He follows the simple mantra – Eat, Sleep, Nim. His fantasy is overgrown over time that he has starting thinking of himself as God of Nim. Legend has that if you meet him, more often than not he is imagining a game played between you both and how he beats you with comfort.

Frustrated with his never ending Nim fantasy, Mishra decides to give him a taste of his own medicine. Mishra devises a game which looks similar to Nim but is not in reality. Here's how the game looks:

1. Game is played between 2 players, taking turns alternatively. Both play optimally.
2. There are N piles of coins, each containing exactly P_i coins.
3. There are N integers given. Let's denote each of them by K_i .
4. In a single turn, a player can choose a pile P_i and can discard "x" coins from the pile P_i where $1 \leq x \leq K_i$. For example – if pile P_1 is chosen by a player, then he can discard x coins such that $1 \leq x \leq K_1$.
5. Amit always starts the game. The player who cannot make a move loses the game.

If Mishra beats Amit in this game, Amit will have no option but to shed his Nim ego and so we all will be saved. Can you find out if Mishra succeeds?

Input

First line contains T, the number of test cases. Each test cases starts with an integer N in first line. Next line consists of N integers, P_1 to P_N . Next line consists of N integers, K_1 to K_N .

$$1 \leq T \leq 10$$

$$1 \leq N \leq 10000$$

$$0 \leq P_i \leq 10^9$$

$$1 \leq K_i \leq 10^9$$

Output

Output exactly one string per test case, "Mishra" if Mishra wins the game or "Amit" if Amit wins the game.

Example

Input:

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2
1
5
2
2
4 7
1 3
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Output:

Amit

Amit

Explanation

For second test case, one possible way of winning for Amit is – Amit and Mishra discard 1 coin alternatively from first pile, starting from Amit. Then Amit picks up 3 from second pile, Mishra picks up 1 from second pile and Amit finishes the game by picking up 3 coins left in the second pile.