Fun Game

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Problem Submissions Leaderboard Discussions Editorial

Kyle and Mike are bored on a rainy day and decide to pass the time by creating a new game having the following rules:

- The game starts with two n-integer arrays, A and B, and is played by two players, P_1 and P_2.
- The players move in alternating turns, with P_1 always moving first. During each move, the current player must choose an integer, i, such that $0 \leq i \leq n-1$. If the current player is P_1, then P_1 receives A_i points; if the current player is P_2, then P_2 receives B_i points.
- Each value of i can be chosen only once, meaning that the game always ends after n moves.
- The player with the maximum number of points wins.

Given the values of n, A, and B, can you determine the outcome of the game? Print `First` if P_1 will win, `Second` if P_2 will win, or `Tie` if they will tie. Assume both players always move optimally.

Input Format

The first line of input contains a single integer, T, denoting the number of test cases. Each of the $3T$ subsequent lines describes a test case. A single test case is defined over the following three lines:

1. An integer, n, denoting the number of elements in arrays A and B.
2. n space-separated integers, $A_0, A_1, \ldots, A_{n-1}$, where each A_i describes the element at index i of array A.
3. n space-separated integers, $B_0, B_1, \ldots, B_{n-1}$, where each B_i describes the element at index i of array B.

Constraints

- $1 \leq T \leq 10$
- $1 \leq n \leq 1000$
- $1 \leq A_i, B_i \leq 10^5$

Output Format

For each test case, print one of the following predicted outcomes of the game on a new line:

- Print `First` if P_1 will win.
- Print `Second` if P_2 will win.
- Print `Tie` if the two players will tie.

Sample Input

```
3
3
1 3 4
5 3 1
2
1 1
1 1
```

```
2
2 2
3 3
```

Sample Output

```
First
Tie
Second
```

Explanation

Test Case 0: $A = \{1, 3, 4\}$, $B = \{5, 3, 1\}$ The players make the following n moves:

1. P_1 chooses $i = 2$ and receives 4 points.
2. P_2 chooses $i = 0$ and receives 5 points. Note that P_2 will not choose $i = 1$, because this would cause P_1 to win.
3. P_1 chooses $i = 1$ (which is the only remaining move) and receives 3 points.

As all $n = 3$ moves have been made, the game ends. P_1's score is 7 points and P_2's score is 5 points, so P_1 is the winner and we print **First** on a new line.

Test Case 1: $A = \{1, 1\}$, $B = \{1, 1\}$ Because both players will only make 1 move and all possible point values are 1, the players will end the game with equal scores. Thus, we print **Tie** on a new line.

Test Case 1: $A = \{2, 2\}$, $B = \{3, 3\}$
Because both players will only make 1 move and all the possible point values for P_2 are greater than all the possible point values for P_1, P_2 will win the game. Thus, we print **Second** on a new line.