Eat, Sleep, Repeat

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

FuuFuu the Panda, together with Pico and Kotsuki, lives in the KFP apartment. As a rare species, FuuFuu is well-treated. Therefore, his daily activities are only eating and sleeping.

One afternoon, Kotsuki is still working outside, and FuuFuu has finished his lunch and intends to go to sleep. But Pico feels too bored to play alone every day and wants to play a game with FuuFuu for a while. Although not very reluctant, FuuFuu agrees.

Pico picks n integers $a_1, a_2, \ldots a_n$, and sets k constraints, the i-th of which is $\text{limit}_{x_i} = y_i$, indicating that the maximum number of occurrences of x_i is y_i. Then Pico and FuuFuu take turns playing the game, where each player can choose a positive integer among $a_1, a_2, \ldots a_n$ for each turn and reduce it by 1. A player will lose the game if he cannot perform any action on his turn, where there are two cases:

- No matter which of $a_1, a_2, \ldots a_n$ is chosen, there exists an integer x whose number of occurrences will be strictly greater than limit_x.
- $a_1 = a_2 = \cdots = a_n = 0$.

Even though FuuFuu is sleepy, he does not want to lose the game. Please tell him who will win if Pico goes first and both of them play optimally.

Input

The first line contains an integer T ($1 \le T \le 10^5$), indicating the number of test cases.

The first line of each test case contains two integers n and k ($1 \le n \le 10^5$, $0 \le k \le 10^5$), indicating the number of integers and constraints.

The second line contains n integers $a_1, a_2, \ldots a_n$ ($0 \le a_i \le 10^9$), indicating the initial integers. It is guaranteed that the initial number of occurrences of each integer does not exceed the limit.

The i-th of the following k lines contains two integers x_i and y_i ($0 \le x_i \le 10^9$, $0 \le y_i \le n$), indicating that $\text{limit}_{x_i} = y_i$. It is guaranteed that $x_1, x_2, \ldots x_k$ are all distinct.

It's guaranteed that $\sum n \le 10^5$ and $\sum k \le 10^5$ over all test cases.

Output

For each test case, output the name of the winner in a single line, which is either `Pico` or `FuuFuu`.

Example

standard input	standard output
5 2 0 1 2 2 1 1 2 0 1 3 2 3 3 4 0 2 1 1 3 2 2 3 3 1 2 0 1 5 4 6 7 8 12 17 1 1 2 1 9 0 10 1	Pico FuuFuu Pico FuuFuu Pico

Note

For the first test case of the sample, since there are no constraints, the game ends only if all the integers are reduced to zero. So FuuFuu will lose the game after three turns.

For the second test case of the sample, the maximum number of occurrences of 0 is 1. Obviously, there must be two zeros after Pico's action in the third turn, so FuuFuu will win the game.