# Mishki Playing Games

Max. Marks: 100

Mishki loves playing games, so she asked her friend Hacker to join her in the Game of Stones. In this game, they have $N$ sets of stones, numbered from $1$ to $N$. Each set consists of $A_i$ stones, where $1 \leq i \leq N$.

In each turn, player can select any of the set containing at least $1$ stone, and have to reduce it to half of the present number of stones , i.e $\lfloor A_i / 2 \rfloor$ (Integer Division) from it, and in case of single stone, he/she has to empty the set by removing it.

As the game is really interesting, both will play this game on $Q$ days. On each day, they will some select sets of stones numbered from l to r, where $1 \leq l \leq r \leq N$ and being a lover of the games, everyday Mishki will be the first player to take the turn.

The one who won't be able to play his/her turn in the game (i.e no stones left in teh selected set of stones), will loose the game.

You need to tell the winner of the game on each day, if both the player will play optimally and take their turn alternatively.

**Note:**

1) Each day, before starting the game they will have the same number of stones in the set as given initially.

2) Use fast i/o for large test files.

**Input**:

The first line will consists of $2$ integers $N$ and $Q$ denoting the number of sets of stones, and number of days respectively.

Next line contains $N$ space separated integers $A_i$, denoting the number of stones in each set.

Each line of next $Q$ lines contains $2$ space separated inegers, $l$ and $r$, denoting the range of sets used in the game on $i^{th}$ day.

**Output**:

Print $Q$ lines, each line containing the winner of the $i^{th}$ day.

**Constraints:**

$1 \leq N, Q \leq 10^6$

$1 \leq A_i \leq 10^6$

$1 \leq l \leq r \leq N$



SAMPLE INPUT

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

SAMPLE OUTPUT

```
Mishki
Hacker
```

**Explanation**

Here N = 3, number of sets of stones and Q = 2 (number of days, the game will be played).
$A_1$ = 4, $A_2$ = 2 and $A_3$ = 3.

1) On First day:

Range of sets is from 1 to 2, i.e $A_1$ and $A_2$. First Mishki will take her turn and reduce $A_1$ to $A_1/2$, i.e to 2 stones in set $A_1$.

Now $A_1$ = 2 and Hacker will reduce it to $A_1/2$, i.e to 1 stone in set $A_1$.

Now Mishki will play and reduce it to 0, by removing remaining single stone from set $A_1$.

As $A_1$ is empty now, Hacker will reduce $A_2$ to $A_2/2$, i.e to 1 stone in set $A_2$.

At last Mishki will remove the remaining single stone from set $A_2$.

As all the sets are empty now, Hacker will not be able to take his turn, so Mishki will win the game.

Similarly, On second day, Hacker will win the game.

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|---|---|
| **Time Limit:** | 1.0 sec(s) for each input file. |
| **Memory Limit:** | 256 MB |
| **Source Limit:** | 1024 KB |
| **Marking Scheme:** | Marks are awarded if any testcase passes. |
| **Allowed Languages:** | C, CPP, CLOJURE, CSHARP, D, ERLANG, FSHARP, GO, GROOVY, HASKELL, JAVA, JAVA8, JAVASCRIPT, JAVASCRIPT_NODE, LISP, LISP_SBCL, LUA, OBJECTIVEC, OCAML, OCTAVE, PASCAL, PERL, PHP, PYTHON, PYTHON3, R, RACKET, RUBY, RUST, SCALA, SWIFT, VB |

## CODE EDITOR

☹ Our compiler wanted to be here!

But the mobile is too cramped for it to load. It says it would be more comfortable on the web.

Your Rating: 