
Barbarian tribes

P59892_en

Segon Concurs de Programació de la UPC - Final (2004-09-29)

In a lost land two primitive tribes coexist: Gareds and Kekas. Every summer solstice they meet and compete to decide which tribe will be the favorite of the gods for the rest of the year, following an old ritual:

First, a local guru chooses three numbers at random: n , m and k . Afterwards, n Gared maids (in the positions $1, \dots, n$) and m Keka maids (in the positions $n + 1, \dots, n + m$) are placed in a circle looking inwards. Then the guru begins to count $1, \dots, k$ starting at the first Gared maid. When the k -th maid is reached, she is immediately sacrificed to the gods. The guru then counts again $1, \dots, k$ starting at the maid following the one just sacrificed. Again, the k -th maid reached this way is sacrificed. After every two sacrifices, the second sacrificed maid is replaced by a new maid. In order to decide the tribe of the new maid, the guru looks at the heads of the two maids just killed (nothing else remains of them). If both heads are of the same tribe, the guru calls a Gared maid. If the heads are from different tribes, the guru calls a Keka maid. The process then begins again (counting and sacrificing twice and replacing once) starting to count at the maid following the new maid just added to the circle. Since the number of maids is reduced by one after every step (of two sacrifices and one replacement), after $n + m - 1$ steps only one maid remains.

According to the tradition, the tribe of the last maid will be the favorite of the gods. (What the guru does to the last maid is something you don't want to know.) Anyway, write a program such that, given n , m and k , writes the name of the fortunate tribe.

For example, this is what happens for $n = m = 3$ and $k = 2$ (a "G" denotes a Gared maid and a "K" denotes a Keka maid; the subindexes mark the order the maids enter the circle):

1. Initial content of the circle: G₁ G₂ G₃ K₄ K₅ K₆
Starting to count at G₁. First sacrifice: G₂. Second sacrifice: K₄ (replaced by K₇).
2. Content of the circle: G₁ G₃ K₇ K₅ K₆
Starting to count at K₅. First sacrifice: K₆. Second sacrifice: G₃ (replaced by K₈).
3. Content of the circle: G₁ K₈ K₇ K₅
Starting to count at K₇. First sacrifice: K₅. Second sacrifice: K₈ (replaced by G₉).
4. Content of the circle: G₁ G₉ K₇
Starting to count at K₇. First sacrifice: G₁. Second sacrifice: K₇ (replaced by K₁₀).
5. Content of the circle: G₉ K₁₀
Starting to count at G₉. First sacrifice: K₁₀. Second sacrifice: G₉ (replaced by K₁₁).
6. Final content of the circle: K₁₁

Input

Input consists of several cases, each with three natural numbers n , m and k . You can assume $1 \leq n + m \leq 2000$ and $1 \leq k \leq 1000$. A special case with $n = m = k = 0$ ends the input.

Output

For every case, print either "Gared" or "Keka" as convenient.

Sample input

```
3 3 2
4 2 2
0 1 7
0 0 0
```

Sample output

```
Keka
Gared
Keka
```

Problem information

Author : Salvador Roura

Generation : 2024-05-02 20:23:17

© *Jutge.org*, 2006–2024.

<https://jutge.org>