COCI '13 Contest 5 #6 Ladice

Time limit: 1.0s   **Memory limit:** 32M

Mirko has N items (labeled with numbers from 1 to N) and L drawers (labeled with numbers from 1 to L). All items are currently scattered throughout his room, so he decided to clean them up. Each drawer can contain one item, and in order to make it easier for Mirko to find them later, he has determined in advance **exactly two** drawers (A_i and B_i) for each item i.

Mirko stores the items in order from 1 to N using the first rule he can apply:

1. If the drawer A_i is empty, he stores the item i in that drawer.

2. If the drawer B_i is empty, he stores the item i in that drawer.

3. Try to move the item from A_i to its other drawer; if that one's filled too, try moving that item to its other drawer, and so on until you either succeed or get back to a previously seen drawer. In case of success, store the item i in the drawer A_i. In case of failure, continue to next rule.

4. Try moving the item from B_i to its other drawer; if that one's filled too, try moving that item to its other drawer, and so on until you either succeed or get back to a previously seen drawer. In case of success, store the item i in the drawer B_i. In case of failure, continue to next rule.

5. Give up and throw away the item i.

For given pairs of drawers for each item, determine which items will be stored and which will be thrown away.

Input Specification

The first line of input consists of two integers, N and L ($1 \leq N, L \leq 300\,000$), the number of items and the number of drawers.

Each of the following N lines contains two integers: A_i and B_i ($1 \leq A_i, B_i \leq L$), pair of drawers corresponding to the item i. The numbers A_i and B_i will be different.

Output Specification

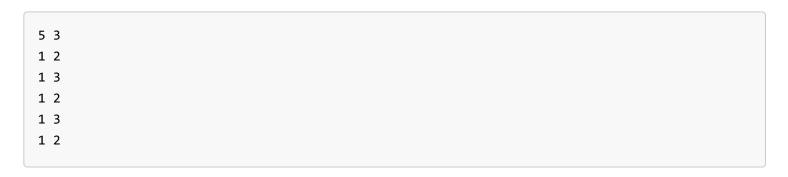For each item, respectively, output where it ends up.

In case the item is stored successfully, output `LADICA` (Croatian word for drawer).

In case the item is thrown away, output `SMECE` (Croatian word for trash).

Scoring

In test cases worth 50% of total points, both N and L will be less than $2\,000$.

Sample Input 1

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

Sample Output 1

```
LADICA
LADICA
LADICA
SMECE
SMECE
```

Explanation for Sample Output 1

The first item goes to drawer 1 by rule 1). The second item goes to drawer 3 by rule 2). The third item goes to drawer 2 by rule 2). For the fourth and fifth item, both drawers are already taken and cannot be emptied.

Sample Input 2

```
9 10
1 2
3 4
5 6
7 8
9 10
2 3
1 5
8 2
7 9
```

Sample Output 2

```
LADICA
LADICA
LADICA
LADICA
LADICA
LADICA
LADICA
LADICA
LADICA
```

Explanation for Sample Output 2

The first six items go into drawers $1, 3, 5, 7, 9, 2$ (respectively), by rule 1). For the seventh item, applying the rule 3), we try to move the item in drawer 1 to drawer 2, the item in drawer 2 to drawer 3, the item in drawer 3 to drawer 4, which we succeed because the drawer is empty.

The eighth item goes to drawer 8 which was empty from the beginning. For the ninth item, applying the rule 3), we try to move the item in drawer 7 to drawer 8, the item in drawer 8 to drawer 2, the item in drawer 2 to drawer 1, the item in drawer 1 to drawer 5, the item in drawer 5 to drawer 6, which we succeed because the drawer is empty.