A - AtCoder *** Contest

Time Limit: 2 sec / Memory Limit: 256 MB

Score : 100 points

Problem Statement

Snuke is going to open a contest named "AtCoder s Contest". Here, s is a string of length 1 or greater, where the first character is an uppercase English letter, and the second and subsequent characters are lowercase English letters.

Snuke has decided to abbreviate the name of the contest as "AxC". Here, x is the uppercase English letter at the beginning of s.

Given the name of the contest, print the abbreviation of the name.

Constraints

- The length of s is between 1 and 100, inclusive.
- The first character in s is an uppercase English letter.
- The second and subsequent characters in s are lowercase English letters.

Input

The input is given from Standard Input in the following format:

```
AtCoder s Contest
```

Output

Print the abbreviation of the name of the contest.

Sample Input 1

```
AtCoder Beginner Contest
```

Sample Output 1

```
ABC
```

The contest in which you are participating now.

Sample Input 2

```
AtCoder Snuke Contest
```

Sample Output 2

```
ASC
```

This contest does not actually exist.

Sample Input 3

```
AtCoder X Contest
```

Sample Output 3

```
AXC
```

B - Between a and b ...

Time Limit: 2 sec / Memory Limit: 256 MB

Score : 200 points

Problem Statement

You are given nonnegative integers a and b ($a \leq b$), and a positive integer x. Among the integers between a and b, inclusive, how many are divisible by x?

Constraints

- $0 \leq a \leq b \leq 10^{18}$
- $1 \leq x \leq 10^{18}$

Input

The input is given from Standard Input in the following format:

a b x

Output

Print the number of the integers between a and b, inclusive, that are divisible by x.

Sample Input 1

```
4 8 2
```

Sample Output 1

```
3
```

There are three integers between 4 and 8, inclusive, that are divisible by 2: 4, 6 and 8.

Sample Input 2

```
0 5 1
```

Sample Output 2

```
6
```

There are six integers between 0 and 5, inclusive, that are divisible by 1: 0, 1, 2, 3, 4 and 5.

Sample Input 3

```
9 9 2
```

Sample Output 3

```
0
```

There are no integer between 9 and 9, inclusive, that is divisible by 2.

Sample Input 4

```
1 1000000000000000000 3
```

Sample Output 4

```
333333333333333333
```

Watch out for integer overflows.

C - Boxes and Candies

Time Limit: 2 sec / Memory Limit: 256 MB

Score : 300 points

Problem Statement

There are N boxes arranged in a row. Initially, the i-th box from the left contains a_i candies.

Snuke can perform the following operation any number of times:

- Choose a box containing at least one candy, and eat one of the candies in the chosen box.

His objective is as follows:

- Any two neighboring boxes contain at most x candies in total.

Find the minimum number of operations required to achieve the objective.

Constraints

- $2 \leq N \leq 10^5$
- $0 \leq a_i \leq 10^9$
- $0 \leq x \leq 10^9$

Input

The input is given from Standard Input in the following format:

N x
a_1 a_2 $\ldots$ a_N

Output

Print the minimum number of operations required to achieve the objective.

Sample Input 1

```
3 3
2 2 2
```

Sample Output 1

```
1
```

Eat one candy in the second box. Then, the number of candies in each box becomes $(2, 1, 2)$.

Sample Input 2

```
6 1
1 6 1 2 0 4
```

Sample Output 2

```
11
```

For example, eat six candies in the second box, two in the fourth box, and three in the sixth box. Then, the number of candies in each box becomes $(1, 0, 1, 0, 0, 1)$.

Sample Input 3

```
5 9
3 1 4 1 5
```

Sample Output 3

```
0
```

The objective is already achieved without performing operations.

Sample Input 4

```
2 0
5 5
```

Sample Output 4

```
10
```

All the candies need to be eaten.

D - An Ordinary Game

Time Limit: 2 sec / Memory Limit: 256 MB

Score : 500 points

Problem Statement

There is a string s of length 3 or greater. No two neighboring characters in s are equal.

Takahashi and Aoki will play a game against each other. The two players alternately performs the following operation, Takahashi going first:

- Remove one of the characters in s, excluding both ends. However, a character cannot be removed if removal of the character would result in two neighboring equal characters in s.

The player who becomes unable to perform the operation, loses the game. Determine which player will win when the two play optimally.

Constraints

- $3 \leq |s| \leq 10^5$
- s consists of lowercase English letters.
- No two neighboring characters in s are equal.

Input

The input is given from Standard Input in the following format:

```
s
```

Output

If Takahashi will win, print `First`. If Aoki will win, print `Second`.

Sample Input 1

```
aba
```

Sample Output 1

```
Second
```

Takahashi, who goes first, cannot perform the operation, since removal of the b, which is the only character not at either ends of s, would result in s becoming aa, with two as neighboring.

Sample Input 2

```
abc
```

Sample Output 2

```
First
```

When Takahashi removes b from s, it becomes ac. Then, Aoki cannot perform the operation, since there is no character in s, excluding both ends.

Sample Input 3

```
abcab
```

Sample Output 3

```
First
```