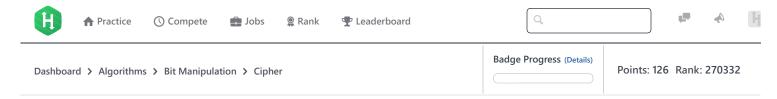
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Problem Submissions Leaderboard Discussions Editorial €

Jack and Daniel are friends.

They want to encrypt their conversation so that they can save themselves from interception by a detective agency. So they invent a new cipher. Every message is encoded to its binary representation \boldsymbol{B} of length \boldsymbol{N} .

Then it is written down K times, shifted by $0, 1, \dots, K-1$ bits.

If B=1001010 and K=4 it looks so:

1001010 1001010 1001010 1001010

Then calculate XOR in every column and write it down. This number is called S. For example, XOR-ing the numbers in the above example results in

1110100110

Then the encoded message $oldsymbol{S}$ and $oldsymbol{K}$ are sent to Daniel.

Jack is using this encoding algorithm and asks Daniel to implement a decoding algorithm. Can you help Daniel implement this?

Input Format

The first line contains two integers $m{N}$ and $m{K}$.

The second line contains string S of length N+K-1 consisting of ones and zeros.

Output Format

Decoded message of length N, consisting of ones and zeros.

Constraints

$$\begin{aligned} &1 \leq N \leq 10^6 \\ &1 \leq K \leq 10^6 \\ &|S| = N + K - 1 \end{aligned}$$

It is guaranteed that $oldsymbol{\mathcal{S}}$ is correct.

Sample Input#00

1110100110

Sample Output#00

1001010

Sample Input#01

16/11/2017 HackerRank

```
6 2
1110001
```

Sample Output#01

101111

Explanation

Input#00

```
1001010
1001010
1001010
1001010
------
1110100110
```

Input#01

```
101111
101111
-----
1110001
```

f in Submissions:<u>5325</u>
Max Score:50
Difficulty: Medium

Rate This Challenge:
☆☆☆☆☆

```
Current Buffer (saved locally, editable) & 🗗
                                                                                          Java 7
 1 ▼ import java.io.*;
 2 import java.util.*;
 3
    import java.text.*;
   import java.math.*;
 5
   import java.util.regex.*;
 6
 7 ▼ public class Solution {
 8
 9 ▼
        public static void main(String[] args) {
10 ▼
            /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11
12
   }
                                                                                                                   Line: 1 Col: 1
```

<u>**1**</u> <u>Upload Code as File</u> ☐ Test against custom input

Run Code Submit Code

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