

Highest Value Palindrome

Palindromes are strings that read the same from the left or right, for example *madam* or *0110*.

You will be given a string representation of a number and a maximum number of changes you can make. Alter the string, one digit at a time, to create the string representation of the largest number possible given the limit to the number of changes. The length of the string may not be altered, so you must consider **0**'s left of all higher digits in your tests. For example **0110** is valid, **0011** is not.

Given a string representing the starting number and a maximum number of changes allowed, create the largest palindromic string of digits possible or the string -1 if it's impossible to create a palindrome under the constraints.

Note: Treat the integers as numeric strings. Leading zeros are permitted and can't be ignored so 0011 is not a palindrome, but 0110 is. A digit *can* be modified more than once.

Input Format

The first line contains two space-separated integers, n (the number of digits in the number) and k (the maximum number of changes allowed), respectively.

The second line contains an n -digit string of numbers that Sandy must attempt to make palindromic.

Constraints

- $0 < n \leq 10^5$
- $0 \leq k \leq 10^5$
- Each character i in the number is an integer where $0 \leq i \leq 9$.

Output Format

Print a single line with the largest number that can be made by changing no more than k digits; if this is not possible, print -1.

Sample Input 0

```
4 1
3943
```

Sample Output 0

```
3993
```

Sample Input 1

```
6 3
092282
```

Sample Output 1

```
992299
```

Sample Input 2

```
4 1
0011
```

Sample Output 2

```
-1
```

Explanation

Sample 0

There are two ways to make **3943** a palindrome by changing no more than $k = 1$ digits:

1. **3943** \rightarrow **3443**
2. **3943** \rightarrow **3993**

3993 $>$ **3443**, so we print **3993**.