**Find the N-th character**

Given a binary string **s**. Perform **r** iterations on string s, where in each iteration **0**becomes**01** and **1**becomes**10**. Find the **nth** character (considering **0 based**indexing) of the string after performing these r iterations (see examples for better understanding).

**Example 1:**

**Input**:

s = "1100"

r = 2

n = 3

**Output**:

1

**Explanation**:

After 1st iteration **s** becomes "10100101".  
After 2nd iteration **s** becomes "100**1**100101100110".  
Now, we can clearly see that the character at 3rd index is 1, and so the output.

**Example 2:**

**Input**:

s = "1010"

r = 1

n = 2

**Output**:

0

**Explanation** :

After 1st iteration **s** becomes "10**0**11001".

Now, we can clearly see that the character at 2nd index is 0, and so the output.

**Your task:**

You don't need to read input or print anything. Your task is to complete the function **nthCharacter()** which takes the string **s** and integers **r** and **n** as input parameters and returns the n-th character of the string after performing r operations on s.

**Expected Time Complexity:** O(r\*|s|)

**Expected Auxilary Space:** O(|s|)

**Constraints**:  
1 ≤ |s| ≤ 103  
1 ≤ r ≤ 20  
0 ≤ n < |s|

class Solution{

public:

char nthCharacter(string s, int r, int n) {

//code here

int odd\_cnt = 0;

while(r--){

odd\_cnt += n%2;

n /= 2;

}

if(odd\_cnt %2==0) return s[n];

else return s[n] == '0' ? '1' : '0';

}

};

<https://www.geeksforgeeks.org/problems/find-the-n-th-character5925/1>