1404. Number of Steps to Reduce a Number in Binary Representation to One

Solved

Medium

Topics

Companies

Hint

Given the binary representation of an integer as a string s, return the number of steps to reduce it to 1 under the following rules:

If the current number is even, you have to divide it by 2.

If the current number is odd, you have to add 1 to it.

It is guaranteed that you can always reach one for all test cases.

Example 1:

Input: s = "1101"

Output: 6

Explanation: "1101" corressponds to number 13 in their decimal representation.

Step 1) 13 is odd, add 1 and obtain 14.

Step 2) 14 is even, divide by 2 and obtain 7.

Step 3) 7 is odd, add 1 and obtain 8.

Step 4) 8 is even, divide by 2 and obtain 4.

Step 5) 4 is even, divide by 2 and obtain 2.

Step 6) 2 is even, divide by 2 and obtain 1.

Example 2:

Input: s = "10"

Output: 1

Explanation: "10" corressponds to number 2 in their decimal representation.

Step 1) 2 is even, divide by 2 and obtain 1.

Example 3:

Input: s = "1"

Output: 0

Constraints:

1 <= s.length <= 500

s consists of characters '0' or '1'

s[0] == '1'

Code::

class Solution {

public int numSteps(String s) {

int l = s.length() - 1;

int carry = 0;

int count = 0;

while (l > 0) {

if (Character.getNumericValue(s.charAt(l)) + carry == 0) {

carry = 0;

count++;

} else if (Character.getNumericValue(s.charAt(l)) + carry == 2) {

carry = 1;

count++;

} else {

carry = 1;

count += 2;

}

l--;

}

if (carry == 1) {

count++;

}

return count;

}

}