# 38. Count and Say

The count-and-say sequence is the sequence of integers with the first five terms as following:

**1. 1**

**2. 11**

**3. 21**

**4. 1211**

**5. 111221**

*1 is read off as "one 1" or 11.*

*11 is read off as "two 1s" or 21.*

*21 is read off as "one 2, then one 1" or 1211.*

Given an integer n, generate the nth term of the **count-and-say** sequence.

Note: Each term of the sequence of integers will be represented as a string.

Example 1:

Input: 1

Output: "1"

Example 2:

Input: 4

Output: "1211"

## 题意解读：

n表示次数，前五次已经给出了，第n次其实就是对n-1的结果进行count and say。显然就是递归思想。1==>11==>21==>1211==>111221

## 递归算法

思路：使用递归思想，需要找到两点即可解决。一是递归终止条件；二是假设已经有了n-1的结果，应该如何进一步处理。

递归终止条件：if(n == 1) return "1";//递推终止条件

已经获取n-1的结果，处理步骤：见具体算法。

算法：

class Solution {

public String countAndSay(int n) {

if(n < 1) return "";

if(n == 1) return "1";//递推终止条件

**char[] chars = countAndSay(n-1).toCharArray();//递归调用**

StringBuilder sb = new StringBuilder();

char prev = chars[0];

int count = 1;

for(int i = 1;i < chars.length;i++){

if(chars[i] == prev){

count++;

}else{

sb.append(count).append(prev);

count = 1;

prev = chars[i];

}

}

**sb.append(count).append(prev);//注意最后结尾的统计**

return sb.toString();

}

}