

38. Count and Say

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The **count-and-say** sequence is a sequence of digit strings defined by the recursive formula:

- `countAndSay(1) = "1"`
- `countAndSay(n)` is the way you would "say" the digit string from `countAndSay(n-1)`, which is then converted into a different digit string.

To determine how you "say" a digit string, split it into the **minimal** number of substrings such that each substring contains exactly **one** unique digit. Then for each substring, say the number of digits, then say the digit. Finally, concatenate every said digit.

For example, the saying and conversion for digit string `"3322251"`:

"3322251"
two 3's, three 2's, one 5, and one 1
2 3 + 3 2 + 1 5 + 1 1
"23321511"

Given a positive integer `n`, return the n^{th} term of the **count-and-say** sequence.

Example 1:

Input: `n = 1`
Output: `"1"`
Explanation: This is the base case.

Example 2:

Input: `n = 4`
Output: `"1211"`
Explanation:
`countAndSay(1) = "1"`
`countAndSay(2) = say "1" = one 1 = "11"`
`countAndSay(3) = say "11" = two 1's = "21"`
`countAndSay(4) = say "21" = one 2 + one 1 = "12" + "11" = "1211"`

Constraints:

- $1 \leq n \leq 30$

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```
1 class Solution {
2 public:
3     string countAndSay(int n) {
4     }
5 }
6 ;
```