Hello Wonderful ;)

ZPRAC-16-17-Lab9

Hello Wonderful ;) [30 points]

ANNOUNCEMENT:
Up to 20% marks will be allotted for good programming practice. These include
- Comments for non trivial code
- Indentation: align your code properly
Up to 50% marks can be deducted if you do not use recursion

Use long long int data type to store integers for this problem. Do not worry about overflow issues.

The Wonderful function is (not) a well known recursive function defined as follows:
$B(n)=$

- 1, if $n=0$
- 2, otherwise if $n=1$
- 1, otherwise if $n=2$
- $2*B(n-1)+B(n-2)+3*B(n-3)$, otherwise

In this problem, you have to compute $Wonderful(n)$ for the given n and count the number of recursive calls. Each call to the function Wonderful() should be considered as a separate call.

NOTE: The Wonderful function should be defined using recursion only (hence use of arrays is not allowed). Follow the exact recurrence given above, otherwise you may face issues in the count-of-recursive-calls.

Input Format:
The first line of input is a number t which indicates the number of test cases. Then, $t(\leq 5)$ lines follow where each line contains $n(\leq 20)$.

Output Format:
Print $Wonderful(n)$ count-of-recursive-calls separated by a space, one per line for each test case.

EXAMPLE:

Input:

3
1
2
3

Output:

2 1
1 1
7 4