CS 0411 Lab 6

In this lab, students will practics how to use recursive function in Fortran 90 programs.

The number of distinct binary trees with n vertices, $n \geq 0$, equals to the nth catalan number $Cat(n)$, where

$$Cat(n) = \frac{(2n)!}{(n+1)!n!}$$

Write two Fortran programs to calculate the value of $Cat(n)$. One uses a non-recursive method, and another one uses recursive method.

Note: $Cat(n) = \frac{2(2n-1)}{n+1}Cat(n-1)$ and $Cat(1) = 1$.