- So, let's now try to find an answer to the following question:

"What is Dynamic Programming?"

A very coarse or condensed version of a statement which can explain the concept of dynamic programming easily is as follows:

"The concept of dynamic programming really can just be thought of as Enhanced/Advanced Recursion."

We know from our prior knowledge that a function $f(x)$ is said to be recursive when it tries to call itself any number of times but always on an input which is smaller than the original input which in this case means an input y such that $y < x$ always and this invariant is maintained in all sub-sequent recursive calls of the function. We also know from algorithmic theory that recursive functions can be very easily studied using mathematical structures named "Recursion Trees".

Fibonacci Recursive function: $fib(n) = fib(n-1) + fib(n-2)$

(recursive function to compute the n^{th} fibonacci number).

Fibonacci Recursion Tree: