

=== Formula ===

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== Description ==

Design and Implementation:

3 main functions were used in the implementation of the formula $(1+x)^n$

> formula main

> nCr

> factorial

formula looped through linearly according to the given input(non-negative integer). Each time through the loop, formula called nCr which calculated the coefficient for x in the final equation representing $(1+x)^n$ such that:

$$(1 + x)^n = 1 + nC1*x + nC2*x^2 + \dots + nCn*x^n$$

nCr was calculated using the formula:

$$n! / (r! * (n - r)!)$$

Formula was implemented recursively by multiplying the current number by the recursive value of current number minus one.

Run times:

Formula: $O(n)$ where n is the input number

nCr: $O(n)$ where n is the input number

Factorial: $O(n)$ where n is the size of the argument provided; these values range from 1 to input number

== Challenges ==

Pretty easy to write, the issues were dealing with gettimeofday and learning how to use it.

Most of my effort actually went into error checking rather than actually figuring out the code.

As for the Assembly, finding the right places to check for overflow and returns was the biggest challenge; however, that did not take much time at all either.