Keegan Smith

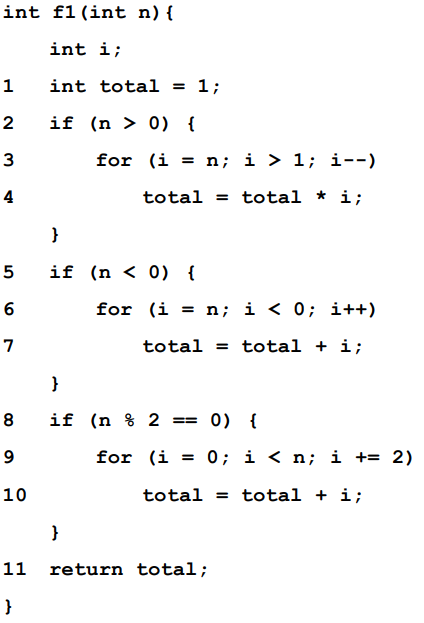
Data Structures: HW1

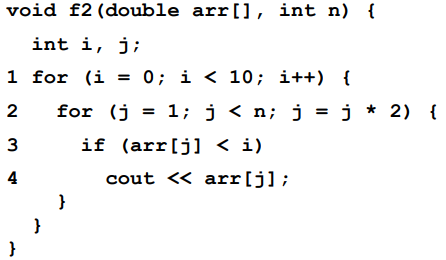
6/11/2023

1. Assume each expression listed below represents the execution time of a program. Express the order of magnitude for each time using big O notation.

1. ) For each of the code segments below, determine an equation for the worst-case computing time T(n) (expressed as a function of n, i.e. 2n + 4) and the order of magnitude (expressed using big O notation, i.e. O(n)). Note that:
   * Each executable line of code is numbered so you can refer to it by number if necessary.
   * A for loop may be treated as a single statement, not three separate statements

Constant due to the linear nature of the for loops and if statements.



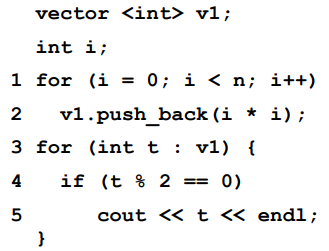


Because of the nested for loop, you got O(n \* n) and the if statement provides O(n), so the resultant would be O(n2).

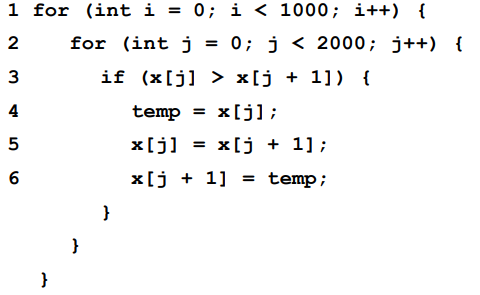


For lines 1 and two, f(n) = O(n) because we are just saving things into the vector. (linearly)

For line 3, 4, 5 f(n) = O(n) as well because they are linear actions.





because of the nested for loop. The if statement would provide a O(n).