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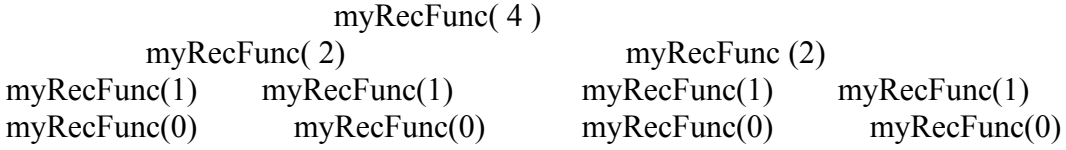
Hw05
Dt1462

1)
perform_if (start iterator, end iterator, boolean functor, void functor)
count = 0
for start iterator to end iterator -1
    if Boolean functor of iterator value is true
      void functor of iterator value
      increase count
return count

preconditions: must give two iterators (beginning and ending of a range) and two functors, where one returns a Boolean and the other returns a void
postconditions: returns an int that is greater or equal to 0

O(n)

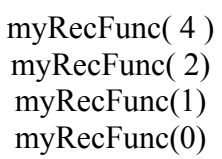
2)



4: 2: 1: 0: 0:
1: 0: 0:
*
2: 1: 0: 0:
1: 0: 0:
*
***

running time: O(nlogn)

3)



4: 2: 1: 0:

running time: O(logn)

4) fib(3) is 5 function call
fib (4) is 9 function call
fib (5) is 15 function call

5)
It prints out
8,9,-11,2,0,3
-11,8,9,2,0,3
-11,2,8,9,0,3
-11,0,2,8,9,3
-11,0,2,3,8,9

The content is changing

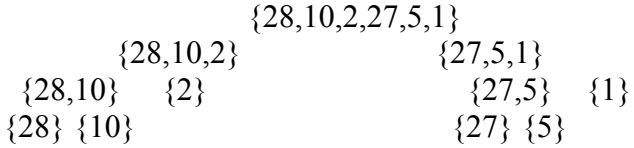
6)

It prints out
8,9,-11,2,0,3
-11,8,9,2,0,3
-11,8,9,2,0,3
-11,8,9,0,2,3
-11,0,2,3,8,9

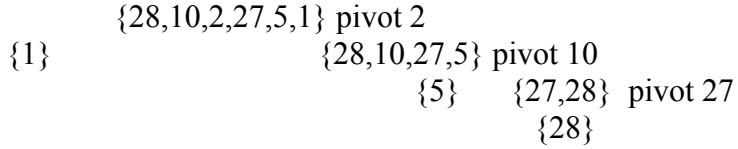
The content is changing

7)
-11 8 3 2 0 9
-11 0 2 9 8 3
-11 0 2 3 8 9

The content is changing
8)
mergeSort



quicksort:



9)

insertionSort : O(n)
mergeSort : O(nlogn)
quicksort: O(nlogn)

10) average time is O(n)
11) When k = i+1 is called no recursive function will be called, recursion only happens when k <= 1 or when k > i + 1