Simon Chen N10013388 sc4900 Homework 5

1)

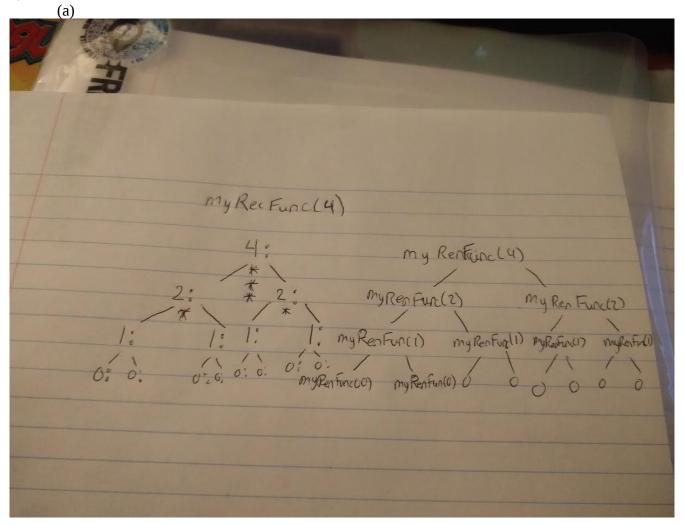
Pseudo Code:

- 1) Give menu to the user
- 2) Take in input of user
- 3) Perform intended input of user, quit if he chooses
- 4) Create appropriate functor
- 5) Run perform_if with the functor, print functor
- 6)Repeat

Preconditions: The user gives a valid input, if not prompt for a valid input Postconditions: Check if perform_if returns 0, if it does tell the user's input was not found

O(n)

2)

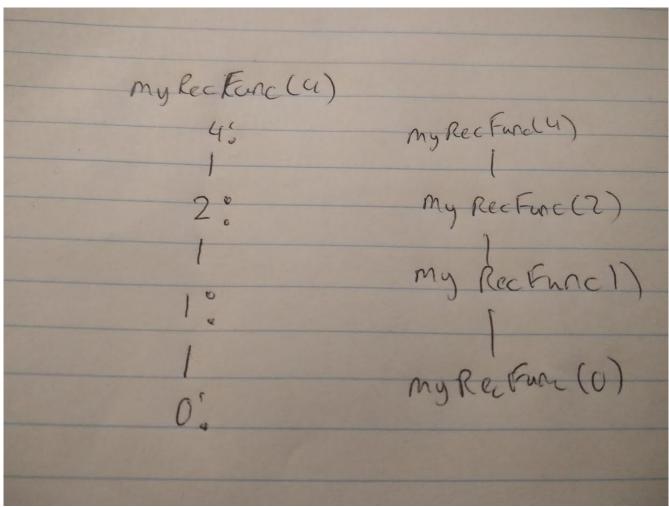


```
(b)
4: 2: 1: 0: 0:
1: 0: 0:

2: 1: 0: 0:
1: 0: 0:

*
(c) nlog(n)
```

3) (a)



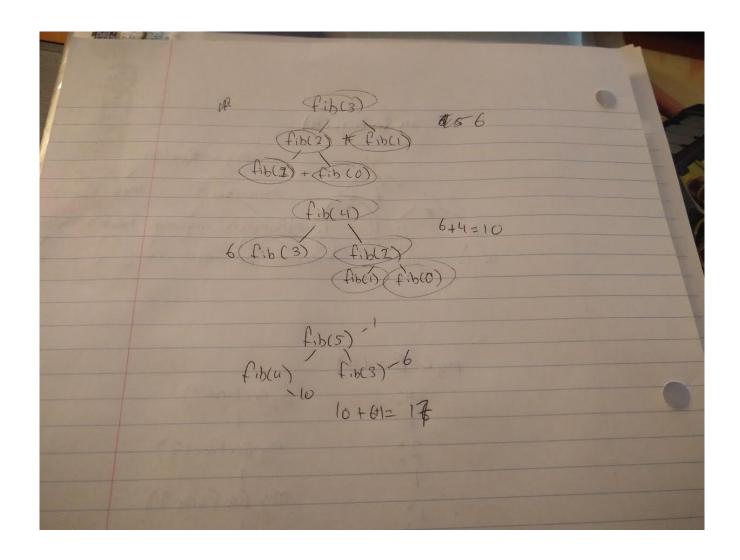
(b)

4: 2: 1: 0: 0

(c) log(n)

4) 17

Work:



5) 0,8,9,-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

6) 8,-11,9,2,0,3 8,-11,9,2,0,3 -11,0,2,3,8,9

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

8)
0.
a= 8 2 8, 10, 3,27 15, 13
marge Sert (a) = £ 28,10, 27,5,13
onerge Sort {28,10,243 merge Sort {27,5,13
neige Sor (8287) mergesor(810,23) mergesor(827) mergesor(85,13)
ag sir (1285) Weigesor (110,25) "eager filling"
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meses six (40) Moraeso+ (27)
1.0.301(0.1)
5 be a set. If there are exactly to and making 151
s to a set it is and miny 131
She a set. If there are exactly to and making. ISI A to Z+ we say that S is finise ! In is cardinaling. ISI
H. C.
1 101 If E. L-1 conspeds
a has the same conditing
set, A+B have the same condinity if f. 1-1 corresponde
-11,0,7,5,0,1
(1221007)212
quicksort (828, 10, 2, 27, 5, 13
quickSort (\$27,40 (\$5,719)
quickort (287,00727) quicksort (2547)
quick Sor (E13) Quick Son (E13
quick Soft (913) quick Soft (45) 103)
quickSort (Elos)
= 2 x P(x)
Cordinality -2.3
Let S be a set. If there are grantly in distinct demonstra S

9)
insertion sort: O(n)
merge sort: O(nlog(n))
quick sort: O(nlog(n))

10)
log(n)

11)

The I = k+1 check is done, because when it is the k+1 item it is the nth item from the end of the list, which means that item is the item we're looking for in the sorted order.