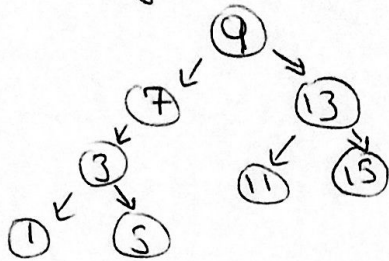


Helal Chowdhury

hc2324

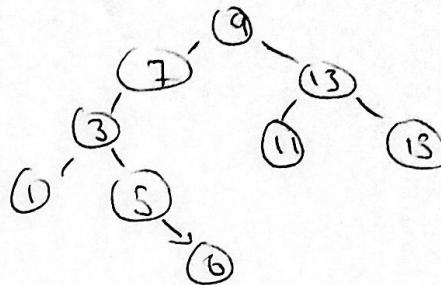
HW 8 Q 1 and 2c

1. original tree

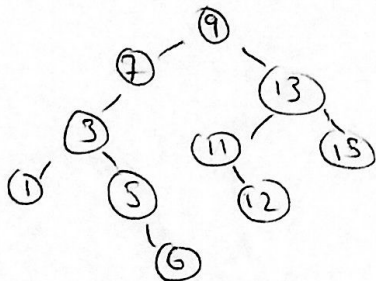


→

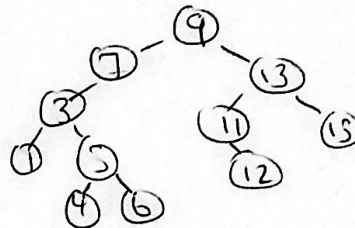
bst[6] = None



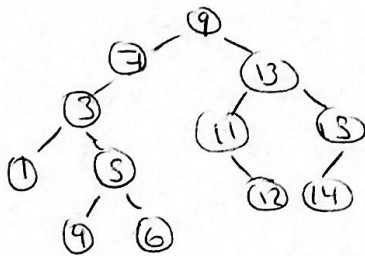
bst[12] = None



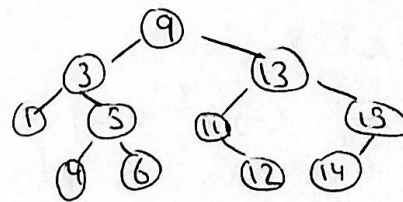
bst[4] = None



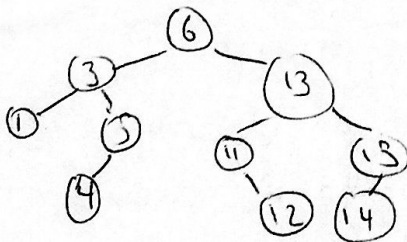
bst[14] = None



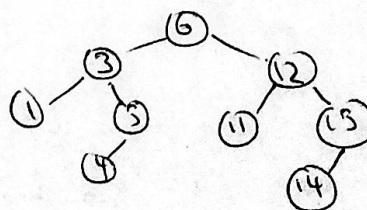
del bst[7]



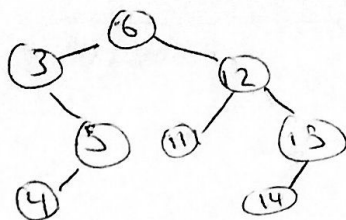
del bst[9]



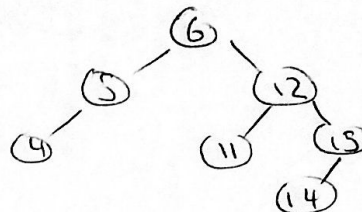
del bst[13]



del bst[1]



del bst[3]



2c)

Runtime for Part A

The for loop runs "n" times and each iteration contains "insert" which is $\Theta(i)$ up to n. Therefore, $1+2+3+4+\dots+n =$

$$\boxed{\Theta(n^2)}$$

Runtime for Part B

For the function "create_complete_bst(n)", the initializing and returning are both $\Theta(1)$.

The "add_items" call has the runtime of its own function. The worstcase for "insert" is $\Theta(n)$.

The entire function runs $\log(n)$ times.

Therefore, $\underbrace{n+n+n+n\dots}_{\log(n)} = \boxed{\Theta(n \log n)}$