BILKENT UNIVERSITY
CS202
SECTION 3

HW
-2-

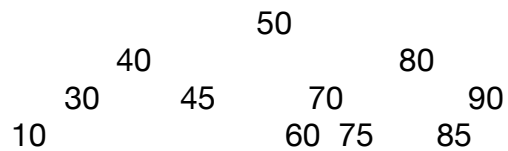# BURAK ERDEM VAROL
21202534

QUESTION 1a :

PREORDER TRAVERSAL : M, O, L, A, G, H, R, T, I
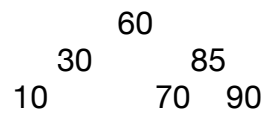
INORDER TRAVERSAL : A, L, O, G, M, R, H, T, I

POSTORDER TRAVERSAL: A, L, G, O, R, I, T, H, M
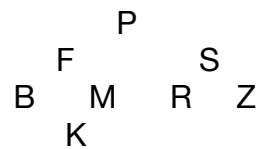
QUESTION 1b :

After All Insertions

```
                    50
          40                  80
       30      45        70        90
    10                 60  75    85
```
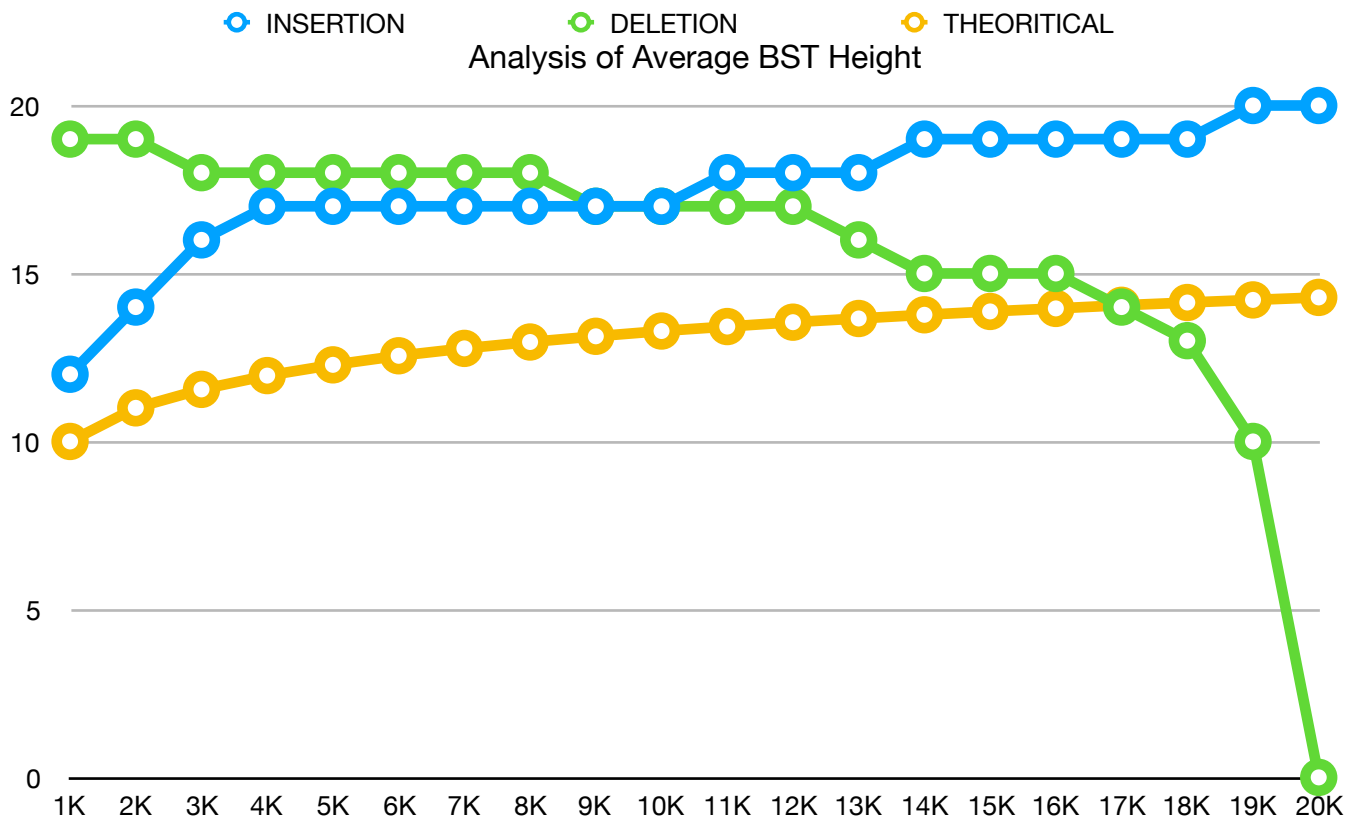
After All Deletions

```
            60
        30        85
     10        70   90
```

QUESTION 1c :

PREORDER TRAVERSAL TREE

```
              P
           F      S
         B   M  R   Z
           K
```

POSTORDER TRAVERSAL : B, K, M, F, R, Z, S, P

QUESTION 3 :

Analysis of Average BST Height

Legend: INSERTION, DELETION, THEORITICAL

Analysis :

Theoretical graph and my graph are different because my graph created with random numbers and we do not know which number came from the random number generator. Some values are greater than the root some values are smaller than the root and two of them which greater values and smaller values are not equal with theoretical graph numbers so we can say that our graph show that some greater or smaller values came successively and my binary search tree height data greater than the theoretical data. If we insert sorted numbers to Binary search tree, tree height will increase linearly. Because of the all values are will be one plus height for binary search tree. Random numbers insertion growth 2 side of the binary search tree so graph is not increasing with not same growth rate.