1. (100 pts) Write a program to construct a binary search tree and print the tree on its side. Read the input from the user as a sequence of integers and output the tree indented based on depth and with one value on each line.

Consider the following input from user

Enter the numbers
10 6 14 4 8 12 16

The binary search tree using above numbers is given below

```
          10
         /\  
        6 14
       / \ / \ 
      4 8 12 16
```

Figure 1: Binary Search Tree

Note that the order of the numbers entered changes the tree. First number is always the root of the tree and last number is a leaf of the tree.

The output for the above set of numbers is the tree printed on its side as shown below.

```
        16
       /   
      14    
     /      
    12      
   /        
  10       
 /         
 8         
/          
6          
/           
4
```

The text for a node should be indented 4 times the depth of the node. Root (depth 0) should not be indented and a node at depth 2 should be indented 8 spaces.

Submit your program electronically using the blackboard system

The program you submit should be your own work. Cheating will be reported to office of academic integrity. Both the copier and copiee will be held responsible.