ASSIGNMENT 7

Note: * Recursion is not allowed. Perform all Recursive operation using stack. *****

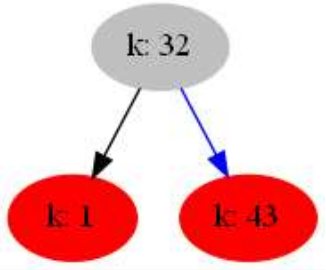
- For Visual Output use GraphViz
- Input: Read inputs from file.

Programming Language: JAVA

Question 1: Red Black Tree

Red-Black tree is a binary search tree in which every node is colored with either red or black. It is a type of self-balancing binary search tree.

Ex.



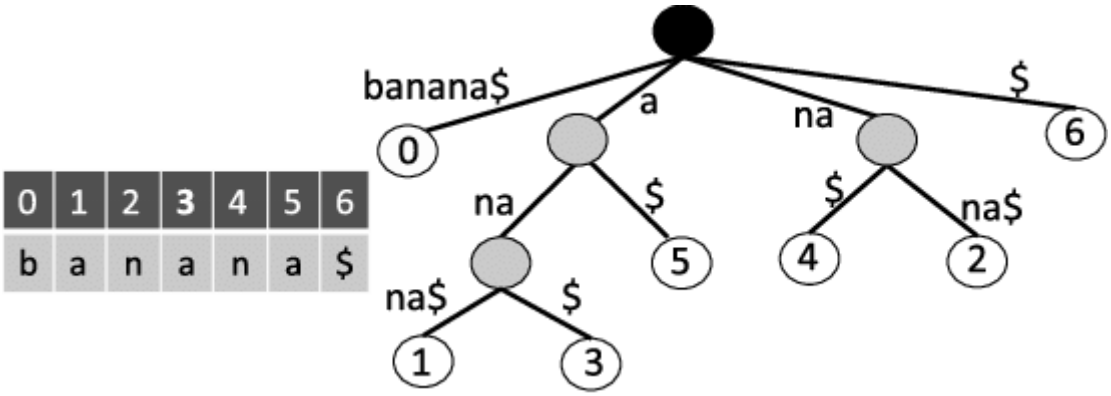
- Your task is to implement a Red Black Tree data structure
  - Functions:
    - Insert(int data)
    - Search(int data)
    - Delete (int data)
    - showGraph()
    - printInorder()

Question 2: Suffix Tree

Suffix Tree is a compressed Trie containing all the suffixes of the given text as their keys and positions in the text as their values.

- Your task is to implement a Suffix Tree data structure.
    - Function:
        - Insert(String str)
        - Search(String str)
        - ShowSuffixTree():

Example:



Question 3: Strongly Connected Component (SSC)

In Strongly Connected Component, every vertex is reachable from every other vertex through a directed path.

- Your task is to implement an algorithm to find SSC in a Directed Graph.

- Function:
  - printGraph():
  - showAllSSC(): print all SSC graph.
  - showComponentGraph(): in this graph a node will represent one SSC.

Example: