PES UNIVERSITY ONLINE

DATA STRUCTURES AND ITS APPLICATIONS

UE19CS202

Shylaja S S & Kusuma K V

Department of Computer Science
& Engineering

DATA STRUCTURES AND ITS APPLICATIONS

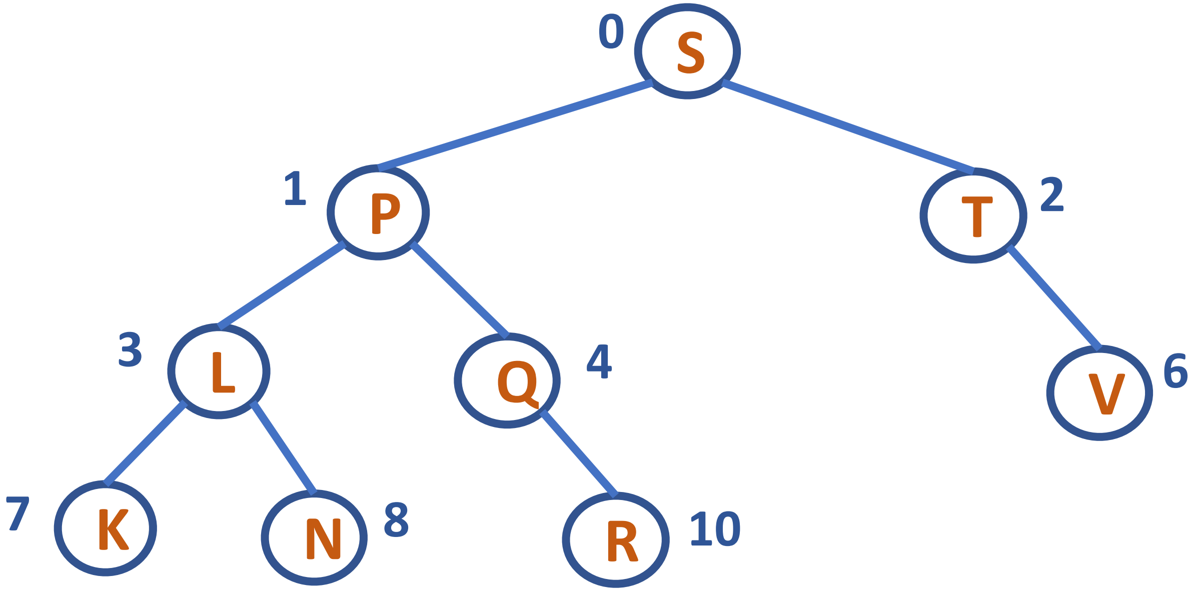
BST: Implementation using Arrays

Shylaja S S

Department of Computer Science & Engineering

Binary Search Tree - Implementation

Array Implementation (Implicit implementation)



S	P	T	L	Q	…	V	K	N	…	R
0	1	2	3	4	5	6	7	8	9	10

Binary Search Tree - Implementation

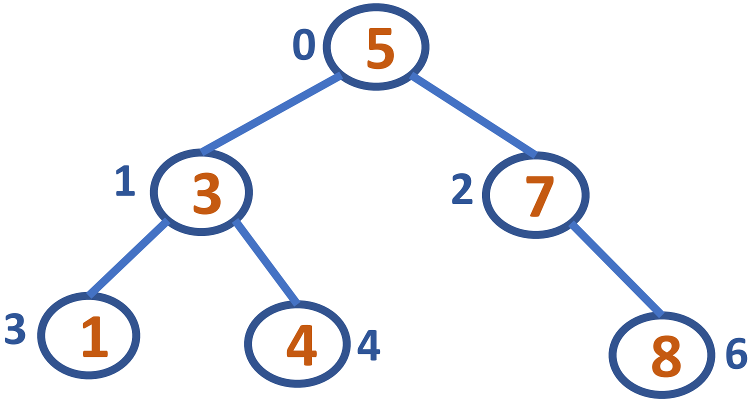
Array Implementation (Implicit implementation)

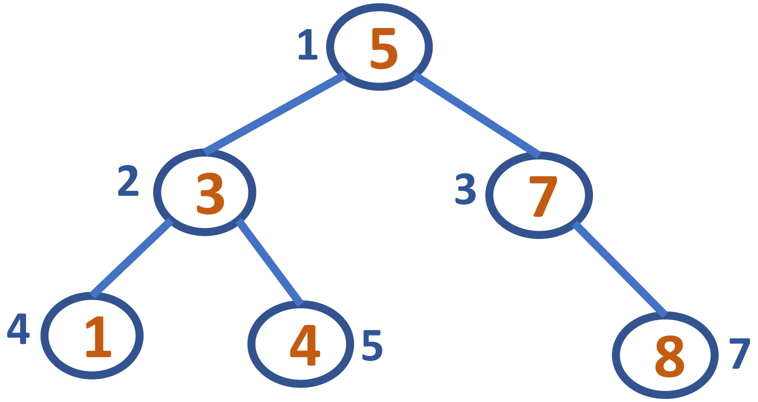
```
typedef struct tree_array
{
        int info;
        int used;
}NODE;
```

- NODE bst[MAX];   //here bst is an array of nodes
- each node has its data and another field by name used to contain whether it is a valid node or not
- used = 1 or 0

Binary Search Tree - Implementation

Array Implementation: 5, 3, 7, 8, 1, 4





Root Position: i = 0
Left Child Position: 2i + 1
Right Child Position: 2i + 2

OR

Root Position: i = 1
Left Child Position: 2i
Right Child Position: 2i + 1

info	5	3	7	1	4		8
used	1	1	1	1	1	0	1
Position: i	0	1	2	3	4	5	6

info		5	3	7	1	4		8
used	0	1	1	1	1	1	0	1
Position: i	0	1	2	3	4	5	6	7

DATA STRUCTURES AND ITS APPLICATIONS

Binary Search Tree - Implementation

Array Implementation: 5, 3, 7, 8, 1, 4

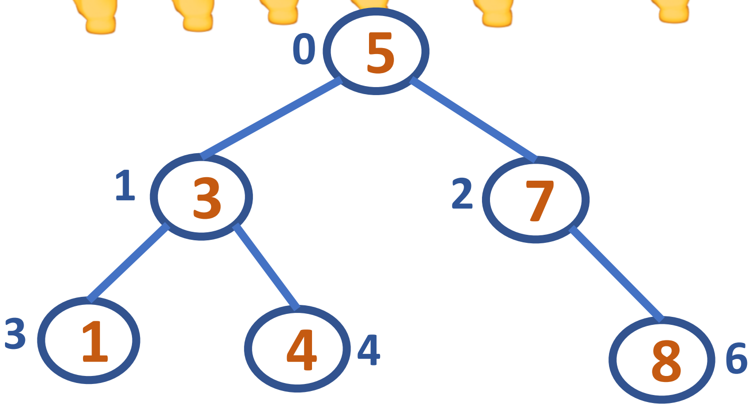
Root Position: i = 0
Left Child Position: 2i + 1
Right Child Position: 2i + 2

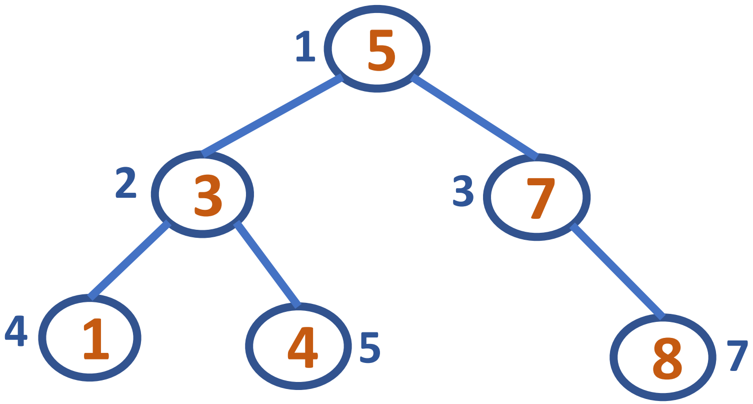
OR

Root Position: i = 1
Left Child Position: 2i
Right Child Position: 2i + 1

info	5	3	7	1	4		8
used	1	1	1	1	1	0	1
Position: i	0	1	2	3	4	5	6

info		5	3	7	1	4		8
used	0	1	1	1	1	1	0	1
Position: i	0	1	2	3	4	5	6	7





PES UNIVERSITY ONLINE

THANK YOU

Shylaja S S

Department of Computer Science
& Engineering

shylaja.sharath@pes.edu

+91 9449867804