



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with ‘A++’
Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

COURSE NAME : 23ITT201_Data Structures

II YEAR/ III SEMESTER

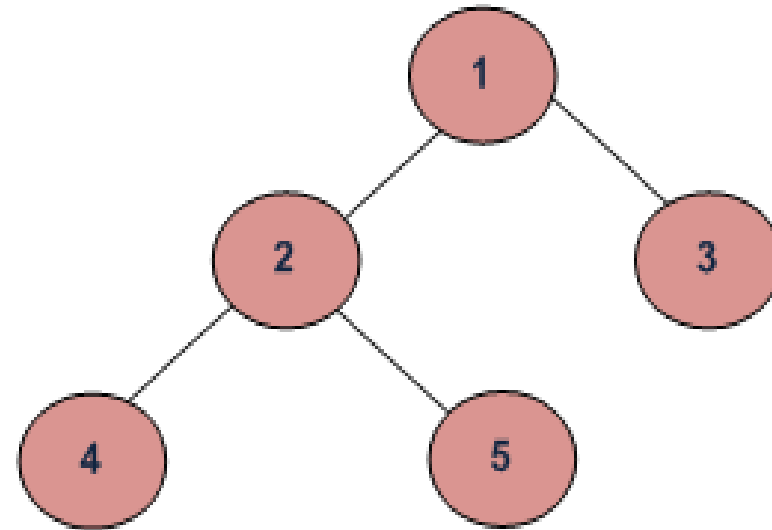
UNIT III

Topic: Tree Traversals



Tree Traversals

- Visiting each node only once
- Three types of tree traversals
 - Inorder Traversal
 - Preorder Traversal
 - Postorder Traversal





Tree Traversals

TREE TRAVERSALS

① Inorder Traversal

LEFT CHILD — ROOT NODE — RIGHT CHILD

B A C

② Pre order Traversal

ROOT NODE — LEFT CHILD — RIGHT CHILD

A B C

③ Post order Traversal

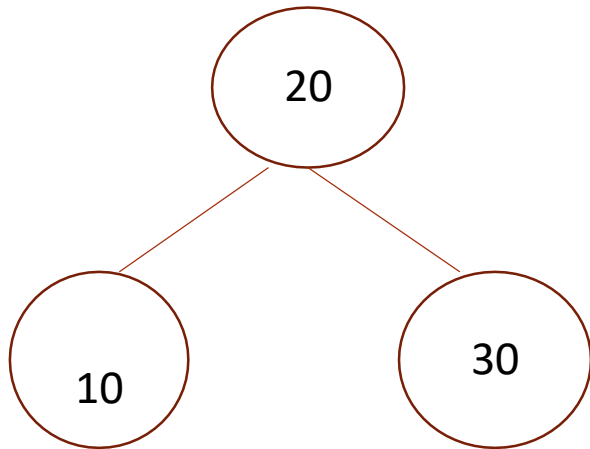
LEFT CHILD — RIGHT CHILD — ROOT NODE

B C A

```
graph TD; A((A)) --- B((B)); A --- C((C));
```



Examples



- Inorder 10 20 30
- Preorder 20 10 30
- Postorder 10 30 20



Inorder Traversal

Routine

Traverse the left subtree in inorder

Visit the root

Traverse the right subtree in inorder

```
Void Inorder(Tree T)
{
  If(T!=NULL)
  {
    Inorder(T->left);
    printElement((T->Element);
    Inorder(T->right);
  }
}
```



Preorder Traversals

Visit the root

Traverse the left subtree in
preorder

Traverse the right subtree in
preorder

```
Void Preorder(Tree T)
```

```
{
```

```
If(T!=NULL)
```

```
{
```

```
printElement((T->Element);
```

```
Preorder(T->left);
```

```
Preorder(T->right);
```

```
}
```

```
}
```



Post order Traversals

Traverse the left subtree in
preorder

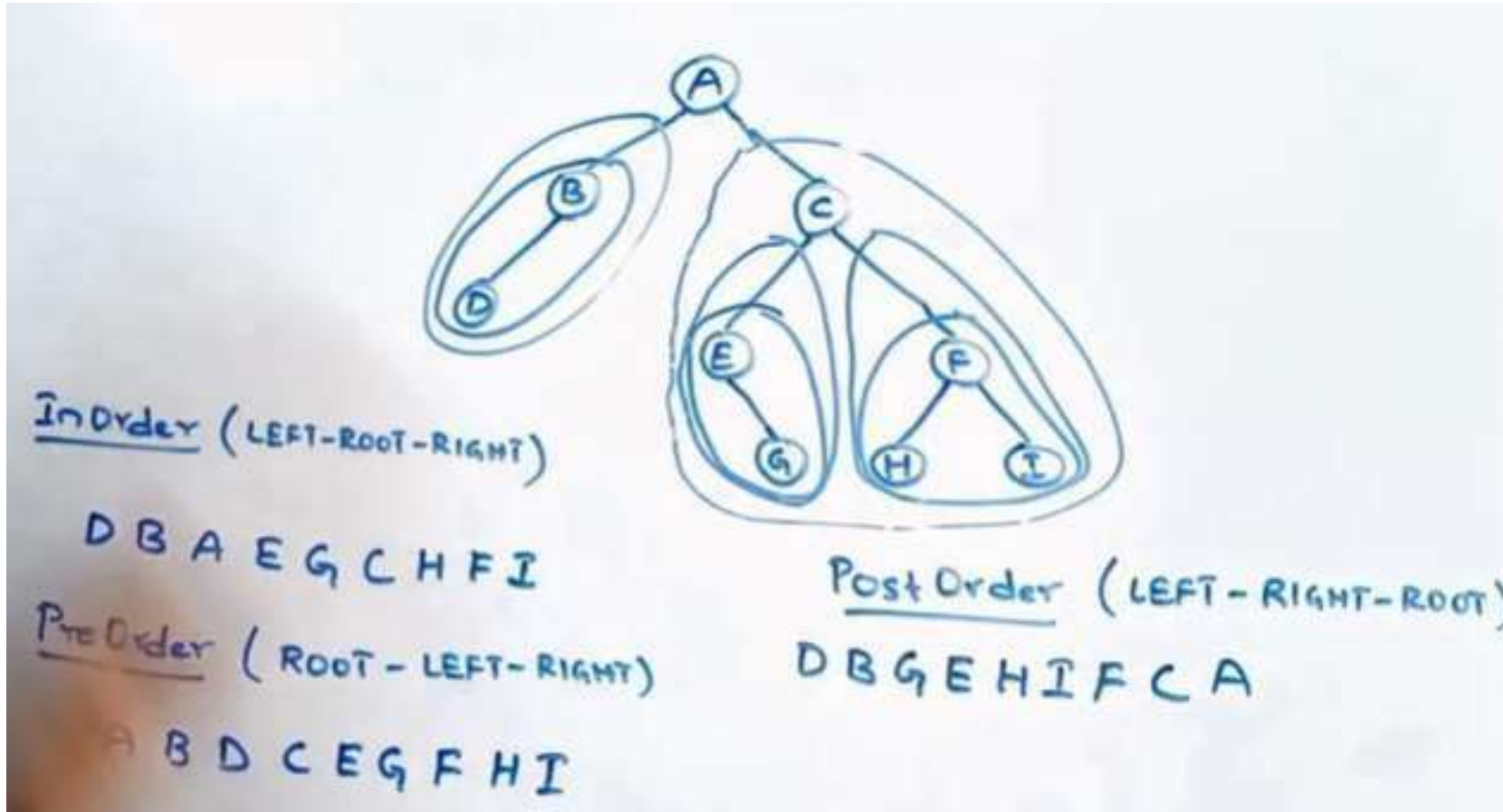
Traverse the right subtree in
preorder

Visit the root

```
Void Postorder(Tree T)
{
If(T!=NULL)
{
Postorder(T->left);
Postorder(T->right);
printElement((T->Element));
}
}
```



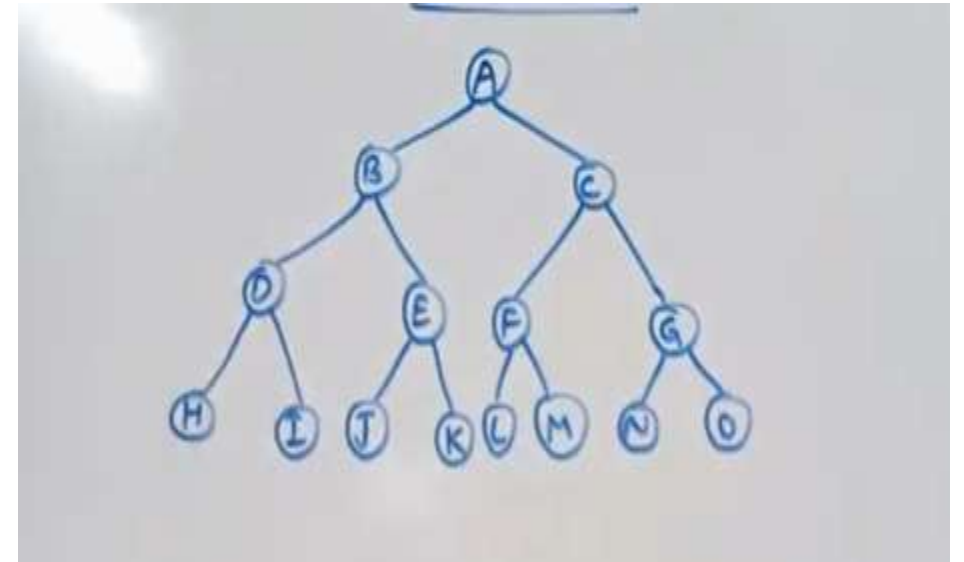
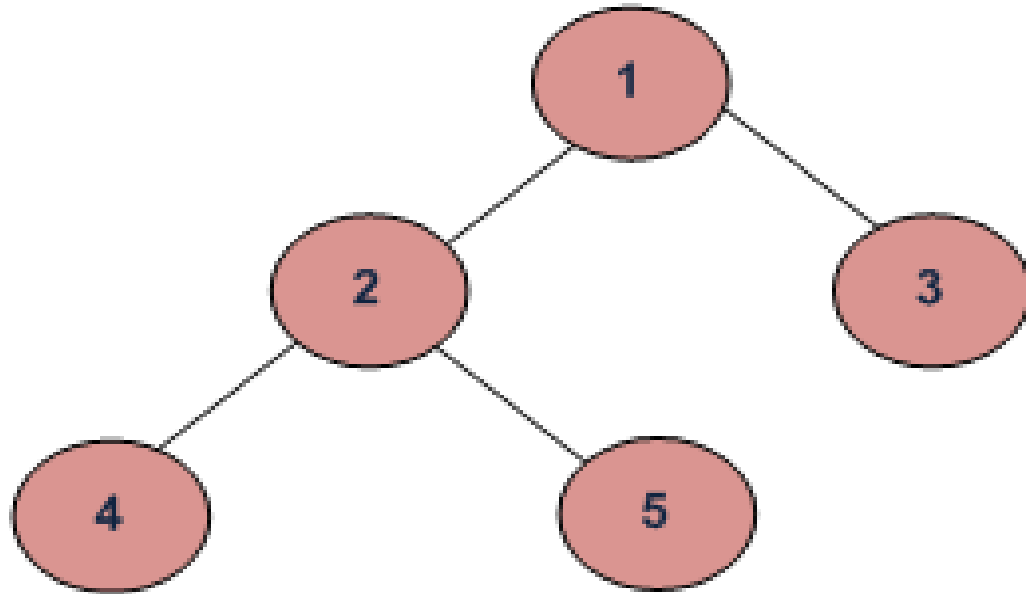
Assessment





Assessment

Find out the Tree Traversals for the following Tree





References

1. M. A. Weiss, “Data Structures and Algorithm Analysis in C”, Pearson Education, 8TH Edition, 2017.
2. A. V. Aho, J. E. Hopcroft and J. D. Ullman, “Data Structures and Algorithms”, Pearson Education, 2nd Edition, 2007
3. Ashok Kamthane, " Data Structures Using C ", Pearson Education, 2nd Edition, 2012.
4. Sahni Horowitz, “Fundamentals of Data Structures in C”Universities Press; Second edition 2008



Thank You