DATA STRUCTURES AND ITS APPLICATIONS

n-ary Tree Traversal

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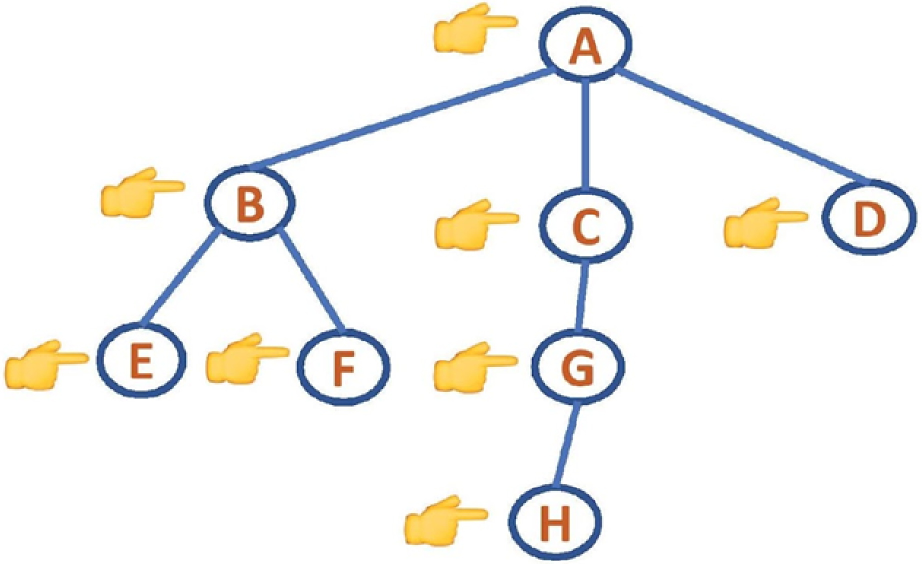
Tree Traversal

Structure of a treenode revisited

```
struct treenode{
        int info;
        struct treenode *child;
        struct treenode *sibling;
};
```

Preorder Tree Traversal



A B E F C G H D

Tree Traversal

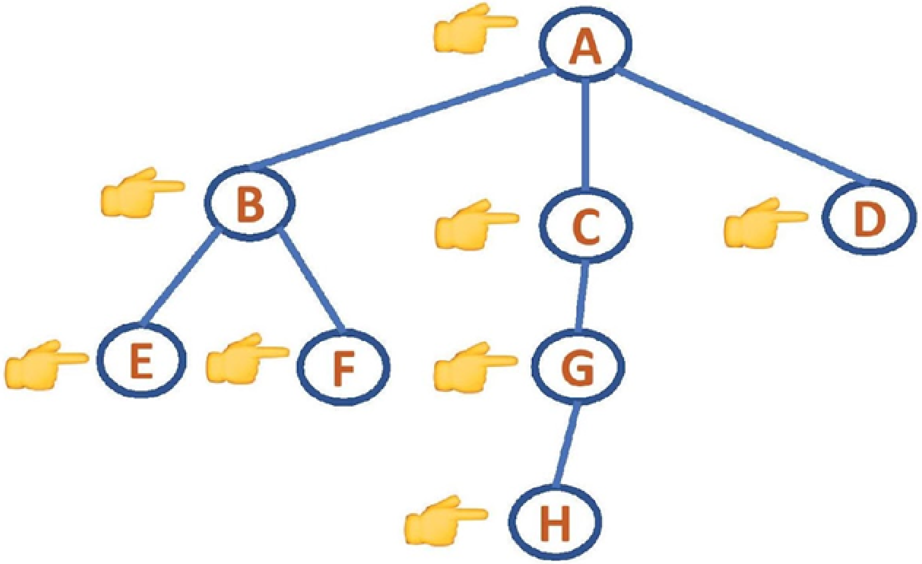
```
void preorder(TREE *root)
{
    if(root!=NULL)
    {
      printf(" %d ",root->info);
      preorder(root->child);
      preorder(root->sibling);
    }
}
```

Tree Traversal

Inorder

1. Traverse in inorder the forest formed by the subtrees of the first tree, if any
2. Visit the root of the first tree in the forest
3. Traverse in inorder the forest formed by the remaining trees in the forest, if any

Inorder Tree Traversal



E F B HGC D A

Tree Traversal

Postorder

1. Traverse in postorder the forest formed by the subtrees of the first tree, if any
2. Traverse in postorder the forest formed by the remaining trees in the forest, if any
3. Visit the root of the first tree in the forest

Tree Traversal

```
void postorder(TREE *root)
{
 if(root!=NULL)
  {
    postorder(root->child);
    postorder(root->sibling);
    printf(" %d ", root->info);
  }
}
```

1. **Which of the following traversal cannot be implemented using recursion**

a) Preorder
b) Inorder
c) Postorder
d) Level-order

1. **Which of the following traversal cannot be implemented using recursion**

a) Preorder

b) Inorder

c) Postorder

d) Level-order

2. In which traversal is the parent visited before its children?

a) Preorder
b) Inorder
c) Postorder
d) Level-order

2. In which traversal is the parent visited before its children?

a) Preorder

b) Inorder

c) Postorder

d) Level-order

3. If the inorder traversal of a binary tree is [D, B, E, A, F, C], and the preorder traversal is [A, B, D, E, C, F], what is the root of the tree?

a) A

b) B

c) C

d) D

3. If the inorder traversal of a binary tree is [D, B, E, A, F, C], and the preorder traversal is [A, B, D, E, C, F], what is the root of the tree?

a) A
b) B
c) C
d) D

4. Consider the tree below:

```
    A
   / \
  B   C
 / \
D   E
```

The inorder, preorder and postorder traversals are

a) D B E A C
A B D E C
D E B C A

b) A B D E C
D B E A C
B D E A C

c) D E B C A
A B D E C
D B E A C

d) A B D E C
D E B A C
A D E B C

4. Consider the tree below:

```
    A
   / \
  B   C
 / \
D   E
```

The inorder, preorder and postorder traversals are

a) D B E A C
A B D E C
D E B C A

b) A B D E C
D B E A C
B D E A C

c) D E B C A
A B D E C
D B E A C

d) A B D E C
D E B A C
A D E B C

5. Given Preorder = [M, N, O] and Inorder = [N, M, O], then the tree is

a) Skewed left

b) Skewed right

c) Balanced

d) Star-shaped

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a) Skewed left

b) Skewed right

[✓ c) Balanced]

d) Star-shaped

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THANK YOU

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