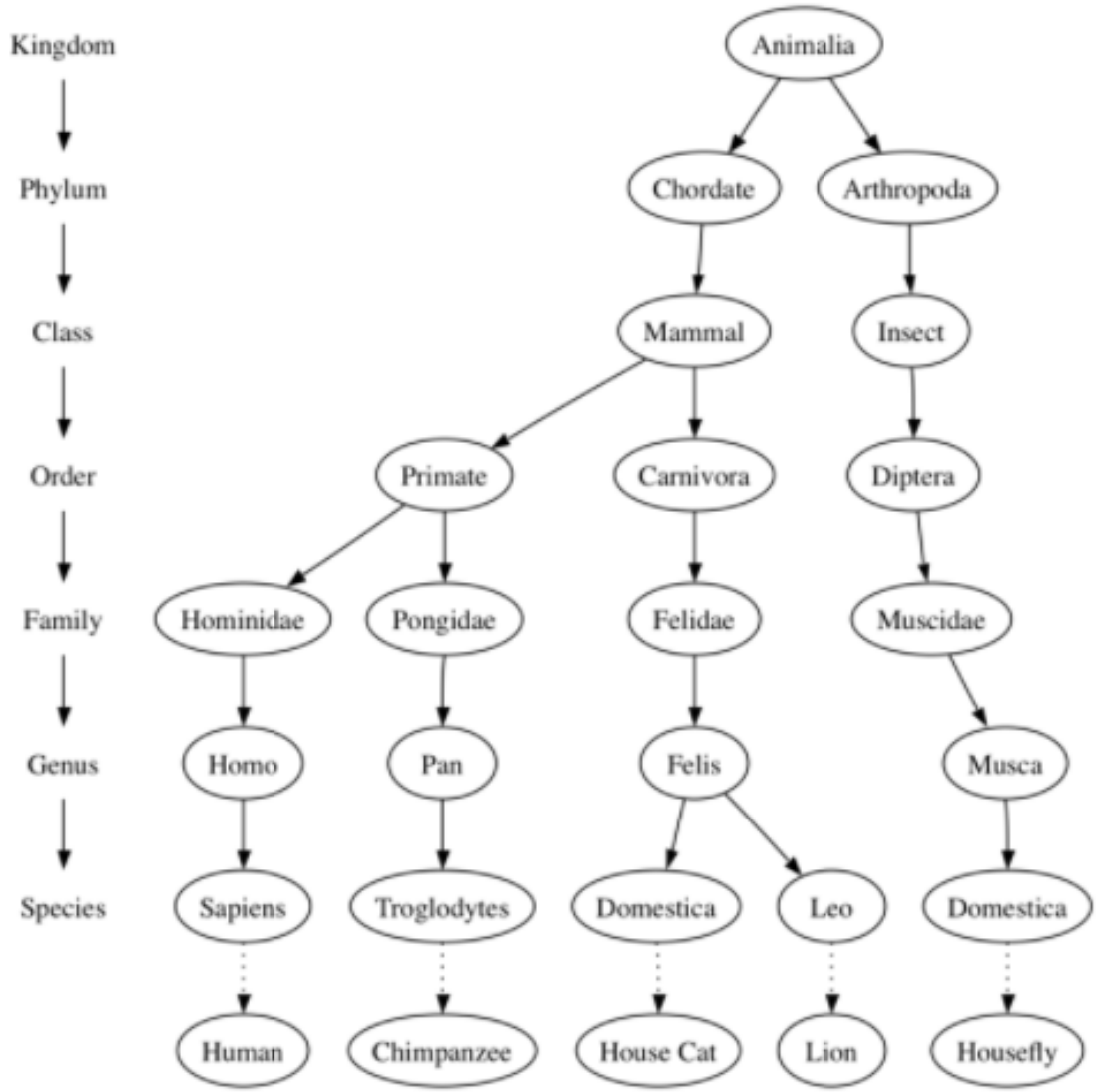
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Chordate
Arthropoda
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Carnivora
Diptera
Hominidae
Pongidae
Felidae
Muscidae
Homo
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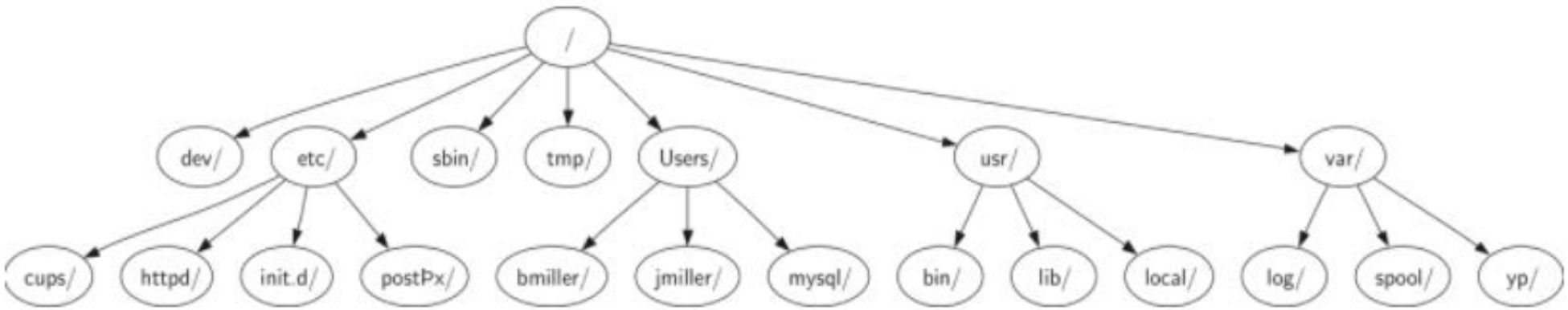
Leo
Domestica
Human
Chimpanzee
House Cat
Lion
Housefly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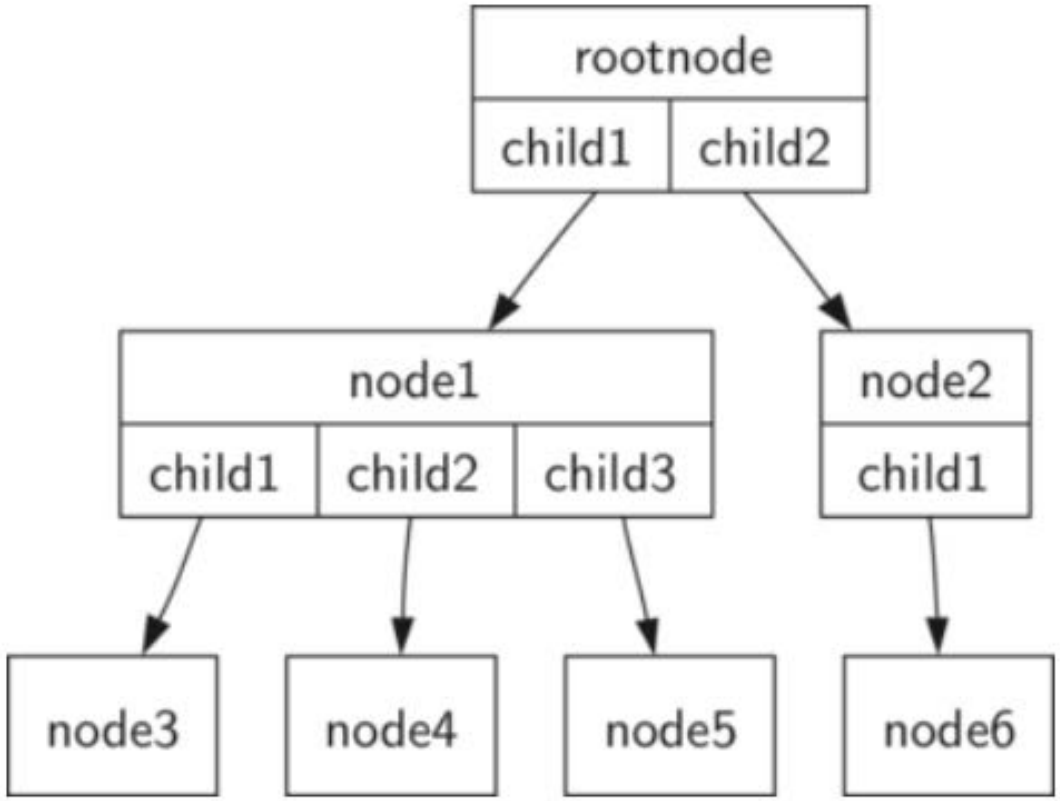


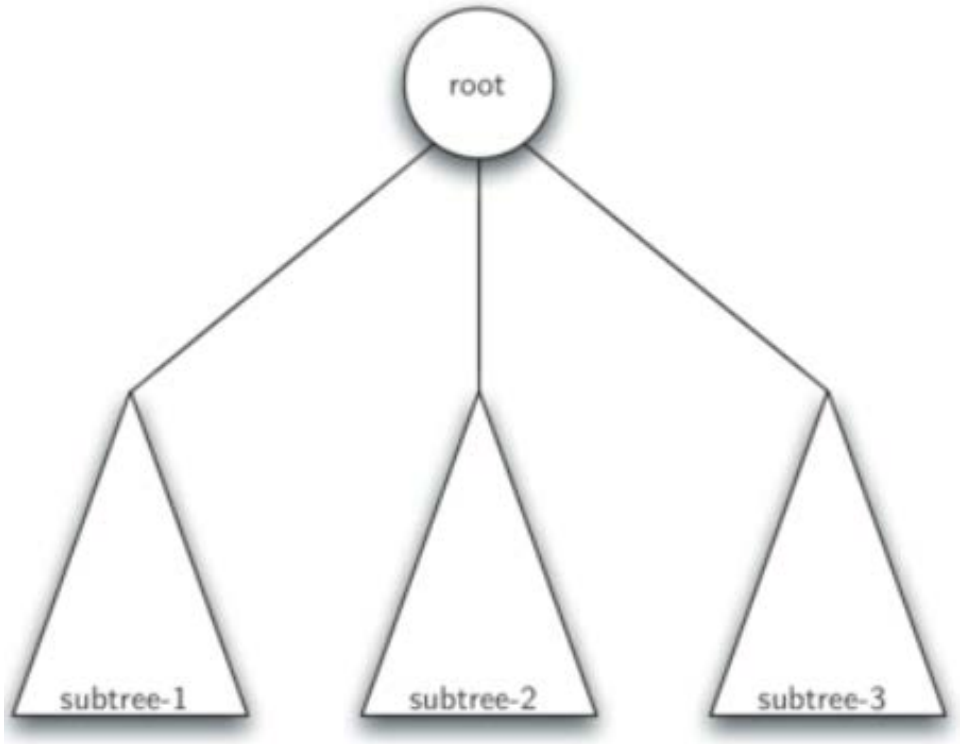
A tree consists of a set of nodes and a set of edges that connect pairs of nodes. A tree has the following properties:

•One node of the tree is designated as the root node.

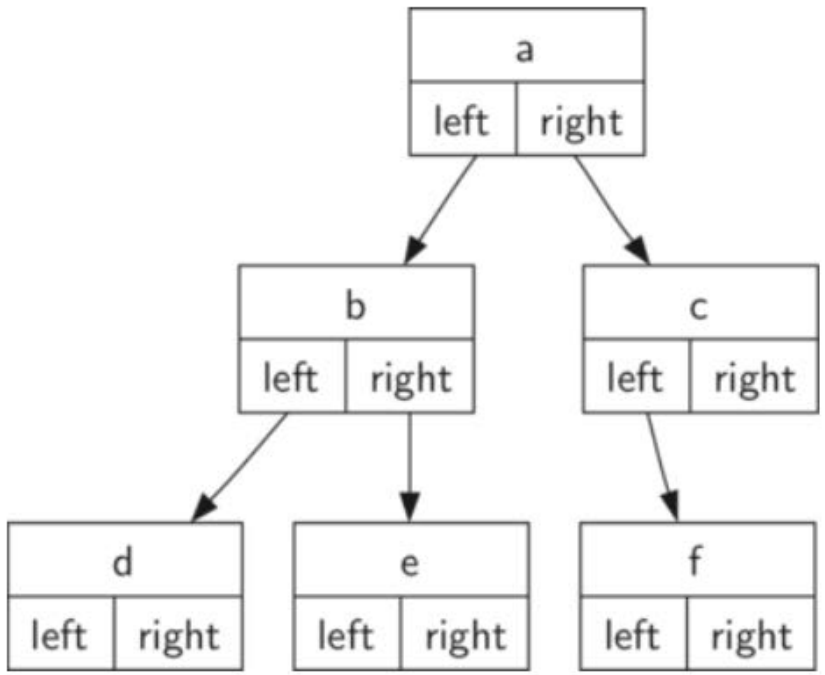
•Every node n, except the root node, is connected by an edge from exactly one other node p, where p is the parent of n.

•A unique path traverses from the root to each node.

•If each node in the tree has a maximum of two children, we say that the tree is a **binary tree**.

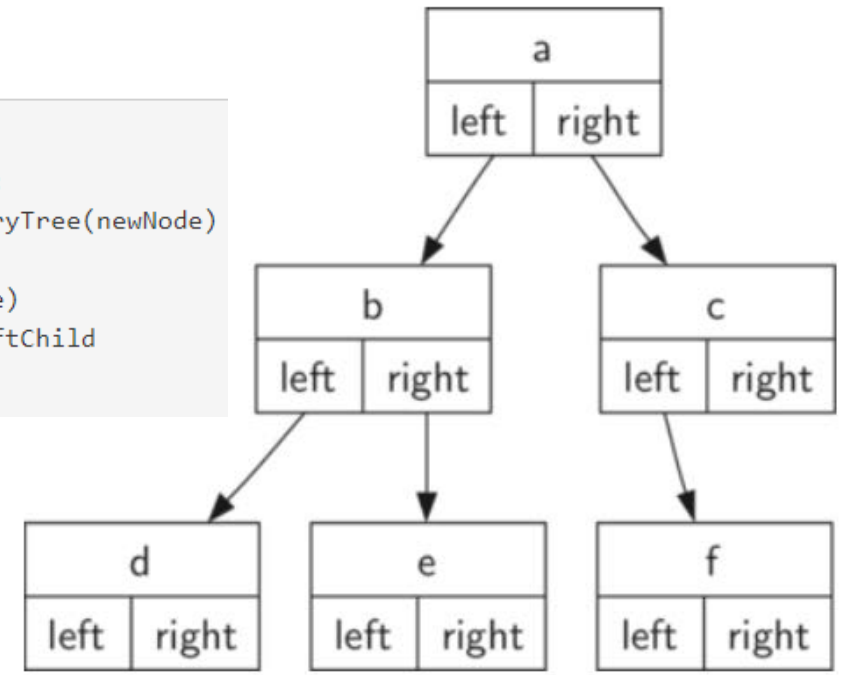


A tree is either empty or consists of a root and zero or more subtrees, each of which is also a tree. The root of each subtree is connected to the root of the parent tree by an edge. This figure illustrates this recursive definition of a tree. Using the recursive definition of a tree, we know that this tree has at least four nodes, since each of the triangles representing a subtree must have a root.




```
class BinaryTree:
    def __init__(self,rootObj):
        self.key = rootObj
        self.leftChild = None
        self.rightChild = None
```

```
def insertLeft(self,newNode):
    if self.leftChild == None:
        self.leftChild = BinaryTree(newNode)
    else:
        t = BinaryTree(newNode)
        t.leftChild = self.leftChild
        self.leftChild = t
```




```
def insertRight(self,newNode):
    if self.rightChild == None:
        self.rightChild = BinaryTree(newNode)
    else:
        t = BinaryTree(newNode)
        t.rightChild = self.rightChild
        self.rightChild = t
```