



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES  
DEHRADUN

## **DAA LAB - 1**

### **Binary Search**

MTECH-COMPUTER SCIENCE  
ENGINEERING  
CYBER SECURITY AND FORENSICS

Name: Jigesh Sheoran  
SAP ID: 590025428

**JIGESH SHEORAN**  
590025428  
M.Tech CSE

## Title: : Implement an algorithm for Binary Search

**Implementation:** Language used : Python

```

binary_search.py > ...
1  # Author: Jigesh Sheoran
2  # SAP ID: 590025428
3
4  class Node:
5      def __init__(self, data):
6          self.data = data
7          self.left = None
8          self.right = None
9
10 def insert(root, data):
11     if root is None:
12         return Node(data)
13     if data < root.data:
14         root.left = insert(root.left, data)
15     else:
16         root.right = insert(root.right, data)
17     return root
18
19 # preorder (root → left → right)
20 def preorder(root):
21     if root:
22         print(root.data, end=" ")
23         preorder(root.left)
24         preorder(root.right)
25
26 # inorder (left → root → right)
27 def inorder(root):
28     if root:
29         inorder(root.left)
30         print(root.data, end=" ")
31         inorder(root.right)
32
33 # postorder (left → right → root)
34 def postorder(root):
35     if root:
36         postorder(root.left)
37         postorder(root.right)
38         print(root.data, end=" ")
39
40 values = list(map(int, input("Enter numbers separated by space: ").split()))
41


```

```

41
42 root = None
43 for v in values:
44     root = insert(root, v)
45
46 print("\nPreorder Traversal:", end=" ")
47 preorder(root)
48
49 print("\nInorder Traversal:", end=" ")
50 inorder(root)
51
52 print("\nPostorder Traversal:", end=" ")
53 postorder(root)
54
55 |

```

## Output:

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS    Python + ▾

```

/Masters UPES/DAA/Assignemnt 3/binary_search.py"
Enter numbers separated by space: 43 12 1 90 76 54 89 17 6 48 12 37 54 12 32 30 86

Preorder Traversal: 43 12 1 6 17 12 12 37 32 30 90 76 54 48 54 89 86
Inorder Traversal: 1 6 12 12 12 17 30 32 37 43 48 54 54 76 86 89 90
Postorder Traversal: 6 1 12 12 30 32 37 17 12 48 54 54 86 89 76 90 43 %
sheoraninfosec@Jigeshs-MacBook-Air Assignemnt 3 % cleart
zsh: command not found: cleart
sheoraninfosec@Jigeshs-MacBook-Air Assignemnt 3 % cleatr

```

-----END OF DOCUMENT -----