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**Lab-11**

**Sub Code:** 19CSE212

**Sub Title:** Data Structures

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**Suitable Data Structure is : BST**

**Code:**

```
class node():
    def __init__(self, e):
        self.element = e
        self.leftchild = None
        self.rightchild = None
        self.root = None

class BST():
    def __init__(self):
        self.sz = 0
        self.root = None
        self.ht = 0
        self.inorderNodes = []

    def insert(self, v, e):
        if self.root == None:
            self.root = node(e)
        else:
            if v.element < e:
                if v.rightchild == None:
                    v.rightchild = node(e)
                else:
                    self.insert(v.rightchild, e)
            else:
                if v.leftchild == None:
                    v.leftchild = node(e)
                else:
```

```

        self.insert(v.leftchild, e)
    self.sz += 1

def inorderTraverse(self, v):
    if v == None:
        return None
    self.inorderTraverse(v.leftchild)
    self.inorderNodes.append(v.element)
    self.inorderTraverse(v.rightchild)

def minmax(self):
    self.inorderTraverse(self.root)

    length = len(self.inorderNodes)
    i = 0
    j = length-1

    while i < j:
        print(self.inorderNodes[i], end='->')
        print(self.inorderNodes[j], end='->')
        i += 1
        j -= 1

    if i == j:
        print(self.inorderNodes[i], end='->')

def build(self, arr):
    for i in arr:
        self.insert(self.root, i)

def main():
    size = int(input())
    arr = list(map(int, input().split()))
    bst = BST()
    bst.build(arr)
    size = int(input())
    for _ in range(size):
        command = input()
        if command == 'MINMAX':
            bst.minmax()
        else:
            bst.inorderTraverse(bst.root)

if __name__ == '__main__':
    main()

```

**Python File :**

Click Here:

<https://drive.google.com/file/d/1TpVwOBOso0h7Swvz4l375SwzsQgH40Kw/view?usp=sharing>