

Experiment4: Write a program to perform searching activity using Linear and Binary search.

CODE:

```
mylist = [1,3,6,8,10,15]
```

```
def linearsearch(mylist,x):
```

```
    for i in range(len(mylist)):
```

```
        if mylist[i]==x:
```

```
            return i
```

```
    return -1
```

```
def binarysearch(mylist,l,r,x):
```

```
    while l<r:
```

```
        mid = int(l+r)//2
```

```
        if mylist[mid]==x:
```

```
            return mid
```

```
        elif mylist[mid]<x:
```

```
            l = mid +1
```

```
        else:
```

```
            r = mid-1
```

```
    return -1
```

```
print(mylist)
```

```
while(1):
```

```
print('1. Linear Search')
print('2. Binary Search')
print('3. Exit')
c = int(input('Enter your choice: '))
if(c==1):
    x=int(input())
    print(mylist)
    ans=linearsearch(mylist,x)
    if(ans==-1):
        print('Element is not found')
    else:
        print('Element position is: ',ans)
elif(c==2):

    x=int(input())
    print(mylist)
    l=0
    r=len(mylist)-1
    ans=binarysearch(mylist,l,r,x)
    if(ans==-1):
        print('Element is not found')
    else:
        print('Element position is: ',ans)
```

```
elif(c==3):  
    print('Exit the program')  
    break;
```

OUTPUT:

```
[1, 3, 6, 8, 10, 15]  
1. Linear Search  
2. Bineary Search  
3. Exit  
Enter your choice: 1  
6  
[1, 3, 6, 8, 10, 15]  
Element position is: 2  
1. Linear Search  
2. Bineary Search  
3. Exit  
Enter your choice: 2  
10  
[1, 3, 6, 8, 10, 15]  
Element position is: 4  
1. Linear Search  
2. Bineary Search  
3. Exit  
Enter your choice: 3  
Exit the program
```