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Assignment on tuples and searching

Program 1

Q1. Complete all the shell functions and programs given in the material. Write down your observations(1 line each).

```
>>> x=(1,2,3,4)
>>> #creating a tuple
>>> print(type(x))
<class 'tuple'>
>>> #printing type of x
>>> print(x)
(1, 2, 3, 4)
#printing the tuple
>>> print(x[::-1])
(4, 3, 2, 1)
>>> #printing tuple in reverse order
>>> print(x.index(3))
2
>>>finding index of element in tuple
>>> print(max(x))
4
>>>finding max of all elements in tuple
>>> print(min(x))
1
>>>finding min of all elements in tuple
```

Q2. Write a program in Python to do searching either linear or binary. The choice will be provided by the user.

Program 2

```
print("Enter 1 for linear search")
print("Enter 2 for binary search")
n1 = int(input("Enter choice "))
if(n1 == 1):
    print("Enter list elements of integer
type")
    l = tuple(list(map(int, input().split())))
    n = int(input("Enter number you want to
search "))
    fl = -1
    for index, item in enumerate(l):
        if item == n:
            fl = index
            break
    if fl == -1:
        print(f"Number {n} not found")
    else:
        print(f"Number {n} found at {fl} index
")
elif(n1 == 2):
    from copy import deepcopy
    #for copying an array by value
    print("Enter list elements of integer
type")
    a=(list(map(int,input().split())))
```

```
    copy=deepcopy(a)
    n=int(input("Enter number you want to
search "))
    a.sort()
    fl=-1
    l=0
    h=len(a)-1
    while l<=h:
        mid=((l+h)>>1)
        if(a[mid]==n):
            fl=mid
            break
        elif(a[mid]>n):
            h=mid-1
        elif(a[mid]<n):
            l=mid+1

    if fl==-1:
        print("Number not found ")
    else:
        i=copy.index(a[fl])
        print(f"Number {n} found at index {i}
of original list ")



else:
    print("Wrong choice ")
```

Output for program 2

Enter 1 for linear search
Enter 2 for binary search
Enter choice 2
Enter list elements of integer type
-1 -8 0 5 2 9 10
Enter number you want to search 2
Number 2 found at index 4 of original list