Experiment 3.1

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Course :- CSE Section :- 709-A

Subject :- Programming in Python Subject Code :- 20CSP-259

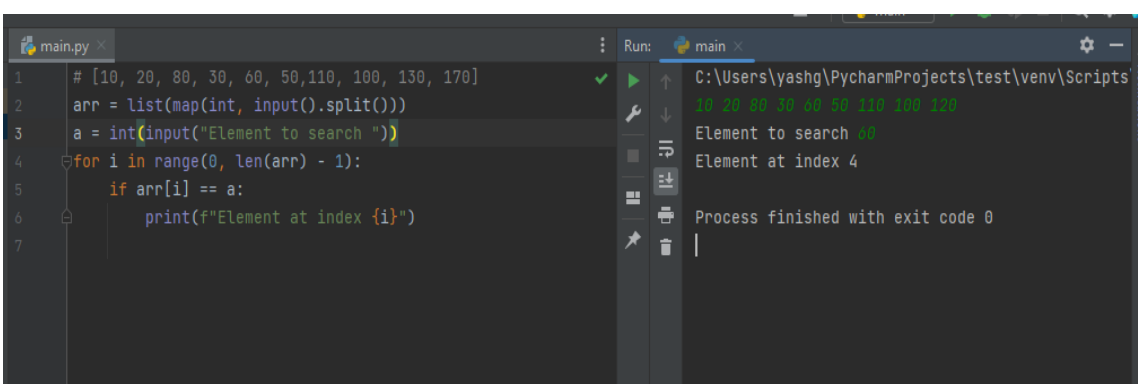
Aim:-

1. Python program to implement linear search.
2. Python program to implement bubble sort.
3. Python program to implement binary search without recursion.
4. Python program to implement selection sort.

Code:-

1.

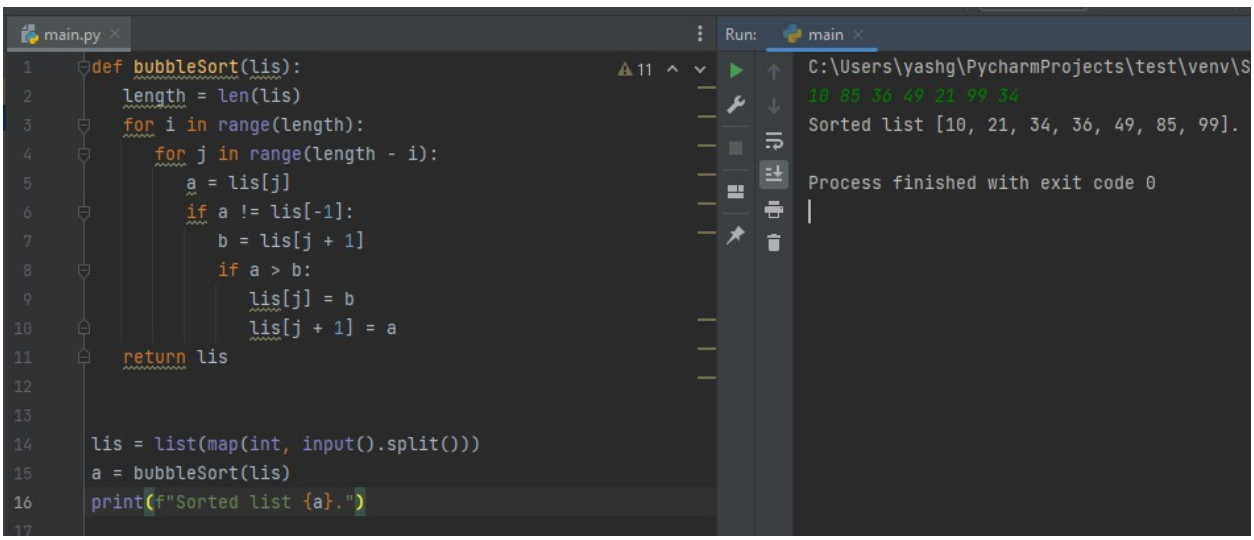
```
def linearsearch(arr, x):
  for i in range(len(arr)):
    if arr[i] == x:
      return i
  return -1
#[10, 20, 80, 30, 60, 50,110, 100, 130, 170]
arr=list(map(int,input().split()))
x = input("Element to search")
print(f"Element at index {linearsearch(arr,x)}")
```



2.

```
def bubbleSort(lis):
```

```
    length = len(lis)
    for i in range(length):
        for j in range(length - i):
            a = lis[j]
            if a != lis[-1]:
                b = lis[j + 1]
                if a > b:
                    lis[j] = b
                    lis[j + 1] = a
    return lis
lis=list(map(int,input().split()))
a=bubbleSort(lis)
print(f"Sorted list {a}.")
```



3.

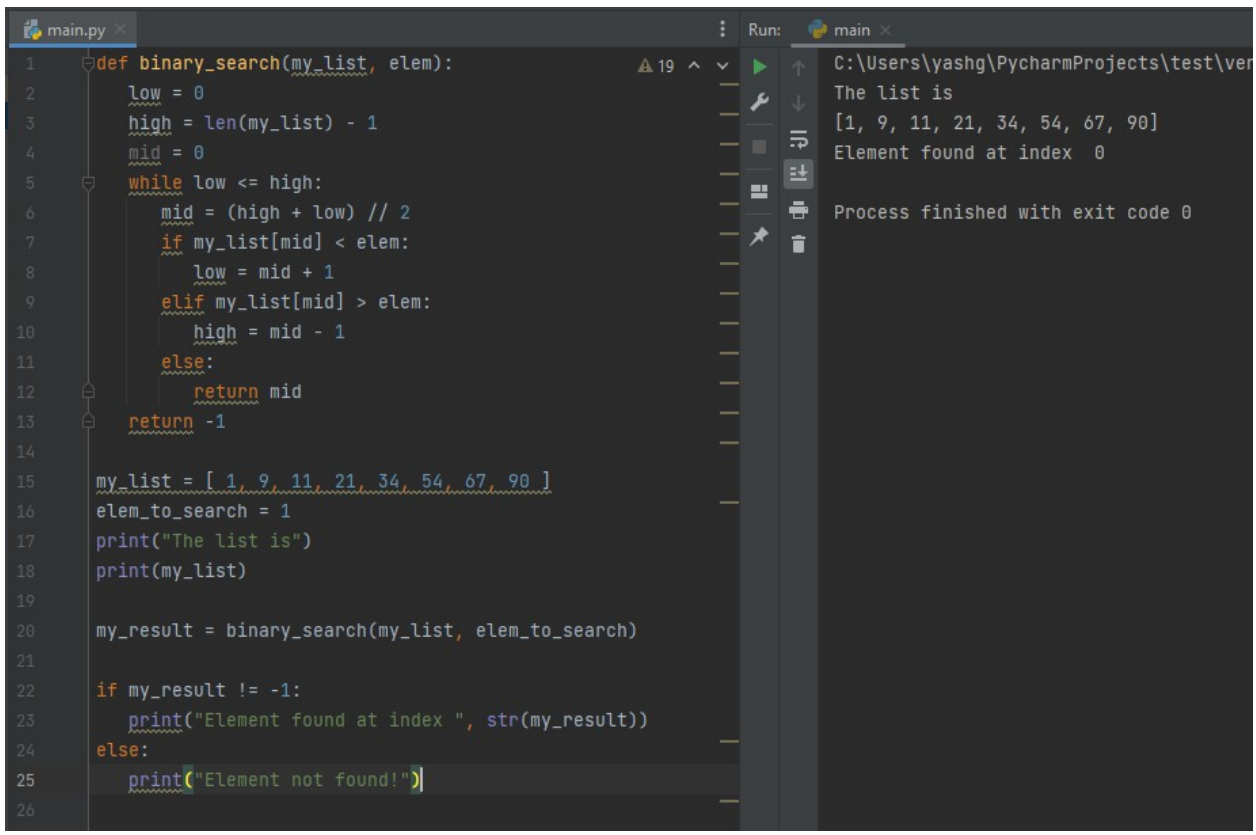
```
def binary_search(my_list, elem):
  low = 0
  high = len(my_list) - 1
  mid = 0
  while low <= high:
    mid = (high + low) // 2
    if my_list[mid] < elem:
      low = mid + 1
    elif my_list[mid] > elem:
      high = mid - 1
    else:
      return mid
  return -1

my_list = [ 1, 9, 11, 21, 34, 54, 67, 90 ]
```

```
elem_to_search = 1
print("The list is")
print(my_list)

my_result = binary_search(my_list, elem_to_search)

if my_result != -1:
  print("Element found at index ", str(my_result))
else:
  print("Element not found!")
```



4.

```
A = [64, 25, 12, 22, 11]

for i in range(len(A)):
  min_idx = i
  for j in range(i + 1, len(A)):
    if A[min_idx] > A[j]:
      min_idx = j

  A[i], A[min_idx] = A[min_idx], A[i]

print("Sorted array")
```

```
for i in range(len(A)):
  print("%d" % A[i], end=" ")
```