PRACTICAL NO: 9

Q) Write a program for implementation of linear search in python.

Code:

```
def linearSearch(array, n, x):
    for i in range(0, n):
        if (array[i] == x):
            return i
    return -1
array = [2, 4, 0, 1, 9]
x = 1
n = len(array)
result = linearSearch(array, n, x)
if(result == -1):
    print("Element not found")
else:
    print("Element found at index: ", result)
```

output:

```
Python 3.12.2 (tags/v3.12.2:6abddd9, Feb  6 2024, 21:26:36) [MSC v.1937 64 bit (
AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/fatim/OneDrive/ドキュメント/IDLE/ds10.py
Element found at index:  3
```

PRACTICAL NO: 10

Q) Write a program for implementation of binary search algorithm in python.

Code:

```
def binarySearch(array, x, low, high):
```

```
    while low <= high:

        mid = low + (high - low)//2

        if x == array[mid]:
            return mid

        elif x > array[mid]:
            low = mid + 1

        else:
            high = mid - 1

    return -1


array = [3, 4, 5, 6, 7, 8, 9]
x = 4

result = binarySearch(array, x, 0, len(array)-1)

if result != -1:
```

```
    print("Element is present at index " + str(result))
else:
    print("Not found")
```

output:

```
Python 3.12.2 (tags/v3.12.2:6abddd9, Feb  6 2024, 21:26:36) [MSC v.1937 64 bit (
AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
============== RESTART: C:/Users/fatim/OneDrive/ドキュメント/IDLE/ds9.py ========
=====
Element is present at index 1
```