

Linear & Binary Search

1. Write a Python program for linear search.

Sample Test Data :

Sequential_Search([11,23,58,31,56,77,43,12,65,19],31) -> (True, 3)

```
[22] arr = [11, 23, 58, 31, 56, 77, 43, 12, 65, 19]
      target = 31
      def linear_search(arr,target):
          for i in range(len(arr)):
              if arr[i] == target:
                  print((True, i))
                  return
          print("not found")

      linear_search(arr,target)

      (True, 3)
```

```
[23] arr = [11, 23, 58, 31, 56, 77, 43, 12, 65, 19]
      target = 3
      def linear_search(arr,target):
          for i in range(len(arr)):
              if arr[i] == target:
                  print((True, i))
                  return
          print("not found")

      linear_search(arr,target)

      not found
```

2. Write a Python program for binary search.

Sample Test Data:

binary_search([1,2,3,5,8], 6) -> False

binary_search([1,2,3,5,8], 5) -> True

```
def binary_search(arr, target):
    low = 0
    high = len(arr) - 1

    while low <= high:
        mid = (low + high) // 2

        if arr[mid] == target:
            return True
        elif arr[mid] < target:
            low = mid + 1
        else:
            high = mid - 1
    return False

print(binary_search([1, 2, 3, 5, 8], 6))
print(binary_search([1, 2, 3, 5, 8], 5))
```

```
05 [37] def binary_search(arr, target):  
    low = 0  
    high = len(arr) - 1  
  
    while low <= high:  
        mid = (low + high) // 2  
  
        if arr[mid] == target:  
            return True  
        elif arr[mid] < target:  
            low = mid + 1  
        else:  
            high = mid - 1  
  
    return False  
  
print(binary_search([1, 2, 3, 5, 8], 6))  
print(binary_search([1, 2, 3, 5, 8], 5))
```

False
True