Practice 04:

Implementation of Interpolation Search in Python

Code:

# If x is present in arr[0..n-1], then returns index of it, else returns -1.

def interpolationSearch(arr, lo, hi, x):

# Since array is sorted, an element present in array must be in range defined by corner

if (lo <= hi and x >= arr[lo] and x <= arr[hi]):

# Probing the position with keeping uniform distribution in mind.

pos = lo + ((hi - lo) // (arr[hi] - arr[lo]) \*

(x - arr[lo]))

# Condition of target found

if arr[pos] == x:

return pos

# If x is larger, x is in right subarray

if arr[pos] < x:

return interpolationSearch(arr, pos + 1, hi, x)

# If x is smaller, x is in left subarray

if arr[pos] > x:

return interpolationSearch(arr, lo, pos - 1, x)

return -1

# Main Function

arr = [10, 12, 13, 16, 18, 19, 20,

21, 22, 23, 24, 33, 35, 42, 47]

n = len(arr)

x = 18

index = interpolationSearch(arr, 0, n - 1, x)

if index != -1:

print("Element found at index", index)

else:

print("Element not found")