Practice 03:

Implementation of Exponential Search in python

Code:

def binarySearch( arr, l, r, x):

if r >= l:

mid = l + ( r-l ) // 2

# If the element is present at the middle itself

if arr[mid] == x:

return mid

# If the element is smaller than mid, then it can only be present in the left subarray

if arr[mid] > x:

return binarySearch(arr, l,

mid - 1, x)

# Else he element can only be present in the right

return binarySearch(arr, mid + 1, r, x)

# We reach here if the element is not present

return -1

def exponentialSearch(arr, n, x):

# IF x is present at first location itself

if arr[0] == x:

return 0

i = 1

while i < n and arr[i] <= x:

i = i \* 2

return binarySearch( arr, i // 2,

min(i, n-1), x)

# Main Function

arr = [2, 3, 4, 10, 40]

n = len(arr)

x = 10

result = exponentialSearch(arr, n, x)

if result == -1:

print ("Element not found in the array")

else:

print ("Element is present at index %d" %(result))