AKSHAT KUMAR
20MIS0183

ACTIVITY 1.35

Q1. 1) Write a python program to solve the following requirements.

a. Read unsorted 'n' integers using input () and store them in a list (say list_numbers). Minimum size of the list_numbers should be 10.

b. Print the list_numbers on the screen.

c. Read a number (say number_to_be_searched) using input().

d. Perform 'linear search' to find whether the number_to_be_searched is present or not in list_numbers.

e. Print the suitable result

i. The searched element (print the actual value) is PRESENT in list_number.

(or)

ii. The searched element (print the actual value) is NOT PRESENT in list_number.

f. Count the number of comparisons and print it.

g. Run the same program for different number_to_be_searched and record the outputs.

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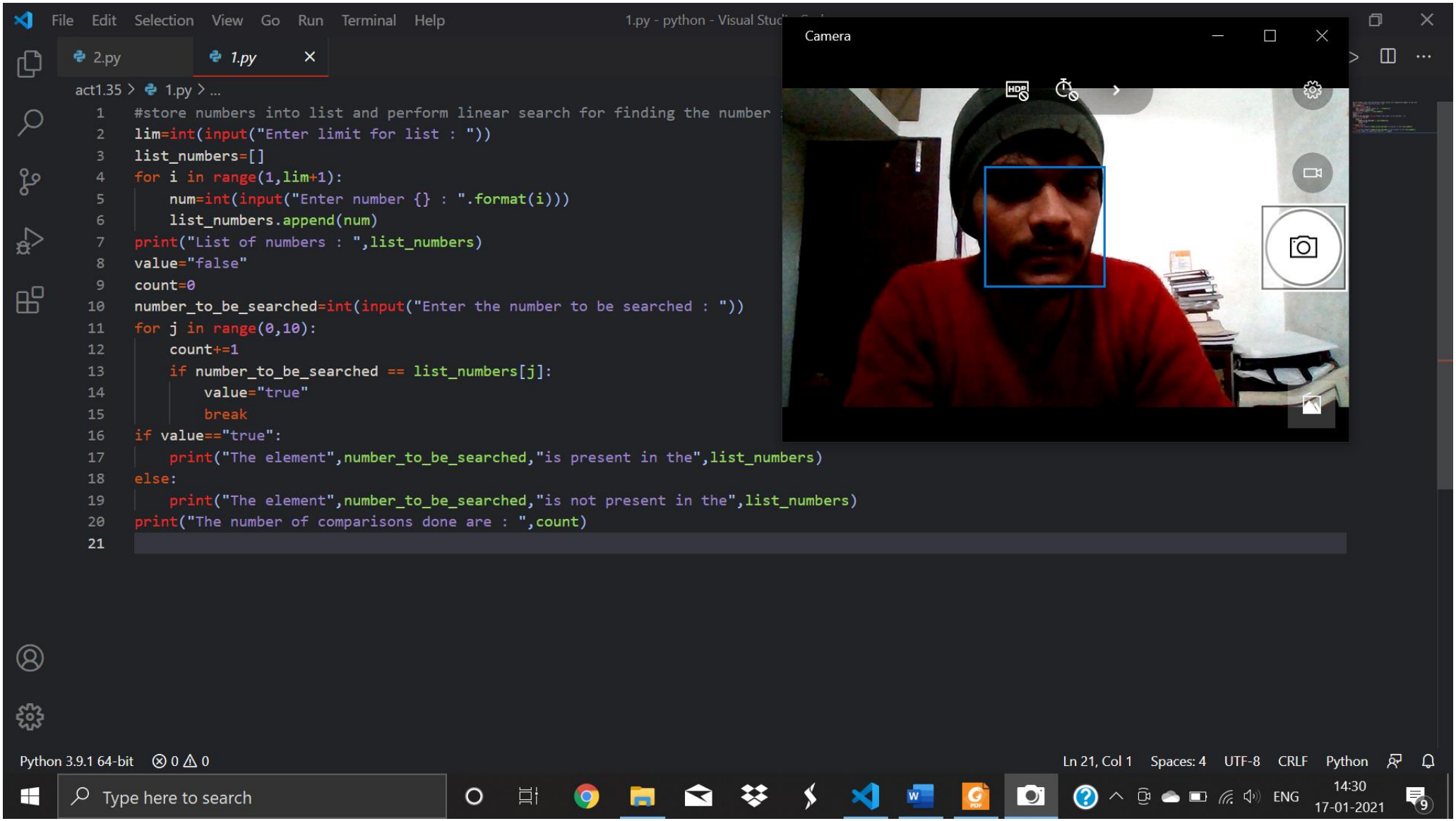
#code screenshot



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#code

```
#store numbers into list and perform linear search for finding the number in the list
lim=int(input("Enter limit for list : "))
list_numbers=[]
for i in range(1,lim+1):
    num=int(input("Enter number {} : ".format(i)))
    list_numbers.append(num)
print("List of numbers : ",list_numbers)
value="false"
count=0
number_to_be_searched=int(input("Enter the number to be searched : "))
for j in range(0,10):
    count+=1
    if number_to_be_searched == list_numbers[j]:
        value="true"
        break
if value=="true":
    print("The element",number_to_be_searched,"is present in the",list_numbers)
else:
    print("The element",number_to_be_searched,"is not present in the",list_numbers)
print("The number of comparisons done are : ",count)
```

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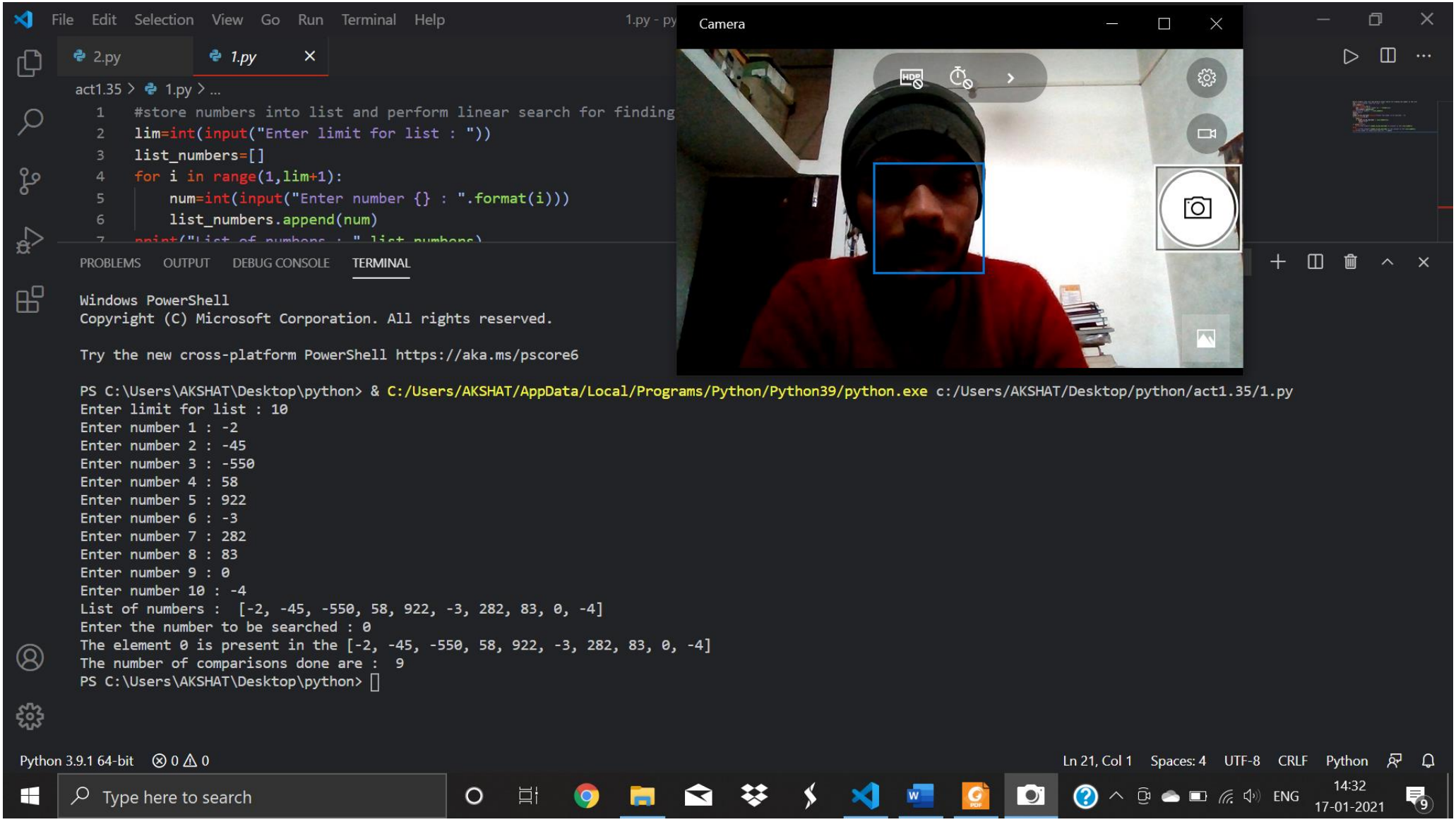
#output screenshot 1



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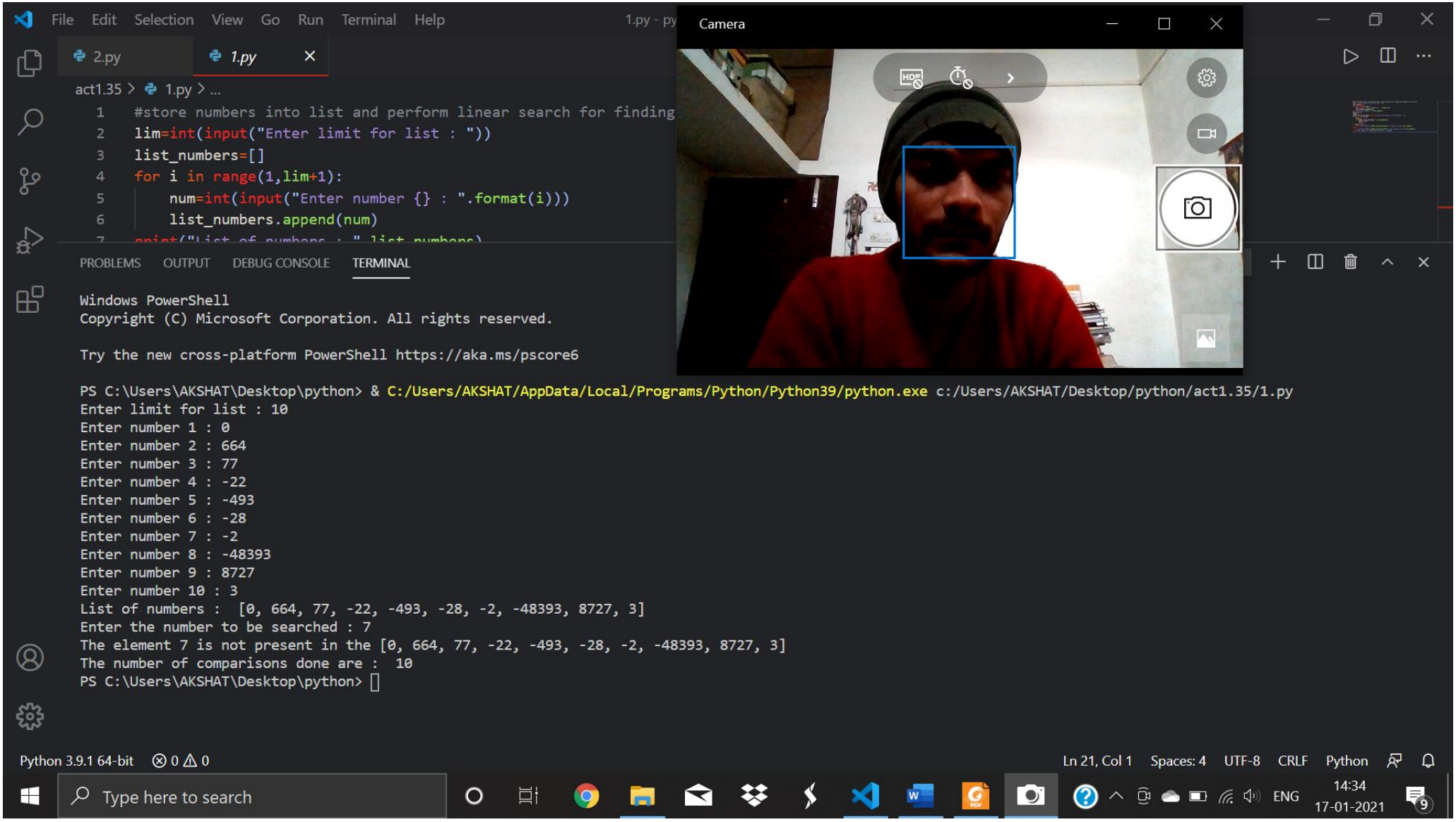
#output screenshot 2



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Q2. Write a python program to solve the following requirements.

a. Read sorted 'n' integers using input () and store them in a list (say list_numbers). Minimum size of the list_numbers should be 10.
b. Print the list_numbers on the screen.
c. Read a number (say number_to_be_searched) using input().
d. Perform 'binary search' to find whether the number_to_be_searched is present or not in list_numbers.
e. Print the suitable result

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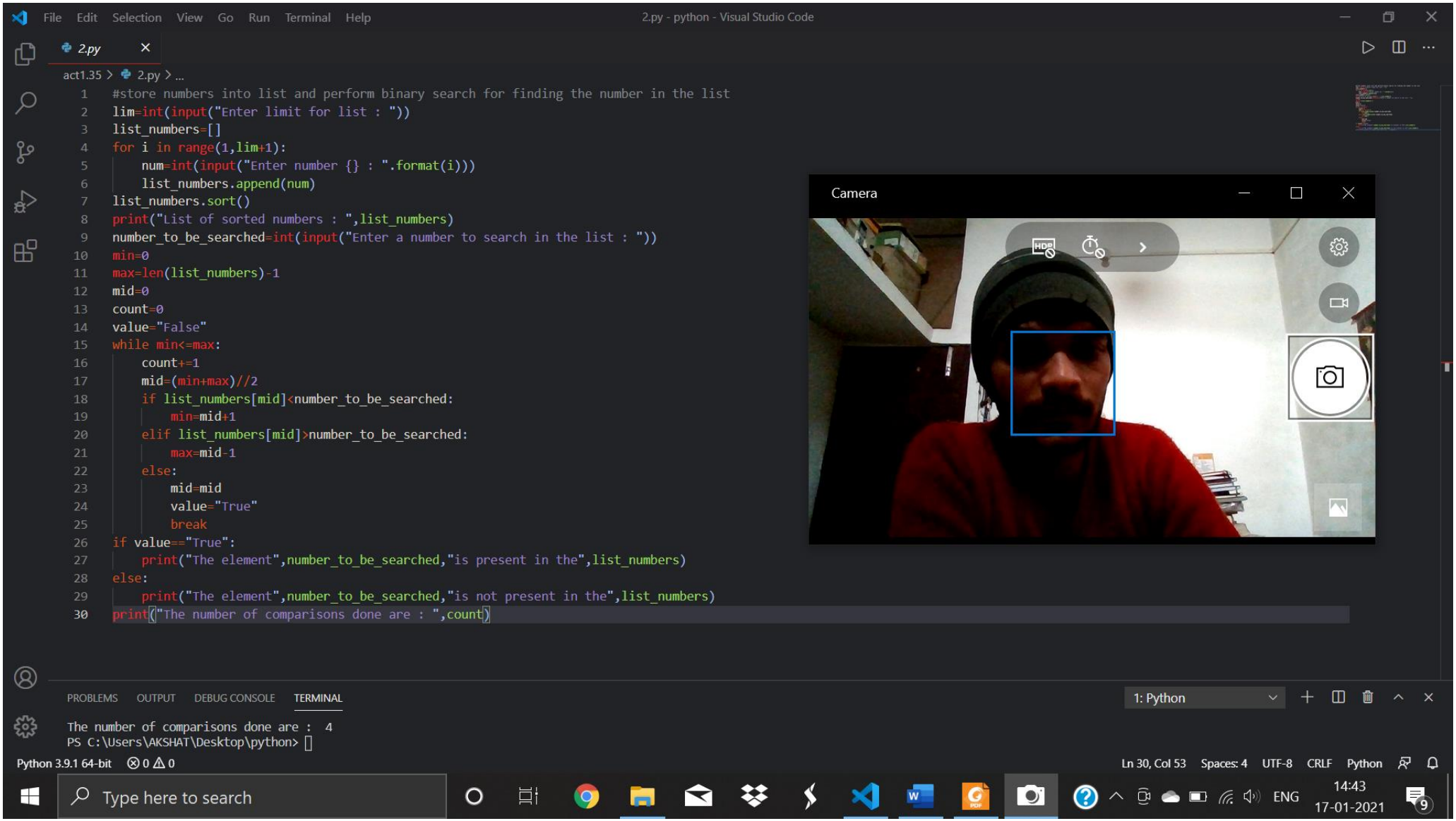
#code screenshot



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#code

```
#store numbers into list and perform binary search for finding the number in the list
lim=int(input("Enter limit for list : "))
list_numbers=[]
for i in range(1,lim+1):
    num=int(input("Enter number {} : ".format(i)))
    list_numbers.append(num)
list_numbers.sort()
print("List of sorted numbers : ",list_numbers)
number_to_be_searched=int(input("Enter a number to search in the list : "))
min=0
max=len(list_numbers)-1
mid=0
count=0
value="False"
while min<=max:
    count+=1
    mid=(min+max)//2
    if list_numbers[mid]<number_to_be_searched:
        min=mid+1
    elif list_numbers[mid]>number_to_be_searched:
        max=mid-1
    else:
        mid=mid
        value="True"
        break
if value=="True":
    print("The element",number_to_be_searched,"is present in the",list_numbers)
else:
    print("The element",number_to_be_searched,"is not present in the",list_numbers)
print("The number of comparisons done are : ",count)
```

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#output screenshot