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ROLL NUMBER: 546

COURSE: MSc CS

SUBJECT: BIOINFORMATICS

TOPIC: SIMILARITY BETWEEN TWO PROTEIN SEQUENCE

Practical No: 3

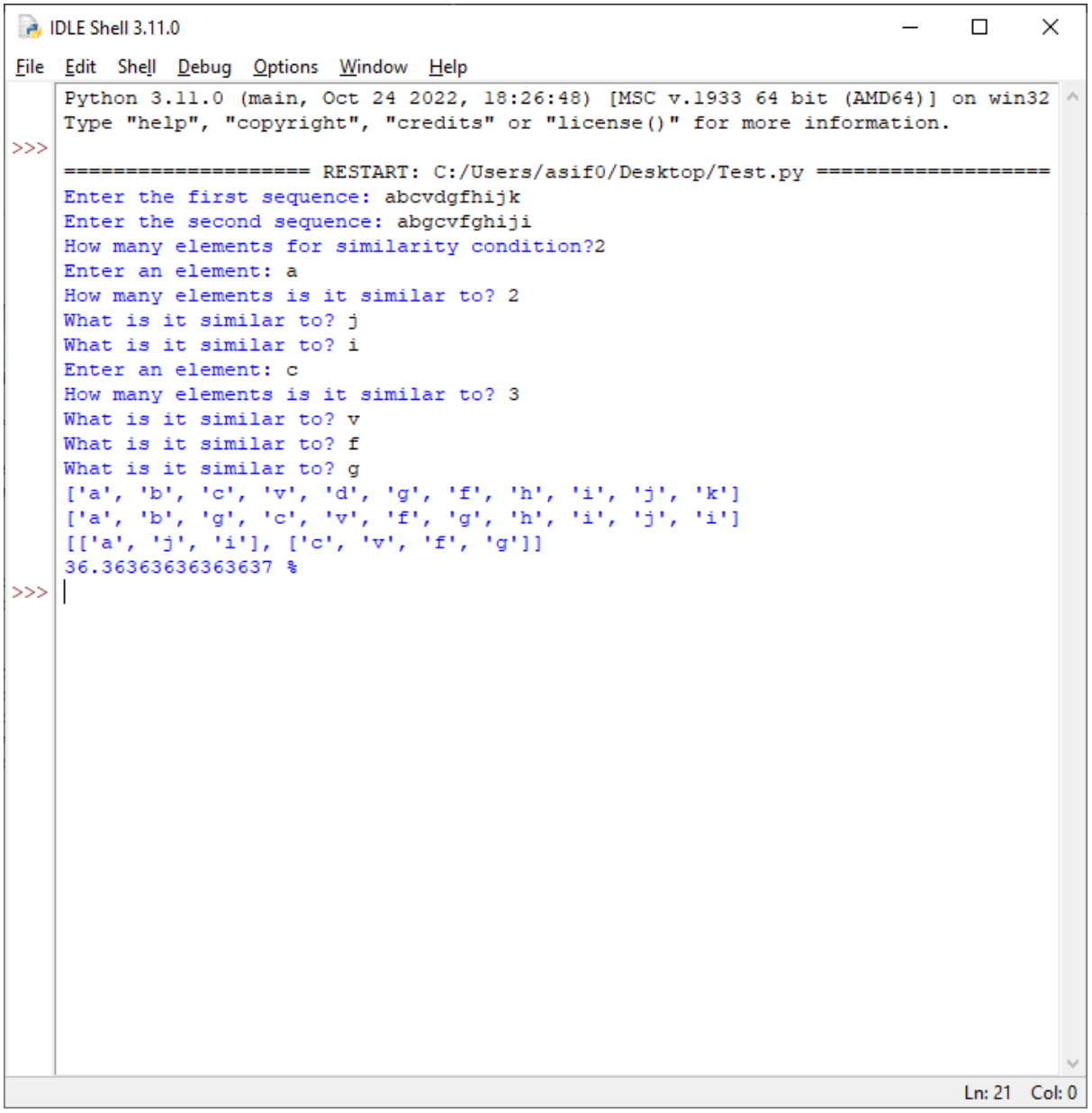
Aim: Write a Python/Java code to find the Similarity value of a given sequences. Take the sequence from user.

Code:

```
sequence_one=input("Enter the first sequence: ")
sequence_two=input("Enter the second sequence: ")
how_many=int(input("How many elements for similarity condition?"))
similarities=[]
for i in range(0,how_many):
    a=input("Enter an element: ")
    c=int(input("How many elements is it similar to? "))
    similarities.append([])
    similarities[i].append(a)

    for j in range(0,c):
        b=input("What is it similar to? ")

        similarities[i].append(b)

def compare(o,t,s):
    print(o)
    print(t)
    print(s)
    #checking if similar
    score=0
    for i in range(len(o)):
        for j in range(len(s)):
```

```
        if o[i] in s[j] and t[i] in s[j] and o[i] != t[i]:
            score+=1
    #calculating similarity
    similarity= (score*100)/len(o)
    return similarity


print(compare(list(sequence_one),list(sequence_two),similarities),"%")
```

OUTPUT:


IDLE Shell 3.11.0
File Edit Shell Debug Options Window Help
Python 3.11.0 (main, Oct 24 2022, 18:26:48) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:/Users/asif0/Desktop/Test.py ==========
Enter the first sequence: abcvdgfhijk
Enter the second sequence: abgcvfghiji
How many elements for similarity condition?2
Enter an element: a
How many elements is it similar to? 2
What is it similar to? j
What is it similar to? i
Enter an element: c
How many elements is it similar to? 3
What is it similar to? v
What is it similar to? f
What is it similar to? g
['a', 'b', 'c', 'v', 'd', 'g', 'f', 'h', 'i', 'j', 'k']
['a', 'b', 'g', 'c', 'v', 'f', 'g', 'h', 'i', 'j', 'i']
[['a', 'j', 'i'], ['c', 'v', 'f', 'g']]
36.36363636363637 %
>>>
Ln: 21 Col: 0