Tool & Technique Laboratory (T&T Lab.)
[CS-3096]
Individual Work
Lab. No:4 , Date: 7/02/2023 , Day: 4
Topic: Python basics

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Program No: (4.1)

Original Program:
Python program to interchange first and second elements in a list.

Modified Program Title:
Python program to interchange first and last elements in a list.

Input/Output Screenshots:
RUN-1:

RUN-2

Source code

```
def swapList(newList):
        size = len(newList)
        temp = newList[0]
        newList[0] = newList[size - 1]
        newList[size - 1] = temp

        return newList

newList = [12, 35, 9, 56, 24]
print("Original list-->",newList)
print(swapList(newList))
```

Conclusion/Observation

We have successfully interchanged first and last number.

Program No: (4.2)

Original Program:
Sum of all numbers in the list.

Modified Program Title:
Multiply all numbers in the list

Input/Output Screenshots:
RUN-1:

RUN-2

Source code

```
def multiplyList(myList):

        result = 1
        for x in myList:
                result = result * x
        return result

list1 = [9, 2, 5]
list2 = [11, 22, 33]
print(multiplyList(list1))
print(multiplyList(list2))
```

Conclusion/Observation

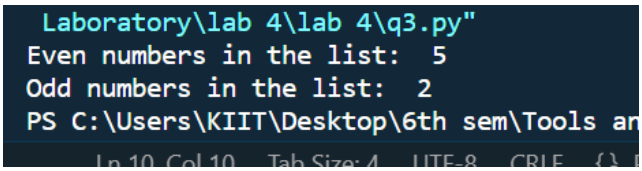
We have successfully calculated product of all the numbers in the set.

Program No: (4.3)

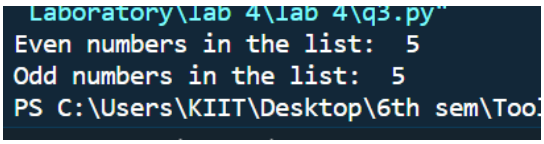
Original Program:
program to count Even numbers in a List.

Modified Program Title:
program to count Even and Odd numbers in a List

Input/Output Screenshots:
RUN-1:



RUN-2



Source code

```
list1 = [9, 8, 4, 11, 6, 56, 2]

even_count, odd_count = 0, 0

for num in list1:

        if num % 2 == 0:
                even_count += 1

        else:
                odd_count += 1

print("Even numbers in the list: ", even_count)
print("Odd numbers in the list: ", odd_count)
```

Conclusion/Observation

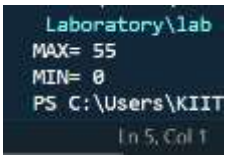
We have successfully calculated number of odd and even numbers

Program No: (4.4)

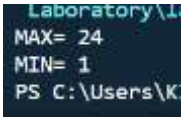
Original Program:
Maximum in a Set.

Modified Program Title:
Maximum and Minimum in a Set.

Input/Output Screenshots:
RUN-1:



RUN-2



Source code

```
sets = set([8, 16, 24, 1, 25, 3, 10, 65, 55])
print("MAX=",max(sets))
print("MIN=",min(sets))
```

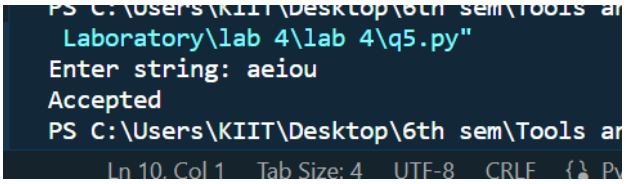
Conclusion/Observation

We have successfully printed max and min number in a set.

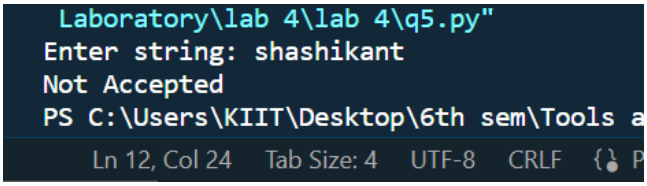
Program No: (4.5)

Original Program:
Program to accept a vowel.
Modified Program Title:
Program to accept the strings which contains all vowels

Input/Output Screenshots:
RUN-1:



RUN-2



Source code

```
def check(string) :
        string = string.lower()

        vowels = set("aeiou")

        s = set({})

        for char in string :

                if char in vowels :
                        s.add(char)
                else:
                        pass

        if len(s) == len(vowels) :
                print("Accepted")
        else :
                print("Not Accepted")

if __name__ == "__main__" :

   string = str(input("Enter string: "))
   check(string)
```

Conclusion/Observation

Succefully accepted a string of all vowels

Program No: (4.6)

Original Program:

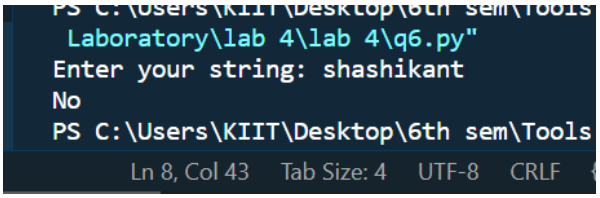
Check if a given string is containing any 0 or 1.

Modified Program Title:

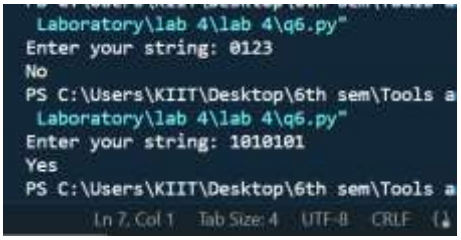
Check if a given string is binary string or not

Input/Output Screenshots:

RUN-1:



RUN-2



Source code

```
def check(string):

        p = set(string)

        s = {'0', '1'}

        if s == p or p == {'0'} or p == {'1'}:
                print("Yes")
        else:
                print("No")

if __name__ == "__main__":

        string = str(input("Enter your string: "))

        check(string)
```

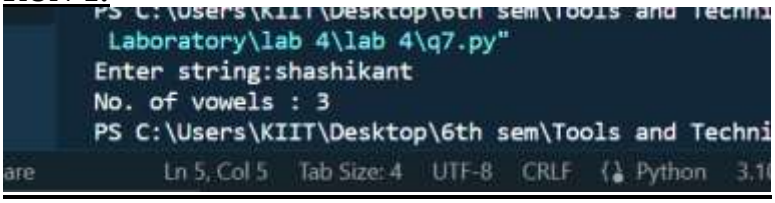
Conclusion/Observation

We have successfully checked if the string is binary or not.

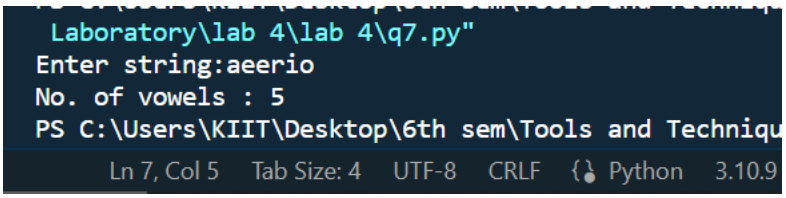
Program No: (4.7)

Original Program:
program to count number of alphabets using sets in a given string.
Modified Program Title:
program to count number of vowels using sets in given string

Input/Output Screenshots:
RUN-1:



RUN-2



Source code

```
def vowel_count(str):
        count = 0
        vowel = set("aeiouAEIOU")
        for alphabet in str:
                if alphabet in vowel:
                        count = count + 1
        print("No. of vowels :", count)
string = str(input("Enter string:"))

vowel_count(string)
```

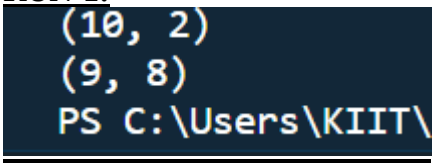
Conclusion/Observation

We have successfully counted total vowels

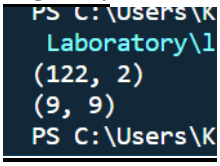
Program No: **(**4.8)

Original Program:
Swap two numbers in a tuple.
Modified Program Title:
Swap two tuples in Python

Input/Output Screenshots:
RUN-1:



RUN-2:



Source code

```
tuple1 = (10, 2)
tuple2 = (9, 8)
tuple1, tuple2 = tuple2, tuple1
print(tuple2)
print(tuple1)
```

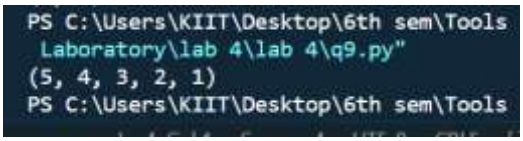
Conclusion/Observation

We have successfully swapped two tupples.

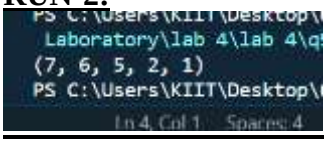
Program No: (4.9)

Original Program:
Print the tuple
Modified Program Title:
Reverse the tuple

Input/Output Screenshots:
RUN-1:



RUN-2:



Source code

```
tuple1 = (1, 2, 3, 4, 5)
tuple1 = tuple1[::-1]
print(tuple1)
```

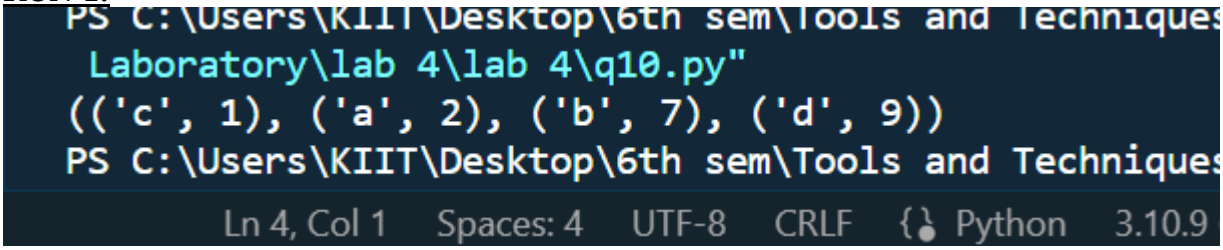
Conclusion/Observation

We have successfully reversed the tuple

Program No: (4.10)

Original Program:
Sort the tuple
Modified Program Title:
Sort a tuple of tuples by 2nd item

Input/Output Screenshots:
RUN-1:



RUN-2:

```
In [30]: runfile('C:/Users/Aryan Raj/Desktop/t&tlab/lab4/untitled10.py', wdir='C:/Users/Aryan Raj/
Desktop/t&tlab/lab4')
(('c', 1), ('a', 2), ('b', 7), ('d', 9))
```

Source code

```
tuple1 = (('a', 2), ('b', 7), ('c', 1), ('d', 9))
tuple1 = tuple(sorted(list(tuple1), key=lambda x: x[1]))
print(tuple1)
```

Conclusion/Observation

We have sorted in the required order.

Program No: (4.11)

Original Program:
Print two Dictionaries in sorted order
Modified Program Title:
Merging two Dictionaries

Input/Output Screenshots:
RUN-1:

```
In [31]: runfile('C:/Users/Aryan Raj/Desktop/t&tlab/lab4/untitled11.py', wdir='C:/Users/Aryan Raj/
Desktop/t&tlab/lab4')
None
After merging= {'d': 6, 'c': 4, 'a': 10, 'b': 8}
```

RUN-2:

```
In [32]: runfile('C:/Users/Aryan Raj/Desktop/t&tlab/lab4/untitled11.py', wdir='C:/Users/Aryan Raj/
Desktop/t&tlab/lab4')
None
After merging= {'d': 3, 'c': 4, 'a': 1, 'b': 88}
```

Source code

```
def Merge(dict1, dict2):
        return(dict2.update(dict1))

dict1 = {'a': 1, 'b': 88}
dict2 = {'d': 3, 'c': 4}

print(Merge(dict1, dict2))

print("After merging=" ,dict2)
```

Conclusion/Observation

We have merged two dictionaries.

Program No: (4.12)

Original Program:
Print all keys
Modified Program Title:
Key with maximum unique values

Input/Output Screenshots:
RUN-1:

```
In [33]: runfile('C:/Users/Aryan Raj/Desktop/t&tlab/lab4/untitled12.py', wdir='C:/Users/Aryan Raj/
Desktop/t&tlab/lab4')
The original dictionary is : {'Gfg': [5, 7, 5, 4, 5], 'is': [6, 7, 4, 3, 3], 'Best': [9, 9, 6, 5, 5]}
Key with maximum unique values : is
```

Source code

```
test_dict = {"Gfg" : [5, 7, 5, 4, 5],
                        "is" : [6, 7, 4, 3, 3],
                        "Best" : [9, 9, 6, 5, 5]}

print("The original dictionary is : " + str(test_dict))

max_val = 0
max_key = None
for sub in test_dict:

    if len(set(test_dict[sub])) > max_val:
            max_val = len(set(test_dict[sub]))
            max_key = sub

print("Key with maximum unique values : " + str(max_key))
```

Conclusion/Observation

We have printed keys with max unique values.

Program No: (4.13)

Original Program:
Remove words from Dictionary
Modified Program Title:
Replace words from Dictionary

Input/Output Screenshots:
RUN-1:

```
In [35]: runfile('C:/Users/Aryan Raj/Desktop/t&tlab/lab4/untitled13.py', wdir='C:/Users/Aryan Raj/
Desktop/t&tlab/lab4')
The original string is : Hello how are you i am fine
Replaced Strings : Hello how replaced1 you i am replaced2
```

Source code

```
test_str = 'Hello how are you i am fine'

print("The original string is : " + str(test_str))

lookp_dict = {"are" : "replaced1", "fine" : "replaced2"}

temp = test_str.split()
res = []
for wrd in temp:
    res.append(lookp_dict.get(wrd, wrd))

res = ' '.join(res)

print("Replaced Strings : " + str(res))
```

Conclusion/Observation

We have replaced values from dictionary