Computer Programming Laboratory

B.Tech. 1st Semester

Name : **SUBHENDU MAJI**

Roll Number : **18ETCS002121**

Department : **Computer Science and Engineering**

Faculty of Engineering & Technology

Ramaiah University of Applied Sciences

Ramaiah University of Applied Sciences

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Faculty	Engineering & Technology
Programme	B. Tech. in Computer Science and Engineering
Year/Semester	1st Year / 1st Semester
Name of the Laboratory	Computer Programming Laboratory
Laboratory Code	18ESL109A

List of Experiments

1. Introduction to Python programming environment
2. Variables, data types, operators and expressions
3. Input output operations
4. Logic operations and decision making
5. Loop statements
6. Character and string operations
7. Functions
8. File handling
9. Data structures
10. Libraries

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Index Sheet

No.	Lab Experiment	Performing the experiment (7)	Document (7)	Viva (6)	Total Marks (20)
1	Introduction to Python programming environment				
2	Variables, data types, operators and expressions				
3	Input output operations				
4	Logic operations and decision making				
5	Loop statements				
6	Character and string operations				
7	Functions				
8	File handling				
9	Data structures				
10	Libraries				
11	Lab Internal Test conducted along the lines of SEE and valued for 50 Marks and reduced for 20 Marks				
	Total Marks				

Lab Internal Marks =

Signature of the Staff In-charge

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Laboratory 6

Title of the Laboratory Exercise: Character and String operations

1. Introduction and Purpose of Experiment

   A string is a sequence of characters. Strings can be manipulated using a number of built in functions. By solving this, students will be able to manipulate string data types.

2. Aim and Objectives

   Aim

   - To develop programs for manipulating characters and strings

   Objectives

   At the end of this lab, the student will be able to

   - Create programs to perform string operations
   - Create programs to manipulate strings using built in functions

3. Experimental Procedure

   i. Analyse the problem statement
   ii. Design an algorithm for the given problem statement and develop a flowchart/pseudo-code
   iii. Implement the algorithm in Python language
   iv. Execute the Python program
   v. Test the implemented program
   vi. Document the Results
   vii. Analyse and discuss the outcomes of the experiment

4. Questions

   a. Write a program to check each character in the given string is an alphabet or digit
   b. Write a program to find the length of the given string without using built in function. Apply the *len()* on the same string and verify the result.
   c. Write a program to count the numbers of occurrences of characters in the given string and store them in a dictionary

5. Calculations/Computations/Algorithms

5.1 Algorithm of program to check each character in the given string is an alphabet or digit

Step1: start

Step2: input the string from the user

Step3: using the in-built functions isalpha() and isdigit() , alphabet and digit can be printed respectively

Step4: stop

5.2 Algorithm of program to find the length of the given string without using built in function and apply the *len()* on the same string.

Step1: start

Step2: read the string a from the user

Step3: count:=0

Step4: for i in a:

count :=count+1

step5: write the value of count, and value of len(a)

Step4: stop

5.3 Algorithm of program to count the numbers of occurrences of characters in the given string and store them in a dictionary

Step1: start

Step2: read a string from the user

Step3: declare an empty dictionary d

Step4: for i in string:

count : = string.count(i)

d[i] : = count

step5: write d

step6: stop

6. Presentation of Results

```
#this program is built by SUBHENDU MAJI
a=input("Enter the string:")
for i in a:
    if i.isalpha():
        print(i," is alphabet")
    elif i.isdigit():
        print(i, " is digit")
    else:
        print(i, " is special character")

```

Messages | Python Shell | Debug I/O

Debug I/O (stdin, stdout, stderr) appears below

```
Enter the string:mina123!@#
m  is alphabet
i  is alphabet
n  is alphabet
a  is alphabet
1  is digit
2  is digit
3  is digit
!  is special character
@  is special character
#  is special character
```

Figure 1 program to check each character in the given string is an alphabet or digit

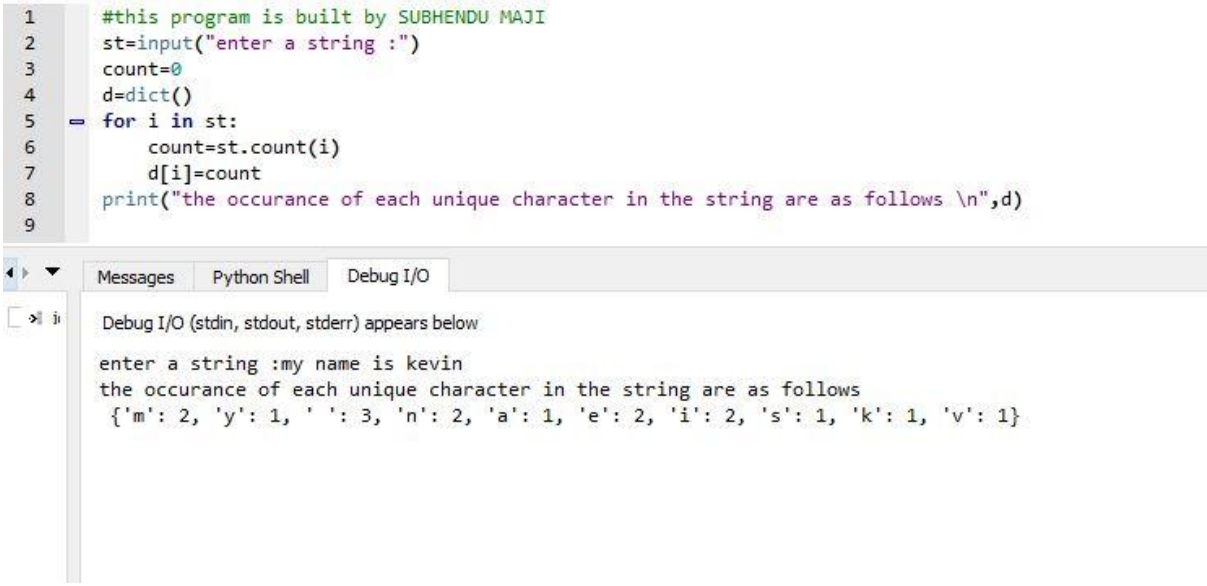
```
#this program is built by SUBHENDU MAJI
a=input("Enter the string: ")
count=0
for i in a:
    count+=1
print("length of string without using built in function is  ",count)
print("lenghth of string using built in function is ",len(a))

```

Messages | Python Shell | Debug I/O

Debug I/O (stdin, stdout, stderr) appears below

```
Enter the string: moonlight
length of string without using built in function is   9
lenghth of string using built in function is  9
```

Figure 2 program to find the length of the given string without using built in function. and applying the len() on the same string



```
#this program is built by SUBHENDU MAJI
st=input("enter a string :")
count=0
d=dict()
for i in st:
    count=st.count(i)
    d[i]=count
print("the occurance of each unique character in the string are as follows \n",d)
```

```
Messages  Python Shell  Debug I/O
Debug I/O (stdin, stdout, stderr) appears below
enter a string :my name is kevin
the occurance of each unique character in the string are as follows
 {'m': 2, 'y': 1, ' ': 3, 'n': 2, 'a': 1, 'e': 2, 'i': 2, 's': 1, 'k': 1, 'v': 1}
```

Figure 3 program to count the numbers of occurrences of characters in the given

7. Analysis and Discussions

7.1 program to check each character in the given string is an alphabet or digit

Program takes a string input from the user and every letter is compared if it is digit or alphabet by using in-built functions isdigit() and isalpha() . then it prints them accordingly.

7.2 program to find the length of the given string without using built in function. Apply the *len()* on the same string and verify the result.

Program take a string input from the user and each element is counted using a for-loop. and prints it

7.3 program to count the numbers of occurrences of characters in the given string and store them in a dictionary

Program takes a string input from the user .and an empty dictionary is declared. Using the for-loop each element is repeated or not. If yes, count is incremented.

8. Conclusions

It can be concluded that program using string function is understood.

9. Comments

1. Limitations of Results

I think there is no limitations in these program.