

In this module learning outcomes are:

1. Python Program to Calculates/Count the Number of Vowels in a String
2. Python Program to Calculate/Count the Number of Words and the Number of characters present in a String
3. Python Program to Calculate/Count the Number of Digits, Alphabets and special characters in a String

1. Python Program to Count the Number of Vowels in a String

This is a Python Program to count the number of vowels in a string.

Problem Description

The program takes a string and counts the number of vowels in a string.

Problem Solution

1. Take a string from the user and store it in a variable.
2. Initialize a count variable to 0.
3. Use a for loop to traverse through the characters in the string.
4. Use an if statement to check if the character is a vowel or not and increment the count variable if it is a vowel.
5. Print the total number of vowels in the string.
6. Exit.

Program/Source Code Here is source code of the Python Program to counts the number of vowels in a string. The program output is also shown below.

```
# Program to Count the Number of Vowels in a String
string=input("Enter string:")
vowels=0
for i in string:
    if(i=='a' or i=='e' or i=='i' or i=='o' or i=='u' or i=='A' or i=='E' or i=='I' or i=='O'
or i=='U'):
        vowels=vowels+1
print("Number of vowels are:")
print(vowels)
```

Program Explanation

1. User must enter a string and store it in a variable.
2. The count variable i.e vowels is initialized to zero.
3. The for loop is used to traverse through the characters in the string.
4. An if statement checks if the character is a vowel or not.
5. The count is incremented each time a vowel is encountered.
6. The total count of vowels in the string is printed.

Runtime Test Cases

Case 1:

Enter string:Hello world

Number of vowels are:

3

Case 2:

Enter string:WELCOME

Number of vowels are:

3

2. Python Program to Calculate the Number of Words and the Number of Characters Present in a String

This is a Python Program to calculate the number of words and characters present in a string.

Problem Description

The program takes a string and calculates the number of words and characters present in the string.

Problem Solution

1. Take a string from the user and store it in a variable.
2. Initialize the character count variable to 0 and the word count variable to 1.
3. Use a for loop to traverse through the characters in the string and increment the character count variable each time.
4. Increment the word count variable only if a space is encountered.
5. Print the total count of the characters and words in the string.
6. Exit.

Program/Source Code

Here is source code of the Python Program to calculate the number of words and characters present in a string. The program output is also shown below.

“Program to Calculate the Number of Words and the Number of Characters Present in a String”

```
string=input("Enter string:")
char=0
word=1
for i in string:
    char=char+1
    if(i==' '):
        word=word+1
print("Number of words in the string:")
print(word)
print("Number of characters in the string:")
print(char)
```

Program Explanation

1. User must enter a string and store it in a variable.i.e string.
2. The character count variable is initialized to zero and the word count variable is initialized to 1 (to account for the first word).
3. The for loop is used to traverse through the characters in the string.
4. The character count is incremented each time a character is encountered and the word count is incremented only when a space is encountered.
6. The total count of characters and the words in the string is printed.

Runtime Test Cases

Case 1:

Enter string:Hello world

Number of words in the string:

2

Number of characters in the string:

11

Case 2:

Enter string:I love python

Number of words in the string:

3

Number of characters in the string:

13

3. Python Program to Calculate the Number of Digits, Alphabets and special characters in a String

This is a Python Program to calculate the number of digits, Alphabets and special characters in a string.

Problem Description

The program takes a string and calculates the number of digits, Alphabets and special characters in a string.

Problem Solution

1. Take a string from the user and store it in a variable.
2. Initialize the three count variables to 0.
3. Use a for loop to traverse through the characters in the string and increment the first count variable each time a digit is encountered and increment the second count variable each time a alphabet is encountered otherwise increment the third count variable each time when a special character is encountered.
4. Print the total count of all the three variables.
5. Exit.

Program/Source Code

Here is source code of the Python Program to calculate the number of digits, alphabets and special characters in a string. The program output is also shown below.

```
'''Program to Calculate the Number of Digits, Alphabets and special characters  
in a String '''
```

```
string=input("Enter string:")  
count1=0  
count2=0  
count3=0  
for i in string:  
    if(i.isdigit()):  
        count1=count1+1
```

```
        elif(i.isalpha()):
            count2=count2+1
        else:
            count3=count3+1
print("The number of digits is:")
print(count1)
print("The number of alphabets is:")
print(count2)
print("The number of special characters is:")
print(count3)
```

Program Explanation

1. User must enter a string and store it in a variable.
2. All the three count variables are initialized to zero.
3. The for loop is used to traverse through the characters in the string.
4. The first count variable is incremented each time a digit is encountered and the second count variable is incremented each time a character is encountered otherwise increment the third count variable each time when a special character is encountered.
4. Print the total count of all the three variables.
5. The total count of digits, alphabets and special characters in the string are printed.

Runtime Test Cases

Case 1:

Enter string:Hello123!@#

The number of digits is:

3

The number of alphabets is:

5

The number of special characters is

3

Case 2:

Enter string:Year2021#*%\$

The number of digits is:

4

The number of alphabets is:

4

The number of special characters is

4

Prepared by Rani Sastry, PGT
AECS-4, Mumbai