**Assignment 3**

**Strings**

1. **Write a program that accepts a string from user. Your program should count and display number of vowels in that string.**

str=input("Enter a String")

length=len(str)

count=0

print("the length of the String is ",length)

for i in range(length):

if str[i] in 'aeiouAEIOU':

count+=1

print("The number vowels in the String is ",count)

**Output**

Enter a Stringmanas

the length of the String is 5

1. **Write a program that reads a string from keyboard and display:  
   \* The number of uppercase letters in the string  
   \* The number of lowercase letters in the string  
   \* The number of digits in the string  
   \* The number of whitespace characters in the string**

str=input("Enter a String")

length=len(str)

upr=0

lwr=0

white=0

digit=0

for i in range(length):

if str[i].isupper():

upr+=1

elif str[i].islower():

lwr+=1

elif str[i].isdigit():

digit+=1

elif str[i] == ' ':

white+=1

print("The number of uppercase letters in the string=",upr)

print("The number of lowercase letters in the string=",lwr)

print("The number of digits in the string=",digit)

print("The number of whitespace characters in the string=",white)

**Output**

Enter a StringManas Ranjan Bariha 65

The number of uppercase letters in the string= 3

The number of lowercase letters in the string= 14

The number of digits in the string= 2

The number of whitespace characters in the string= 3

1. **Write a Python program that accepts a string from user. Your program should create and display a new string where the first and last characters have been exchanged.**

For example if the user enters the string 'HELLO' then new string would be 'OELLH'

str=input("Enter a String")

print("The inputed String is ",str)

modstr=str[len(str)-1]+str[1:len(str)-1]+str[0]

print("The String is ",modstr)

**Output**

Enter a Stringmanas

The inputed String is manas

The String is sanam

**4. Write a Python program that accepts a string from user. Your program should create a new string in reverse of first string and display it.**

For example if the user enters the string 'EXAM' then new string would be 'MAXE'

str=input("Enter a String")

print("The String is ",str)

rev=str[::-1]

print("The reverse String is ",rev)

**Output**

Enter a Stringmanas

The String is manas

The reverse String is sanam

**5.**Write a Python program that accepts a string from user. Your program should create a new string by shifting one position to left.

For example if the user enters the string 'examination 2021' then new string would be 'xamination 2021e'

str=input("Enter a String ")

print("Original String is ",str)

str=str[1:len(str)]+str[0]

print("Modified String is",str)

**Output**

Enter a String manas

Original String is manas

Modified String is anasm

6. Write a Python program to create a Caesar encryption.

Note : In cryptography, a Caesar cipher, also known as Caesar's cipher, the shift cipher, Caesar's code or Caesar shift, is one of the simplest and most widely known encryption techniques. It is a type of substitution cipher in which each letter in the plaintext is replaced by a letter some fixed number of positions down the alphabet. For example, with a left shift of 3, D would be replaced by A, E would become B, and so on. The method is named after Julius Caesar, who used it in his private correspondence.

str=input("Enter a String ")

n=int(input("Enter the left shift value"))

print("The original String is ",str)

res=""

for i in range(len(str)):

ch=str[i]

if ch.isupper():

res+=chr((ord(ch)+n -65) % 26 +65)

else:

res+=chr((ord(ch)+n -97) % 26 +97)

print("The encypted String is ",res)

**Output**

Enter a String manas

Enter the left shift value3

The original String is manas

The encypted String is pdqdv

**7. A palindrome is a string that reads the same backward as forward. For example, the words dad, madam and radar are all palindromes. Write a programs that determines whether the string is a palindrome.**

Note: do not use reverse() method

str=input("Enter a Stirng")

if(str==str[::-1]):

print("It is pallindrome")

else:

print("It is not pallindrome")

**Output**

Enter a Stirng manam

It is pallindrome

**8.**Write a program that display following output:  
SHIFT  
HIFTS  
IFTSH  
FTSHI  
TSHIF  
SHIFT

str="SHIFT"

for i in range(len(str)+1):

print(str)

str=str[1:len(str)]+str[0]

**Output**

SHIFT

HIFTS

IFTSH

FTSHI

TSHIF

SHIFT

**9.**Write a program in python that accepts a string to setup a passwords. Your entered password must meet the following requirements:

* The password must be at least eight characters long.
* It must contain at least one uppercase letter.
* It must contain at least one lowercase letter.
* It must contain at least one numeric digit.

Your program should should perform this validation.

password=input("Enter a Password ")

upr=lwr=digit=False

if(len(password) <8):

print("• The password must be at least eight characters long.")

else:

for i in range(len(password)):

ch=password[i]

if(ch.isupper()):

upr=True

elif ch.islower():

lwr=True

elif ch.isdigit():

digit=True

if(upr and lwr and digit):

print("The Password is ok")

else:

if not digit:

print("It must contain at least one numeric digit.")

if not upr:

print("It must contain at least one uppercase letter.")

if not lwr:

print("It must contain at least one lowercase letter.")

**Output**

Enter a Password gghjjjjkkkk

It must contain at least one numeric digit.

It must contain at least one uppercase letter.

**10.** Write a Python program to calculate the length of a string.

str = input("Enter a String")

count=0

for i in str:

count+=1

print("The length of the String is ",count)

**Output**

Enter a Stringmanas

The length of the String is 5

**12.** Write a Python program to get a string made of the first 2 and last 2 characters of a given string. If the string length is less than 2, return the empty string instead.  
Sample String : 'w3resource'  
Expected Result : 'w3ce'  
Sample String : 'w3'  
Expected Result : 'w3w3'  
Sample String : ' w'  
Expected Result : Empty String

str=input("Enter a String")

if(len(str)<2):

print("Empty String")

else:

print(str[0:2]+str[len(str)-2:len(str)])

**Output**

**Enter a Stringmanas**

**maas**

**13. Write a Python program to get a string from a given string where all occurrences of its first char have been changed to '$', except the first char itself.  
Sample String : 'restart'  
Expected Result : 'resta$t'**

str=input("Enter the String")

str=str[0]+str[1:].replace(str[0],'$')

print("The replaced string is",str)

**Output**

Enter the Stringmanamanmam

The replaced string is mana$an$a$

**14. Write a Python program to get a single string from two given strings, separated by a space and swap the first two characters of each string.  
Sample String : 'abc', 'xyz'  
Expected Result : 'xycabz'**

str1=input("Enter a String")

str2=input("Enter another String")

print("value of str1=",str1,"\nvalue of str2=",str2)

res=str2[:len(str2)-1]+str1[len(str1)-1]+str1[:len(str1)-1]+str2[len(str2)-1]

print("res=",res)

**Output**

Enter a Stringabc

Enter another Stringxyz

value of str1= abc

value of str2= xyz

res= xycabz

**15.** Write a Python program to add 'ing' at the end of a given string (length should be at least 3). If the given string already ends with 'ing', add 'ly' instead. If the string length of the given string is less than 3, leave it unchanged.  
Sample String : 'abc'  
Expected Result : 'abcing'  
Sample String : 'string'  
Expected Result : 'stringly'

**str=input("Enter a string")**

**ly="ly"**

**ing="ing"**

**if(str.endswith(ing)):**

**str+=ly**

**else:**

**str+=ing**

**print(str)**

Output

**Enter a stringstring**

**stringly**

**16.** **Write a Python program to find the first appearance of the substrings 'not' and 'poor' in a given string. If 'not' follows 'poor', replace the whole 'not'...'poor' substring with 'good'. Return the resulting string.  
Sample String : 'The lyrics is not that poor!'  
'The lyrics is poor!'  
Expected Result : 'The lyrics is good!'  
'The lyrics is poor!'**  
**str=input("Enter a sentance")**

**p="poor"**

**n="not"**

**np=str.find(n)**

**if(np!=-1):**

**str=str.replace(p,"good")**

**str=str.replace(n,"")**

**print(str)**

Output

**Enter a sentancei am not poor**

**i am good**

**17. Write a Python function that takes a list of words and return the longest word and the length of the longest one.  
Sample Output:  
Longest word: Exercises  
Length of the longest word: 9**

**str=input("Enter any sentence")**

**l=str.split()**

**max=0**

**word=""**

**for i in l:**

**if max <len(i) :**

**max=len(i)**

**word=i**

**print("Longest word=",word,"\nLongest length=",max)**

**Output**

**Enter any sentencehello my name is manas ranjan barihaba**

**Longest word= barihaba**

**Longest length= 8**

**18.** Write a Python program to remove the nth index character from a nonempty string.

str=input("enter a String")

n=int(input("Enter index of the charecter you want to remove"))

if n<len(str) and len(str)!=0:

print(str[:n]+str[n+1:])

else:

print("INVALID INPUT")  
**Output**

**enter a Stringmanas**

**Enter index of the charecter you want to remove3**

**Mans**

 Write a Python program to remove the nth index character from a nonempty string.

**19.** **Write a Python program to change a given string to a newly string where the first and last chars have been exchanged.**

str=input("enter a String")

str=str[len(str)-1]+str[1:len(str)-1]+str[0]

print("After changing ",str)  
**Output**

enter a Stringmanas

After changing sanam

**20 .** Write a Python program to remove characters that have odd index values in a given string.  
**str=input("Enter a String")**

**ans=str[0::2]**

**print(ans)**

**Output**

**Enter a Stringmanas**

**mns**