Python Programming

RGM College of Engineering & Technology (Autonomous)

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STRINGS IN PYTHON - II

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Learning Mantra

If you really strong in the basics, then remaining things will become so easy.

Agenda:

1. **Programs on Strings.**
2.

Important Programs regarding String Concept:

1. Write a program to reverse the given String.

Way 1:

```
s=input("Enter Some String:")
print(s[::-1])
```

Output:

```
Enter Some String:karthi
ihtrak
```

Important Programs regarding String Concept:

1. Write a program to reverse the given String.

Way 2: Using reversed() function

```
s=input("Enter Some String:")
print((reversed(s)))
```

Output:

```
Enter Some String:karthi
<reversed object at 0x0000018959D1CD68>
```

```
s=input("Enter Some String:")
for x in (reversed(s)):
    print(x)
```

Output:

```
Enter Some String:karthi
i
h
t
r
a
k
```

```
s=input("Enter Some String:")
print(''.join(reversed(s)))
```

Output:

```
Enter Some String:karthi
ihtrak
```

Way 3:

```
s=input("Enter Some String:")
i=len(s)-1
target=''
while i>=0:
    target=target+s[i]
    i=i-1
print(target)
```

Output:

```
Enter Some String:karthi
ihtrak
```

Way 4:

```
s=input("Enter Some String:")
i=len(s)-1
target=''
for x in s:
    target=target+s[i]
    i=i-1
print(target)
```

Output:

```
Enter Some String:karthi
ihtrak
```

Way 5:

```
s=input("Enter Some String:")
i=len(s)-1
target=''
for x in range(len(s)-1,-1,-1):
    target = target + s[i]
    i = i-1
print(target)
```

Output:

```
Enter Some String:karthi
ihtrak
```

Q 2. Program to reverse order of words.

Input: Learning Python is Very Easy

Output: Easy Very is Python Learning

```
s=input("Enter Some String:")
l=s.split()
l1=[]
i=len(l)-1
while i>=0:
    l1.append(l[i])
    i=i-1
output=' '.join(l1)
print(output)
```

Output:

Enter Some String:karthi sahasra sri

sri sahasra karthi

Q 3. Program to reverse internal content of each word.

input: Learning Python is Very Easy

output: gninreaL nohtyP si yreV ysaE

Way 1:

```
s=input("Enter Some String:")
l=s.split()
l1=[]
i = 0
while i<len(l):
    l1.append(l[i][::-1])
    i=i+1
output=' '.join(l1)
print(output)
```

```
Enter Some String:Learning Python Is Very Easy
gninraeL nohtyP sI yreV ysaE
```

Q 3. Program to reverse internal content of each word.

input: Learning Python is Very Easy

output: gninreaL nohtyP si yreV ysaE

Way 2:

```
s=input("Enter Some String:")
l=s.split()
l1=[]
for i in range(len(l)):
    s1 =l[i]
    l1.append(s1)
print(l1)
```

Output:

```
Enter Some String:Learning Python Is Very Easy
['Learning', 'Python', 'Is', 'Very', 'Easy']
```

Q 3. Program to reverse internal content of each word.

input: Learning Python is Very Easy

output: gninreaL nohtyP si yreV ysaE

Way 2 (Contd.):

```
s=input("Enter Some String:")
l=s.split()
l1=[]
for i in range(len(l)):
    s1 =l[i]
    l1.append(s1[::-1])
print(l1)
```

Output:

```
Enter Some String:Learning Python Is Very Easy
['gninraeL', 'nohtyP', 'sI', 'yreV', 'ysaE']
```

Q 3. Program to reverse internal content of each word.

input: Learning Python is Very Easy

output: gninreaL nohtyP si yreV ysaE

Way 2 (Contd.):

```
s=input("Enter Some String:")
l=s.split()
l1=[]
for i in range(len(l)):
        s1 =l[i]
        l1.append(s1[::-1])              # Appending reverse of s1 to the list l1
output=' '.join(l1)
print(output)
```

Output:

Enter Some String:Learning Python Is Very Easy

gninraeL nohtyP sI yreV ysaE

Q 3. Program to reverse internal content of each word.

input: Learning Python is Very Easy

output: gninreaL nohtyP si yreV ysaE

Way 3:

```
s=input("Enter Some String:")
l=s.split()
l1=[]
for x in l:
    l1.append(x[::-1])          # Appending reverse of each element of list l to the list l1
output=' '.join(l1)
print(output)
```

Output:

Enter Some String:Learning Python Is Very Easy

gninraeL nohtyP sI yreV ysaE

Q 4. Write a program to print characters at odd position and even position for the given String?

Way 1:

```
s=input("Enter Some String: ")
print("Characters at Even Position:",s[0::2])
print("Characters at Odd Position:",s[1::2])
```

Output:

Enter Some String: karthikeya

Characters at Even Position: krhky

Characters at Odd Position: atiea

Q 4. Write a program to print characters at odd position and even position for the given String?

Way 2:

```
s=input("Enter Some String:")
i=0
print("Characters at Even Position:")
while i< len(s):
    print(s[i],end=',')
    i=i+2
print()
print("Characters at Odd Position:")
i=1
while i< len(s):
    print(s[i],end=',')
    i=i+2
```

```
Enter Some String:karthikeya
Characters at Even Position:
k,r,h,k,y,
Characters at Odd Position:
a,t,i,e,a,
```

Q 5. Program to merge characters of 2 strings into a single string by taking characters alternatively.

```
s1=input("Enter First String:")
s2=input("Enter Second String:")
output=''
i,j=0,0
while i<len(s1) or j<len(s2):
    output = output + s1[i]
    i = i + 1
    output = output + s2[j]
    j = j + 1
print(output)
```

```
Enter First String:ravi
Enter Second String:ramu
rraavmiu
```

- Even though above code is working, there is some flaw in the code. This code works for the strings with same length. see the below code.

```
s1=input("Enter First String:")
s2=input("Enter Second String:")
output=''
i,j=0,0
while i<len(s1) or j<len(s2):
    output = output + s1[i]
    i = i + 1
    output = output + s2[j]
    j = j + 1
print(output)
```

```
Enter First String:karthi
Enter Second String:rgm

---------------------------------------------------------------------------
IndexError                                Traceback (most recent call last)
<ipython-input-55-5dfcfbfd7737> in <module>
      6     output = output + s1[i]
      7     i = i + 1
----> 8     output = output + s2[j]
      9     j = j + 1
     10 print(output)

IndexError: string index out of range
```

Modified Code :

```
s1=input("Enter First String:")
s2=input("Enter Second String:")
output=''
i,j=0,0
while i<len(s1) or j<len(s2):
    if i<len(s1):
        output=output+s1[i]
        i+=1
    if j<len(s2):
        output=output+s2[j]
        j+=1
print(output)
```

```
Enter First String:karthisahasra
Enter Second String:rgm
kragrmthisahasra
```

Q 6. Write a program to sort the characters of the string and first alphabet symbols followed by numeric values.

Input: B4A1D3

Output: ABD134

Note: sorted() function is used to sort the present content in side the string, which is given as an argument.

```
s=input("Enter Some String:")
s1=s2=output=''
for x in s:
    if x.isalpha():
        s1=s1+x                 # All alphabets in s1
    else:
        s2=s2+x                 # All digits in s2
for x in sorted(s1):            # In s1, whatever the content is there which will be sorted.
    output=output+x
for x in sorted(s2):            #  In s2, whatever the content is there which will be sorted
    output=output+x
print(output)
```

```
Enter Some String:b4a1d3
abd134
```

Q 6. Write a program to sort the characters of the string and first alphabet symbols followed by numeric values.

Input: B4A1D3

Output: ABD134

Note: sorted() function is used to sort the present content in side the string, which is given as an argument.

Optimized version of the above code:

```
s=input("Enter Some String:")
s1=s2=output=''
for x in s:
    if x.isalpha():
        s1=s1+x                 # All alphabets in s1
    else:
        s2=s2+x                 # All digits in s2
print(''.join(sorted(s1))+''.join(sorted(s2)))
```

```
Enter Some String:b4a1d3
abd134
```

Q 7. Write a program for the following requirement:

Input: a4b3c2

Output: aaaabbbcc

```
s=input("Enter Some String:")
output=''
for x in s:
    if x.isalpha():
        output=output+x
        previous=x
    else:
        output = output + previous*(int(x)-1)
print(output)
```

```
Enter Some String:a5b4c2
aaaaabbbbcc
```

Q 8. Write a program to perform the following activity :

Input : a4k3b2

Output : aeknbd

Note:

chr(unicode) ➔ The corresponding character

ord(character) ➔ The corresponding unicode value

```
s=input("Enter Some String:")
output=''
for x in s:
    if x.isalpha():
        output=output+x
        previous=x
    else:
        output=output + chr(ord(previous)+ int(x))
print(output)
```

Output:

```
Enter Some String:a4k3b2
aeknbd
```

Q 9. Write a program to remove duplicate characters from the given input string.

Input : ABCDABBCDABBBCCCDDEEEF

Output : ABCDEF

```
s=input("Enter Some String: ")
l=[]
for x in s:
    if x not in l:
        l.append(x)
    output=''.join(l)
print(output)
```

Output:

Enter Some String: abcdffaaannncd

abcdfn

Q 10. Write a program to find the number of occurrences of each character present in the given String.

Input: ABCABCABBCDE

Output: A-3,B-4,C-3,D-1,E-1

```
s=input("Enter the Some String:")
d={}
for x in s:
    if x in d.keys():
        d[x]=d[x]+1
    else:
        d[x]=1
for k,v in d.items():
    print("{} = {} Times".format(k,v))
```

```
Enter the Some String:ABCABCABBCDE
A = 3 Times
B = 4 Times
C = 3 Times
D = 1 Times
E = 1 Times
```

Any question?

If you try to practice programs yourself, then you will learn many things automatically

Spend few minutes and then enjoy the study

Thank You