Python Programming

RGM College of Engineering & Technology (Autonomous)

Department of Computer Science & Engineering

Academic Year : 2020-2021

STRINGS IN PYTHON – I - 3

Guido Van Rossum

Learning Mantra

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

Agenda

1. Finding Substrings
2. Counting substring in the given String

Finding Substrings:

- If you want to find whether the substring is available in the given string or not in Python, we have 4 methods.

For forward direction:

1. find()
2. index()

For backward direction:

1. rfind()
2. rindex()

1. find() :

Syntax:

s.find(substring) (Without Boundary)

- Returns index of first occurrence of the given substring. If it is not available then we will get -1.

Eg:

```
s="Learning Python is very easy"
print(s.find("Python"))      ➔ 9
print(s.find("Java"))        ➔ -1
print(s.find("r"))           ➔ 3
print(s.rfind("r"))          ➔21
```

- By default **find() method** can search total string. We can also specify the boundaries to search.

Syntax:

s.find(substring, begin, end) (With Boundary)

- It will always search from begin index to end-1 index.

Eg:

```
s="karthikeyasahasra"
print(s.find('a'))          ➔1
print(s.find('a',7,15))     ➔9
print(s.find('z',7,15))     ➔-1
```

2. index() method:

- index() method is exactly same as find() method except that if the specified substring is not available then we will get **ValueError.**

Eg:

```
s = 'abbaaaaaaaaaaaaaaaaaabbababa'
print(s.index('bb',2,15))
```

ValueError: substring not found

```
s = 'abbaaaaaaaaaaaaaaaaaabbababa'
print(s.index('bb'))
```
➔1

Eg:

```
s = 'abbaaaaaaaaaaaaaaaaaabbababa'
print(s.rindex('bb'))
```

➔20

Eg:

```
s=input("Enter main string:")
subs=input("Enter sub string:")
try:
    n = s.index(subs)
except ValueError:
    print("substring not found")
else:
    print("substring found")
```

```
Enter main string:karthikeya
Enter sub string:thi
substring found
```

Eg:

```
s=input("Enter main string:")
subs=input("Enter sub string:")
try:
    n = s.index(subs)
except ValueError:
    print("substring not found")
else:
    print("substring found")
```

```
Enter main string:karthi
Enter sub string:saha
substring not found
```

Counting substring in the given String:

- We can find the number of occurrences of substring present in the given string by using count() method.

1. s.count(substring) ➔ It will search through out the string
2. s.count(substring, begin, end) ➔It will search from begin index to end-1 index.

Eg:

```
s="abcabcabcabcadda"
print(s.count('a'))      ➔6
print(s.count('ab'))     ➔4
print(s.count('a',3,7))  ➔2
```

Eg:

```
s = 'abcdcdckk'
print(s.count('cdc'))        ➔1
```

Eg : Q. Write a Python Program to display all positions of substring in a given main string.

```
s=input("Enter main string:")
subs=input("Enter sub string:")
flag=False
pos=-1
n=len(s)
c = 0
while True:
    pos=s.find(subs,pos+1,n)
    if pos==-1:
        break
    c = c+1
    print("Found at position",pos)
    flag=True
if flag==False:
    print("Not Found")
print('The number of occurrences : ',c)
```

```
Enter main string:abcabcabcaaa
Enter sub string:abc
Found at position 0
Found at position 3
Found at position 6
The number of occurrences :  3
```

Eg : Q. Write a Python Program to display all positions of substring in a given main string.

```
s=input("Enter main string:")
subs=input("Enter sub string:")
flag=False
pos=-1
n=len(s)
c = 0
while True:
    pos=s.find(subs,pos+1,n)
    if pos==-1:
        break
    c = c+1
    print("Found at position",pos)
    flag=True
if flag==False:
    print("Not Found")
print('The number of occurrences : ',c)
```

```
Enter main string:abcabcabcaa
Enter sub string:bb
Not Found
The number of occurrences :  0
```

Alternate Way:

```
s=input("Enter main string:")
subs=input("Enter sub string:")
i = s.find(subs)
if i == -1:
    print('Specified Substring is not found')
c = 0
while i !=- 1:
    c = c + 1
    print('{} is present at index: {}'.format(subs,i))
    i = s.find(subs,i+len(subs),len(s))
print('The number of occurrences : ',c)
```

```
Enter main string:karthikeya
Enter sub string:k
k is present at index: 0
k is present at index: 6
The number of occurrences :  2
```

Alternate Way:

```
s=input("Enter main string:")
subs=input("Enter sub string:")
i = s.find(subs)
if i == -1:
    print('Specified Substring is not found')
c = 0
while i !=- 1:
    c = c + 1
    print('{} is present at index: {}'.format(subs,i))
    i = s.find(subs,i+len(subs),len(s))
print('The number of occurrences : ',c)
```

```
Enter main string:karthi
Enter sub string:saha
Specified Substring is not found
The number of occurrences :  0
```

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