PYTHON

From Simple to Complex
With
Examples

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NOTE!!!

In these notes Screenshots of practice examples and coding are added. The code files are also available in code folder that contain .ipynb files that are created on Jupyter notebook.

Chapter3
Python Strings

- **String**

String is collection of characters inside single or double quotes.

- **String Concatenation**

To concat two or more strings use + operator. To concat a string and a number, place the Number in " "or apply str() function on number which converts number into string. If multiply a string with a number n it shows the string n times.

```
first_name='Ayesha'
last_name='Noreen'
print(first_name+last_name)        #print AyeshaNoreen
print(first_name+' '+last_name)    #print Ayesha Noreen
#print(first_name+3)                #error
print(first_name+'3')              #Ayesha3
print(first_name,str(3))           #Ayesha 3
print(first_name*3)                #AyeshaAyeshaAyesha
```

```
AyeshaNoreen
Ayesha Noreen
Ayesha3
Ayesha 3
AyeshaAyeshaAyesha
```

- **String formating**

It is used to format a string.

```
name="ayesha"
age=24
print("Hello",name,"your age is",age)                #simple way
print("Hello "+name+" your age is:"+str(age+2))      #ugly syntax
print("Hello {} your age is:{}".format(name,age))    #in python3
print(f"Hello {name} your age is:{age}")             #in python 3.6(best syntax)
```

```
Hello ayesha your age is 24
Hello ayesha your age is:26
Hello ayesha your age is:24
Hello ayesha your age is:24
```

- **TODO Task**

Take three numbers than calculate average and print.

```
n1,n2,n3=input("Enter n1,n2,n3:").split(",")
print(f"Average of three numbers is:{(int(n1)+int(n2)+int(n3))/3}")      #python 3.6
print("Average of three numbers is:{}".format((int(n1)+int(n2)+int(n3))/3))      #python3
```

```
Enter n1,n2,n3:4,4,4
Average of three numbers is:4.0
Average of three numbers is:4.0
```

- **String indexing**

Each character of a string have a specific position called index. Positive indexing start from 0 and negative indexing start from -1. zero represents 1st index and -1 represents last index.

```
string="Ayesha Noreen"
print(string[0])  # 1st index
print(string[6])  # 5th index
print(string[-1]) #last index
```

```
A

n
```

- **String slicing**

Finding substring from a string is string slicing.

Its syntax is:

string_name(starting argument:ending argumnet+1:step)

```
string="Ayesha Noreen"
print(string[0:6]) #start from 0 and end at 5
print(string[:])   #print whole string
print(string[7:])  #start from 7th index and print till end
print(string[:-3]) #start from 0 and end last-3
```

```
Ayesha
Ayesha Noreen
Noreen
Ayesha Nor
```

- **TODO Task**

Take name of user as input and print reverse name also use formatting.

```
name=input("Enter your name:")
print(f"Your Reverse name is:{name[::-1]}")
```

```
Enter your name:Ayesha Noreen
Your Reverse name is:neeroN ahseyA
```

• String Functions

Some mostly used string functions are:

- **len(str)**

Return length of a string.

- **str.count('character')**

Return number of occurrences of a character in a string

- **Str.upper()**

Convert a string into upper case

- **Str.lower()**

Convert a string into lower case

- **Str.title()**

Convert a string into title case

```
name='ayesha'
print(len(name))
print(name.count('a'))
```

```
6
2
```

```
name='ayesha'
print(name.upper())
print(name.lower())
print(name.title())
```

```
AYESHA
ayesha
Ayesha
```

- **Str.lstrip()**

Remove left spaces from a string.

- **Str.rstrip()**

Remove right spaces from a string.

- **Str.replace()**

Replace a character with another character in a string.

- **Str.strip('character')**

Remove left and right spaces if exist in string. Otherwise remove specfic character from string.

- **Str.find('character',start_index)**

Return index number at which character is found in a string and the 2nd parameter (start_index) is optional which tells from where to start searching.

- **Str.center(length,'character')**

It prints at left or right of string something that you want. Divides the length into two parts and print half character at left of string and half at right.

- **Practice**

```
name="        Ayesha      "
stars="*****"
print(name+stars)
print(name.lstrip()+stars)    #is used to remove left spaces it prints Ayesha       *****
print(name.rstrip()+stars)    #is used to remove right spaces it prints       Ayesha*****
print(name.strip()+stars)     #is used to remove both left and right spaces it prints Ayesha*****
print(name.strip('A'))        #Does not remove all A from name bcz name start and end with spaces
#if name is without spaces than it removes specific character as
last_name='nor een'
print(last_name.strip('n'))       #prints oree (remove all n from noreen)
print(last_name.replace(" ",""))  #it replaces inner spaces with not space and prints noreen
pos_1 = last_name.find("n")       #contain the location of 1st n in last_name
pos_2=last_name.find("n",pos_1+1) #contain location of 2nd n in last_name
print(pos_1,pos_2)                # print 0 6
print(last_name.center(10,"*"))   #print **noreen** bcz total length given is 10 from which 6 occupies
#by name and remaining 4 are divided into 2 parts one part is used at left to print * and other at righ
```

• TODO Task

Input name and a character in a single line than show the length of name and number of occurrences of character in name.

```
name,char=input("Enter your name and a character").split(",")
a=len(name)
print(f"Length of your name is:{a}")
b=name.lower()
c=b.count(char)
print(f"Number of {char} in name are={c}")
#in this code if we enter space than character it prints wrong number of characters in name so to
#remove this first we remove spaces from name and character than convert in lowercase than print as,
name,char=input("Enter your name and a character").split(",")
a=len(name)
print(f"Length of your name is:{a}")
print(f"Number of {char} in name are={name.strip().lower().count(char.strip().lower())}")
```

```
Enter your name and a characterayesha ,a
Length of your name is:7
Number of a in name are=2
Enter your name and a characterayesha,n
Length of your name is:6
Number of n in name are=0
```

- **Strings Are Immutable (not changable)**

Immutable mean in python actual strings are not change. Can save a copy of string in another string than make changes but can't able to make changes in actual string.

```
string="ayesha"
print(string.replace("a","A")) #print AyeshA
print(string)                  #print ayesha This is string immutability (actual string remains same)
```

```
AyeshA
ayesha
```