Strings

What is string?
String is a collection of characters; these characters can be alphabets, digits or special characters.

String is non numeric data type; we cannot perform arithmetic operations on string.

How to create string?
String is created in different ways

1. Using single quotes
2. Using double quotes
3. Using triple single quotes or double quotes

```
>>> rollno=12
>>> name='naresh'
>>> rollno
12
>>> name
'naresh'
>>> course='python'
>>> course
'python'
>>> type(rollno)
<class 'int'>
>>> type(course)
<class 'str'>
```

Single Quotes
Within single quotes we can represent single line string
Within single quotes we can embed or insert double quotes

```
>>> s1='python programming'
>>> print(s1)
python programming
>>> s2='python
SyntaxError: unterminated string literal (detected at line 1)
>>> s3='35'
>>> type(s3)
<class 'str'>
>>> a="2"
>>> b="3"
>>> a-b
Traceback (most recent call last):
  File "<pyshell#15>", line 1, in <module>
    a-b
TypeError: unsupported operand type(s) for -: 'str' and 'str'
>>> s4='python "programming" language'
>>> print(s4)
python "programming" language
>>> s5='python 'programming' language'
SyntaxError: invalid syntax
```

Double Quotes

Within double quotes we can represent single line string
Within double quotes we can insert single quotes

```
>>> s1="python"
>>> print(s1)
>>> python
type(s1)
<class 'str'>
>>> s2="python programming"
```

```
>>> print(s2)
python programming
>>> type(s2)
<class 'str'>
>>> s3="89"
print(s3)
89
>>> type(s3)
<class 'str'>
>>> s4="python is 'easy' language"
>>> print(s4)
python is 'easy' language
>>> s5="python is "easy" language"
SyntaxError: invalid syntax
```

Triple single quotes or double quotes

Triple single quotes or double quotes are used to represent multiline string.

```
>>> address="""NareshIT
Ameerpet
Hyderabad"""
>>> print(address)
NareshIT
Ameerpet
Hyderabad
>>> description='''
Python is a
programming langauge
scripting language
high level and object oriented
... programming language'''
```

```
>>> print(description)

Python is a
programming langauge
scripting language
high level and object oriented
programming language
```

The string which consist of only alphabets is called alphabetic string
This string which consists of alphabets and digits is called alphanumeric string

```
>>> IFSC='HDFC123400000005'
>>> customername='naresh'
>>> amount='$1000'
>>> print(IFSC)
HDFC123400000005
>>> print(customername)
naresh
>>> print(amount)
$1000
```

Every program required 3 statements

1. Input
2. Process
3. Output

Input: The data or information given to program
Process: Performing operations on input data
Output: result or processed information

print() function

print() is a predefined function in python
This function is used to print or display or write data or information on console/monitor.

Example:

```
#First Program

print('Welcome to Python')
print('Welcome to Python')
print('Welcome to Python')
print('Welcome to Python')

msg='Welcome to  Python'
print(msg)
print(msg)
print(msg)

print("Python")
print(10+20)
print(10-5)
```

Output

```
Welcome to Python
Welcome to Python
Welcome to Python
Welcome to Python
Welcome to  Python
Welcome to  Python
Welcome to  Python
Python
30
```

Print function required the following inputs

1. values
2. sep
3. end

sep

the default separator used by print function is space
print function uses separator, when it prints more than one value

```
a=10
b=20
c=30
print(a,b,c)
print("a","b","c")
print(a,b,c,sep=',')
print(a,b,c,sep=';')
print(a,b,c)
print(a,b,c,sep="NIT")
print(a,sep='','')
```

Output

```
10 20 30
a b c
10,20,30
10;20;30
10 20 30
10NIT20NIT30
10
```

end

end value is inserted at the end of printing
the value of end is \n (newline)

Example:

```
print(10,20,30)
print("naresh","python")
print(1.5,2.5)

print(10,20,30,end=':')
print(100,200,300)
print("oracle","mysql",end='***')
print("php","javascript")
```

Output

```
10 20 30
naresh python
1.5 2.5
10 20 30:100 200 300
oracle mysql***php javascript
```

Example:

```
print()
print()
print()
print()
print("PYTHON")
```

Output

```
PYTHON
```

If input is not given to print function, it insert new line

Escape Sequences

\n	Newline
\t	Horizontal tab space
\v	Vertical tab space
\b	Back space
\\	\
\'	‘
\"	“

Escape sequences are special characters.

Example:

```
print(10,20,30,sep="\t")
print(10,20,30,sep="\n")
print(100,200,300,end='\t')
print(400,500)
print("python","java","cpp",sep="\t",end=':')
print("oracle","mysql")
```

Output

```
10      20      30
10
20
30
100 200 300         400 500
python      java  cpp:oracle mysql
```

Example:

```
a=10
b=20
c=a+b
print("Sum of ",a,b,"is",c)
```

Output
Sum of 10 20 is 30

Example:
```
str1='python is \'easy\' language'
print(str1)
str2="python is \"easy\" langauge"
print(str2)
```

Output
```
python is 'easy' language
python is "easy" langauge
```

input()

input() is a predefined function in python
This function is used to input/read values from keyboard during runtime.

Using Input() function, we can input only one value
Input() function read value of type string (OR) using input we can input string value

Syntax:
```
variable-name=input(prompt)
```

Example:
```
a=input("Input value of a :")
print(a)
b=input("Input value of b :")
```

```
print(b)
print(type(a),type(b))
```

Output

```
Input value of a :1.5
1.5
Input value of b :1+2j
1+2j
<class 'str'> <class 'str'>

Input value of a :100 200 300
100 200 300
Input value of b :1.5 2.5 3.5
1.5 2.5 3.5
<class 'str'> <class 'str'>
```