**#Import Function**

<1>

```
from math import *              # '*' will import all the functions from math library
z=pow(10,2)                     #pow(base,power)
print(z)                        #output- 100
y=factorial(5)                  #will return factorial of the number
print(y)                        #output- 120
a=sin(45)                       #retuns sin value of number
print(a)                        #output - 0.8509035245341184
b=sqrt(16)                      #returns square root
print(b)                        #output - 4.0
print(floor(5.9))               #output - 5
print(ceil(5.9))                #output- 6
print(log(10,10))               #log(number,base), output - 1
print(pi)                       #output - 3.141592653589793
print(remainder(10,3))          # remainder(dividend,divisor)  output - 1.0
```

**#DATA TYPES**

<1>**List**

#Way to define and print a list data type

# "[]" is a way to represent list

```
num=[1,2,3,4]           # List elements are accessed by index values.
print(num[0])           #output - 1
print(num[1])           #output - 2
print(num[2])           #output - 3
print(num[3])           #output - 4
print(num[4])           #output -  ERROR "list index out of range"

fruit=["mango","orange","banana","apple"]


print(fruit[0])         #output - mango
print(fruit[1])         #output - orange
print(fruit[2])         #output - banana
print(fruit[3])         #output - apple
print(fruit[4])         #output -  ERROR "list index out of range"

mix=[1,"ACDC",3,2.3,"Eminem"]#List can have diffrent data types
print(mix[0])           #output - 1
print(mix[1])           #output - ACDC
print(mix[2])           #output - 3
print(mix[3])           #output - 2.3
print(mix[4])           #output - Eminem
```

### <1.1> **List Functions**

#### <1.1.1> **append()**

```
lst=[]
lst.append(5)           #Adding 5 in empty list "lst"
print(lst)              #output - [5]
lst.append(9)           #Adding 9 in empty list "lst"
print(lst)              #output - [5,9]
lst.append(2)           #Adding 2 in empty list "lst"
print(lst)              #output - [5,9,2]
```

### <1.1.2> **sum()**

```
lst = [1,2,3,4,5]
z=sum(lst)              #will return sum of all elements in list
print(z)                #output - 15
```

### <1.1.3> **min() and max()**

```
lst = [1,2,3,4,5]
z=min(lst)              #will return minimum of all elements in list
y=max(lst)              #will return maximum of all elements in list
print(z)                #output - 1
print(y)                #output - 5
```

### <1.1.4> **len()**

```
lst = [1,2,3,4,5]
z=len(lst)              #will return total number of elements in a list
print(z)        #output - 5
```

### <1.1.5> **sort()**

```
lst = [10,20,1,2,3]
lst.sort()              #will arrange all elements in increasing order
print(lst)              #output - [1,2,3,10,20]
lst.sort(reverse=True)  #will arrange all elements in decreasing order, By default - reverse =false
print(lst)              #output - [20,10,3,2,1]
```

### <1.1.6> **pop()**

```
lst=[1,2,3,4,5,6]
lst.pop(5)              #pop(index_value) will delete element present at index_value
print(lst)              #output - [1,2,3,4,5]
lst.pop()               # By default element at index value 0 will get delete from the list
print(lst)              #output - [2,3,4,5]
```

<1.1.7> **remove()**

```
lst=[1,2,3,4,5,6]
lst.remove(5)           #remove(value) will delete that specific value if present in list
print(lst)              #output - [1,2,3,4,6]
```

<1.1.8> del

```
lst=[1,2,3,4,5,6]
del lst                 #will delete the whole list
```

<1.1.9> clear()

```
lst=[1,2,3,4,5,6]
lst.clear()             #Will delete all elements present in the list
print(lst)              #output - []
```

<1.1.10> **index()**

```
lst=[1,2,3,5,6]
print(lst.index(5))     #syntax - index(element), output- 3, index will return the position/index
                        value of the element
```

## <1.2> **List inside List**

```
name=["rock","bob","popoye"]

num=[1,2,3]

com=[name,num]

print(com)                #output - [['rock', 'bob', 'popoye'], [1, 2, 3]]
```

## <2> **Tuple**

```
# Tuple is an immutable data type i.e values inside tuple cannot be changed

# Accessed by index number, same way as in list

# A tuple also can have diffrent data types


mix=(1,"ACDC",3,2.3,"Eminem")        # "()" is representation of tuple

print(mix[0])                 #output - 1

print(mix[1])                 #output - ACDC

print(mix[2])                 #output - 3

print(mix[3])                 #output - 2.3

print(mix[4])                 #output - Eminem


mix[2]=5                      #ERROR - "'tuple' object does not support item assignment" i.e we
                              cannot update/modify values in a tuple
```

**<3> set**

```
# set is represented by "{}"

# There is no such thing as index value in set

# Duplicate elements get printed only once


sports={1,2,"Cricket","Football","Cricket",1,3}           #defining a set named "sports"

print(sports)                                             #output - {'Football', 1, 2, 3, 'Cricket'},
Everytime sequence of elements may vary

two={1,2,42,56,7,8899,"Cricket", "Baseball"}

print(sports.difference(two))                             #output- {3, 'Football'}


print(sports.union(two))                                  #output - {1, 2, 3, 8899, 7, 42, 'Cricket',
'Baseball', 56, 'Football'}

print(sports.intersection(two))                           #output - {1, 2, 'Cricket'}

print(sports.issubset(two))                               #output - False
```