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Import()

The syntax for using a function defined in a module is,

module_name.function_name()

The module name and function name are separated by a dot.

Here we list some of the functions supported by *math* module.

```
>>> import math
>>> print(math.ceil(5.4))
6
>>> print(math.sqrt(4))
2.0
>>> print(math.pi)
3.141592653589793
```

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dir()

- The built-in function *dir()* returns a sorted list of comma separated strings containing the names of functions, classes and variables as defined in the module.

1. >>> dir(math)

['__doc__', '__loader__', '__name__', '__package__', '__spec__', 'acos', 'acosh', 'asin', 'asinh', 'atan', 'atan2', 'atanh', 'ceil', 'copysign', 'cos', 'cosh', 'degrees', 'e', 'erf', 'erfc', 'exp','expm1', 'fabs', 'factorial', 'floor', 'fmod', 'frexp', 'fsum', 'gamma', 'gcd', 'hypot', 'inf', 'isclose', 'isfinite', 'isinf', 'isnan', 'ldexp', 'lgamma', 'log', 'log10', 'log1p', 'log2', 'modf', 'nan', 'pi', 'pow', 'radians', 'sin', 'sinh', 'sqrt', 'tan', 'tanh', 'tau', 'trunc']

>>> print(math.sqrt(4))

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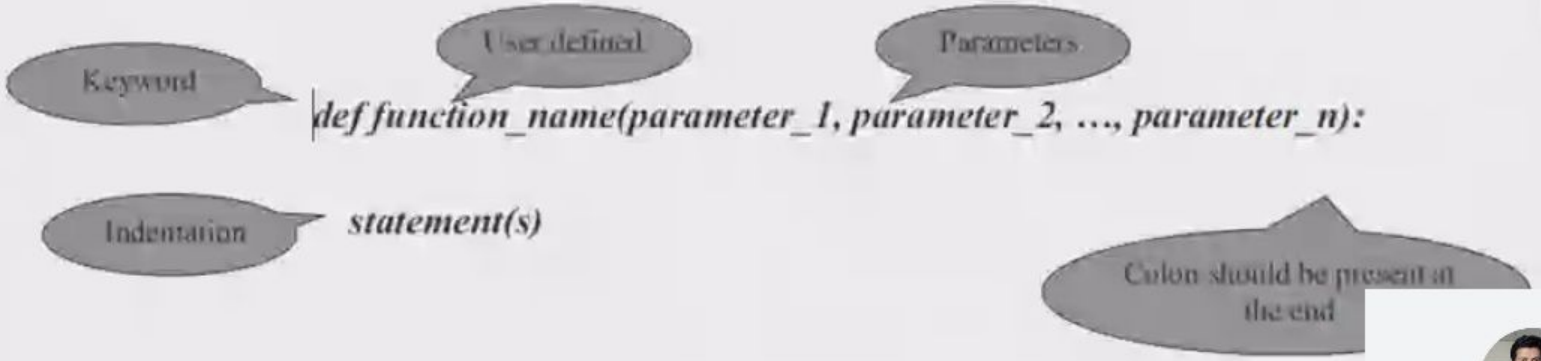
Function Definition and Calling the Function

- You can create your own functions and use them as and where it is needed. User-defined functions are reusable code blocks created by users to perform some specific task in the program.
- The syntax for function definition is,



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docstring

- The *def* keyword introduces a function definition. The term parameter or formal parameter is often used to refer to the variables as found in the function definition.
- The first statement among the block of statements within the function definition can optionally be a documentation string or docstring. There are tools which use docstrings to produce online documents or printed documentation automatically. Triple quotes are used to represent docstrings. For example,

""" This is single line docstring """

OR

""" This is

multiline

docstring """

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Calling a function

- Calling the function actually performs the specified actions with the indicated parameters.

The syntax for function call or calling function is,

function_name(argument_1, argument_2,…,argument_n)

- Arguments are the actual value that is passed into the calling function. There must be a one to one correspondence between the formal parameters in the function definition and the actual arguments of the calling function.

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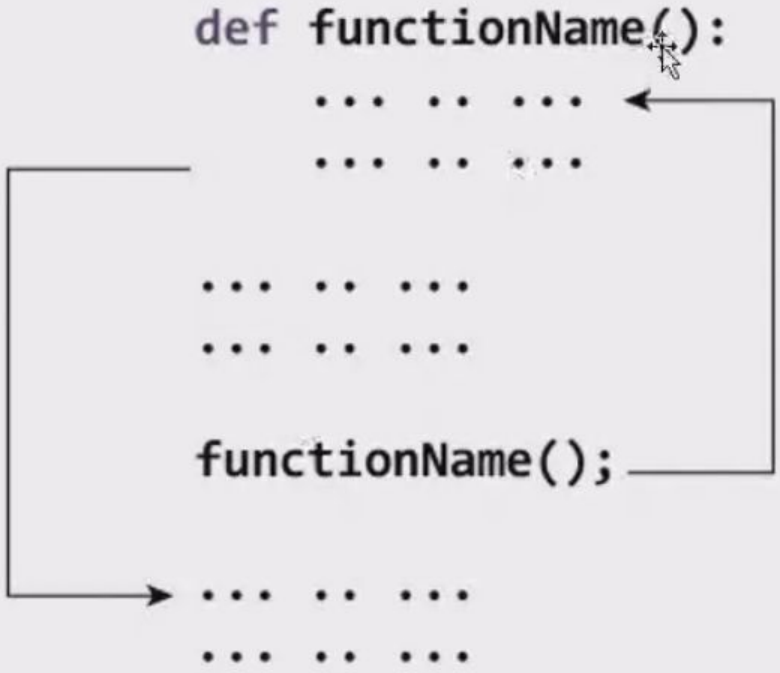

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Program to Find the Area of Trapezium Using the Formula Area = (1/2) * (a + b) * h Where a and b Are the 2 Bases of Trapezium and h Is the Height

```
def area_trapezium(a, b, h):
        area = 0.5 * (a + b) * h
        print(f"Area of a Trapezium is {area}")
def main():
        area_trapezium(10, 15, 20)
```

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program

```
colg_name = input('your college name ' )

def NameOfCollege(college_name):
    print(f"The college name is {colg_name}")

NameOfCollege(colg_name)
```

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Functions

Function Arguments

- You can call a function by using the following types of formal arguments –

- positional arguments
- Keyword arguments
- Default arguments
- Variable-length arguments

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```
    print("Name and section=",name,sec)
    print("Info=",data)

    #for i,j in data.items():
       # print(i,j)

information('DSCE',"6B",PIN=560078, city="Benaluru", Phone=1234567890)
```

```
a= 6 b= 4 c= 2 d= 1 sum= 13 sub= 1 Mul= 24 div= 1.0
a= 5 b= 3 c= 9 d= 2 sum= 19 sub= 7 Mul= 15 div= 1.0
a= 2 b= 9 c= 5 d= 6 sum= 22 sub= -1 Mul= 18 div= 1.0
sum of var lenth= 6 21
Name and section= DSCE 6B
Info= {'PIN': 560078, 'city': 'Benaluru', 'Phone': 1234567890}
```

In [ ]:

```
def calculation(a,b,c,d):
    summ= a+b+c+d
    subb= c-d
    mult= a*b
    divi= a/a
    print("a=",a,"b=",b,"c=",c,"d=",d,"sum=",summ, "sub=",subb,"Mul=",mult,"div=",

#Positional arguments
calculation(6,4,2,1)
```

In [ ]:

```

```

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```
a= 6 b= 4 c= 2 d= 1 sum= 13 sub= 1 Mul= 24 div= 1.0
a= 5 b= 3 c= 9 d= 2 sum= 19 sub= 7 Mul= 15 div= 1.0
a= 2 b= 9 c= 5 d= 6 sum= 22 sub= -1 Mul= 18 div= 1.0
sum of var lenth= 6 21
Name and section= DSCE 6B
Info= {'PIN': 560078, 'city': 'Benaluru', 'Phone': 1234567890}
```

In [14]:

```
def calculation(a,b,c,d):
    summ= a+b+c+d
    subb= c-d
    mult= a*b
    divi= a/a
    return summ, subb, mult, divi
#Positional arguments
addition, subtraction, multiplication, division=calculation(6,4,2,1)
print( "addtion= ", addition, "sub=",subtraction,"Mul=",multiplication,"div=",division)
```

```
addtion=  13 sub= 1 Mul= 24 div= 1.0
```

In [ ]:

In [ ]:

In [ ]:

In [ ]:

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Python Jupyter/ | Functions - Jupyter Notebook

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Run Code

In [1]:

```
# Function-Arguments or parameters
def calculation(a,b,c=5,d=6):
    summ= a+b+c+d
    subb= c-d
    mult= a*b
    divi= a/a
    print("a=",a,"b=",b,"c=",c,"d=",d,"sum=",summ, "sub=",subb,"Mul=",mult,"div=",divi)

#Positional arguments
calculation(6,4,2,1)

#Keyword arguments
calculation(c=9,a=5,b=3,d=1)

#default arguments
calculation(2,9)

#*variable lenth arguments
def sumadd(*z):
    sum_var= 0
    for i in z:
        sum_var+=i
    print("sum of var lenth=",i,sum_var)

sumadd(1,2,3,4,5,6)

#**kwargs-Multiple keyword arguments
def information(name,sec,**data):
    print("Name and section=",name,sec)
    print("Info=",data)

    #for i,j in data.items():
      # print(i,j)

information('OSCE',"6B",PIN=560078, city="Benaluru", Phone=1234567890)
```

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23-09-2020

Python Jupyter/ | Functions - Jupyter Notebook

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Run | Code

```
sum of var length= 6 21
Name and section= DSCE 6B
Info= {'PIN': 560078, 'city': 'Benaluru', 'Phone': 1234567890}
```

In [17]:

```
def calculation(a,b,c=6,d=9):
    summ= a+b+c+d
    subb= c-d
    mult= a*b
    divi= a/a
    return summ, subb, mult, divi

addition, subtraction, multiplication, division=calculation(2,4)
print( "addtion= ", addition, "sub=",subtraction,"Mul=",multiplication,"div=",division)
```

```
addtion=  21 sub= -3 Mul= 8 div= 1.0
```

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [6]:

```
def calculation(a,b,c=5,d=6):
    summ= a+b+c+d
    subb= c-d
    mult= a*b
    divi= a/a
    return summ, subb, mult, divi
    #print("a=",a,"b=",b,"c=",c,"d=",d,"sum=",summ, "sub=",subb,"Mul=",mult,"div=",divi)

#Positional arguments
```

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```
a= 6 b= 4 c= 2 d= 1 sum= 13 sub= 1 Mul= 24 div= 1.0
a= 5 b= 3 c= 9 d= 2 sum= 19 sub= 7 Mul= 15 div= 1.0
a= 2 b= 9 c= 5 d= 6 sum= 22 sub= -1 Mul= 18 div= 1.0
sum of var lenth= 6 21
Name and section= DSCE 6B
Info= {'PIN': 560078, 'city': 'Benaluru', 'Phone': 1234567890}
```

```python
def information(name,sec,**data):
    print("Name and section=",name,sec)
    print("Info=",data)

    #for i,j in data.items():
       # print(i,j)

information('DSCE',"5B",PIN=560078, city="Benaluru", Phone=1234567890)
```

```
Name and section= DSCE 5B
Info= {'PIN': 560078, 'city': 'Benaluru', 'Phone': 1234567890}
```

```python
#*variable lenth arguments
def sumadd(*z):
    sum_var= 0
    for i in z:
        sum_var+=i
    print("sum of var lenth=",i,sum_var)

sumadd(1,2,3,4,5,6,7,8,9)
```

```
sum of var lenth= 9 45
```

You