

# Comprehensive Python Programming

From Fundamentals to Advanced

(21 Oct 2024 - 13 Nov 2024)

IHUB DivyaSampark IIT Roorkee

# Functions

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Led by : Shreyas Shukla

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**Functions** allow us to create blocks of code that can be easily executed many times, without having to constantly rewrite the entire block of code.

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Functions will be a huge leap forward in your capabilities as a Python programmer.

Problems you are able to solve can also be a lot harder!

Combine everything you've learned so far (control flow, loops, etc.) with functions to become an effective programmer.

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- Discouraged or Frustrated?  
Do not worry, this is completely normal and very common!
- Be patient with yourself.

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Let's see how to create functions with Python!

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# def Keyword

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Creating a function with **def** keyword, correct indentation, and proper structure.

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**def function\_name():**

Keyword telling  
Python this is a  
function.

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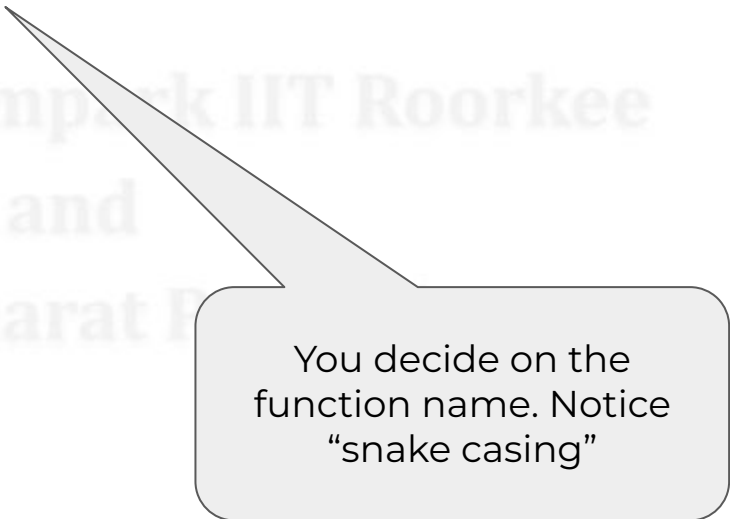


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**def function\_name():**

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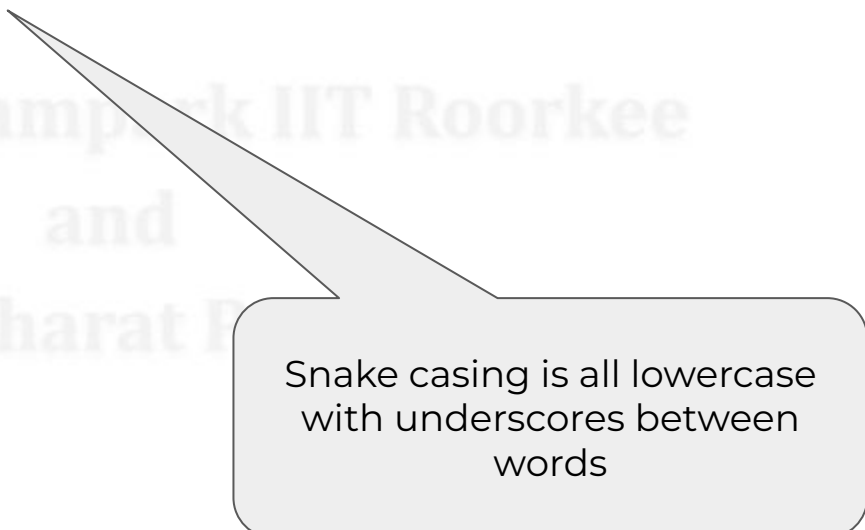
You decide on the  
function name. Notice  
“snake casing”

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**def function\_name():**



Snake casing is all lowercase  
with underscores between  
words

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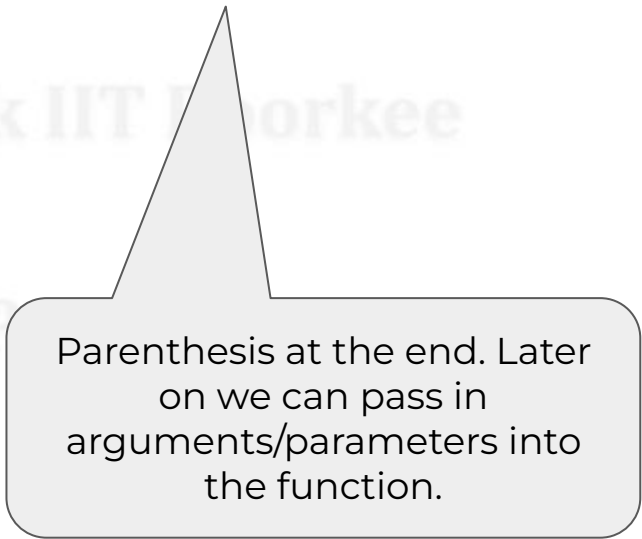
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**def function\_name():**

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Parenthesis at the end. Later  
on we can pass in  
arguments/parameters into  
the function.

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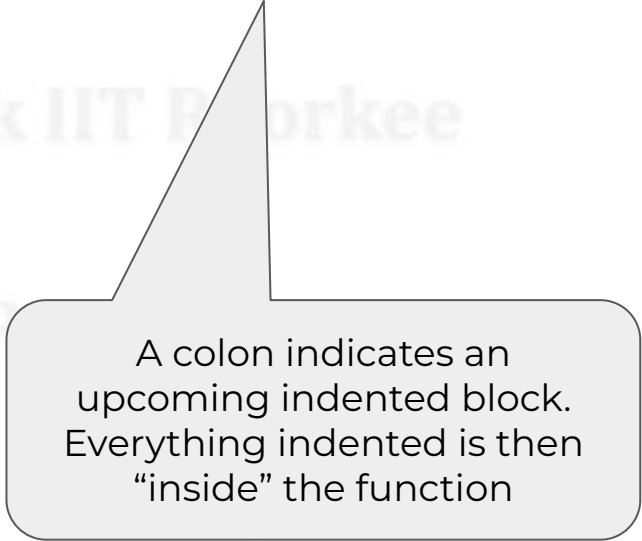
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**def function\_name():**

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A colon indicates an upcoming indented block. Everything indented is then “inside” the function

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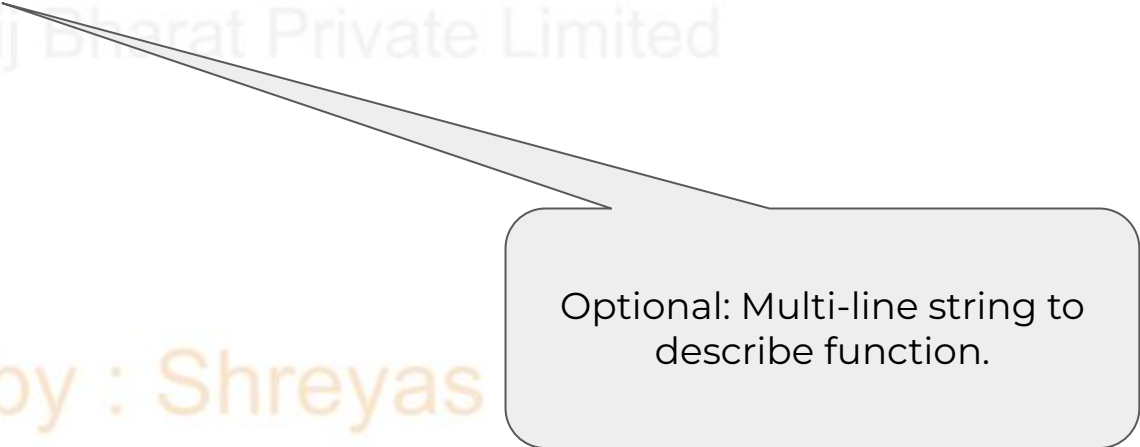
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```
def function_name():
```

```
    """
```

```
    Docstring explaining function.
```

```
    """
```



Optional: Multi-line string to describe function.

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```
def function_name():
```

```
    """
```

```
    Docstring explaining function.
```

```
    """
```

```
    print("Hello")
```

Code then goes  
inside the function.

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```
def function_name():
```

```
    """
```

```
    Docstring explaining function.
```

```
    """
```

```
    print("Hello")
```

```
>> function_name():
```

```
>> Hello
```

Function can then  
be executed/called  
to see the result.

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```
def function_name():
```

```
    """
```

```
        Docstring explaining function.
```

```
    """
```

```
    print("Hello")
```

```
>> function_name():
```

```
>> Hello
```

Resulting Output



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```
def function_name():  
    """
```

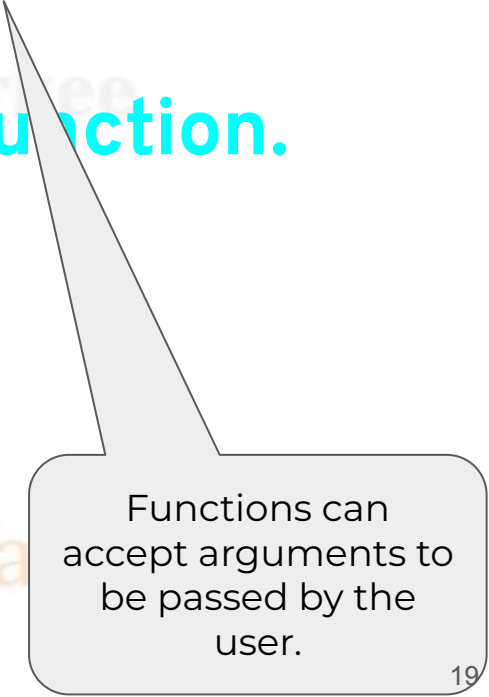
Docstring explaining function.

```
    """
```

```
    print("Hello "+name)
```

```
>> function_name():
```

```
>> Hello
```



Functions can accept arguments to be passed by the user.

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```
def function_name(name):
```

```
    """
```

```
        Docstring explaining function.
```

```
    """
```

```
    print("Hello "+name)
```

```
>> function_name(Shreyas):
```

```
>> Hello Shreyas
```

Functions can accept arguments to be passed by the user.

Typically we use the **return** keyword to send back the result of the function, instead of just printing it out.

**return** allows us to assign the output of the function to a new variable.

We will have a deeper discussion of the **return** keyword later on in the notebook.

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```
def add_function(num1,num2):  
    return num1+num2
```

```
>> result = add_function(1,2)
```

```
>>
```

```
>> print(result)
```

```
>> 3
```

Return allows to save the result to a variable.

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```
def add_function(num1,num2)::  
    return num1+num2
```

```
>> result = add_function(1,2)
```

```
>>
```

```
>> print(result)
```

```
>> 3
```

Most functions will use return. Rarely will a function only print()

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Let's start creating functions with Python.

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