

→ Python Functions

- A function is a block of code which only runs when it is called
- We can pass data, known as parameters, into a function
- A function can return data as result

⑤

→ Creating a Function

- In python a function is defined using the `def` keyword

- Information can be passed into functions as arguments, we can add many argument separated by a comma ','

Example:

```
def name (myname);  
    print ("My name is" + myname.)
```

parameter

call the function:

```
name("Nour")  
# My name is Nour
```

argument

→ Parameters vs Arguments

- A parameter is the variable listed inside the parentheses in the function definition
- An argument is the value that is sent to the function when it is called

↳ Default Parameter Value

If we call the function without arguments it uses the default value

Example:

```
def myCountry (country = "Lebanon"):  
    print ("I am from" + country)
```

```
myCountry ("Sweden") # output : I am from Sweden  
myCountry () # output: I am from Lebanon
```

↳ Passing a List as an Argument

We can send any data type of argument to a function included lists

Example:

```
def printValues (array):  
    for x in array:  
        print (x)
```

```
fruits = ["apple", "banana", "cherry"]
```

```
printValues (fruits)
```

```
# output : apple  
          banana  
          cherry
```

↳ Return Values

To let a function return a value, we use the return statement

Example:

```
def multiplicationBy5 (x) ::  
    return 5 * x
```

```
print (multiplicationBy5 (3)) # Output : 15
```

↳ Python Maths

- Python has a set of built-in math functions including an extensive math module, that allow us to perform mathematical tasks on numbers

↳ Built-in Math Functions

- The min() and max() functions can be used to find the lowest or highest value in an iterable

```
x = min (5, 10, 25)
```

```
y = max (5, 10, 25)
```

```
print (x) # Output : 5
```

```
print (y) # Output : 25
```

- The abs() function return the absolute(+) value:

```
x = abs (-7.25)
```

```
print (x)
```

The `pow(x, y)` function returns the value of x to power of y (x^y)

```
x = pow(4, 3)
print(x)
```

↳ The Math Module

Python has also a built-in module `math`, which extends the list of mathematical functions

To use it, you must import the `math` module:

```
import math
```

When we have imported the `math` module, we can start using methods and constants of the module.

The `math.sqrt()` method, returns the square root of a number

The `math.ceil()` method, rounds a number upwards to its nearest integer, and the `math.floor()` method rounds a number downwards to its nearest integer.

```
import math
x = math.sqrt(64)
y = math.ceil(1.4)
z = math.floor(1.4)
print(x) # output: 8.0
print(y) # output: 2
print(z) # output: 1
```

→ Python User Input

Python allows for user input, using the `input()` method

```
username = input("Enter username: ")  
print("Username is: " + username)
```