

LOCAL AND GLOBAL VARIABLES IN PYTHON



WHAT IS A VARIABLE?

- A variable is a named location used to store data in memory.
- The scope of a variable determines where it can be accessed.

Two main types:

- Global Variable
- Local Variable



GLOBAL VARIABLES

Definition:

- A global variable is declared outside of all functions and is accessible throughout the program.

Example:

```
x = 10 # Global variable  
  
def display():  
    print('Inside function:', x)  
  
display()  
print('Outside function:', x)
```

Output:
Inside function: 10
Outside function: 10



LOCAL VARIABLES

Definition:

- A local variable is declared inside a function and can be accessed only within that function.

Example:

```
def show():  
    y = 20 # Local variable  
    print('Inside function:', y)
```

```
show()  
print('Outside function:', y) # Error
```

Output:

```
Inside function: 20  
NameError: name 'y' is not  
defined
```



USING GLOBAL KEYWORD

- If you want to modify a global variable inside a function, use the 'global' keyword.

Example:

```
x = 5
```

```
def modify():
```

```
    global x
```

```
    x = x + 10
```

```
    print('Inside function:', x)
```

```
modify()
```

```
print('Outside function:', x)
```

Output:

Inside function: 15

Outside function: 15



KEY DIFFERENCES

LOCAL VARIABLE

A variable that is declared inside a function of a computer program

Accessible only within the function it is declared

Created when the function starts executing and is destroyed when the execution is complete

More reliable and secure since the value cannot be changed by other functions

GLOBAL VARIABLE

A variable that is declared outside the functions of a computer program

Accessible by all the functions in the program

Remains in existence for the entire time the program is executing

Accessible by multiple functions; therefore, its value can be changed



EXAMPLE PROGRAM (COMBINED DEMONSTRATION)

```
x = 100 # Global variable

def demo():
    y = 50 # Local variable
    print('Local y:', y)
    print('Access global x inside function:', x)

def modify_global():
    global x
    x = x + 25
    print('Modified global x:', x)

demo()
modify_global()
print('Final global x outside function:', x)
```



Output:

Local y: 50

Access global x inside function: 100

Modified global x: 125

Final global x outside function: 125

