Python Variables:

What is a Variable in Python?

A Python variable is a reserved memory location to store values. In other words, a variable in a python program gives data to the computer for processing.
Every value in Python has a datatype. Different data types in Python are Numbers, List, Tuple, Strings, Dictionary, etc. Variables can be declared by any name or even alphabets like a, aa, abc, etc.

How to Declare and use a Variable

Let see an example. We will declare variable "a" and print it.

```
a=100
print a
```

Re-declare a Variable

You can re-declare the variable even after you have declared it once.
Here we have variable initialized to f=0.
Later, we re-assign the variable f to value "Hello007"

Python 2 Example

```
# Declare a variable and initialize it
f = 0
print f
# re-declaring the variable works
f = 'Hello007'
print
```

Python 3 Example

```
# Declare a variable and initialize it
f = 0
print(f)
```

```
# re-declaring the variable works
f = 'Hello007'
print(f)
```

Concatenate Variables

Let's see whether you can concatenate different data types like string and number together. For example, we will concatenate "Hello" with the number "007".
Unlike Java, which concatenates number with string without declaring number as string, Python requires declaring the number as string otherwise it will show a TypeError

For the following code, you will get undefined output -

```
a="Hello"
b = 007
print a+b
```

Once the integer is declared as string, it can concatenate both "Hello" + str("007")= "Hello007" in the output.

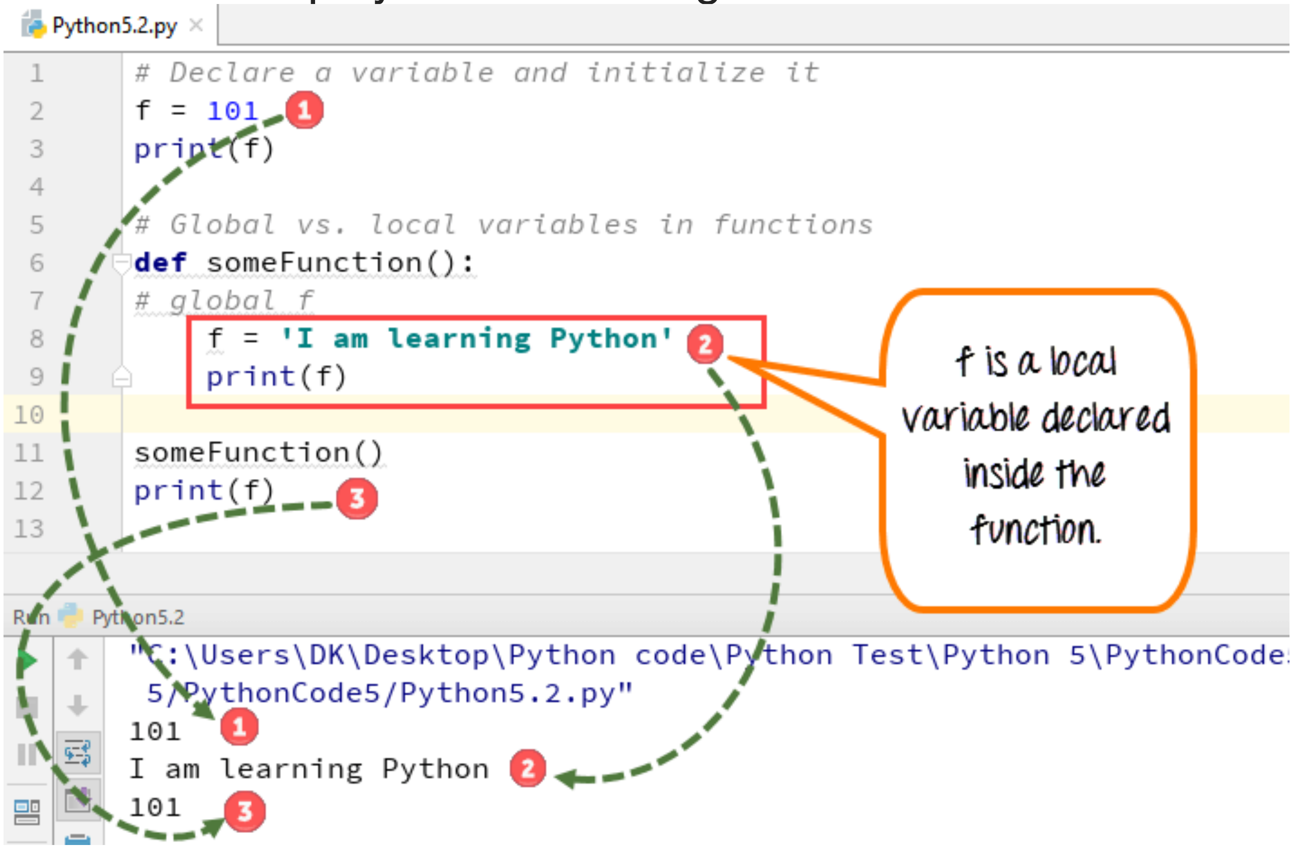
```
a="Hello"
b = 007
print(a+str(b))
```

Local & Global Variables

In Python when you want to use the same variable for rest of your program or module you declare it a global variable, while if you want to use the variable in a specific function or method, you use a local variable.
Let's understand this difference between local and global variable with the below program.

1. Variable "f" is global in scope and is assigned value 101 which is printed in output
2. Variable f is again declared in function and assumes local scope. It is assigned value "I am learning Python." which is printed out as an output. This variable is different from the global variable "f" define earlier

3. Once the function call is over, the local variable f is destroyed. At line 12, when we again, print the value of "f" is it displays the value of global variable f=101



```
Python5.2.py
# Declare a variable and initialize it
f = 101
print(f)

# Global vs. local variables in functions
def someFunction():
# global f
    f = 'I am learning Python'
    print(f)

someFunction()
print(f)
```

```
"C:\Users\DK\Desktop\Python code\Python Test\Python 5\PythonCode
 5/PythonCode5/Python5.2.py"
101
I am learning Python
101
```

Python 2 Example

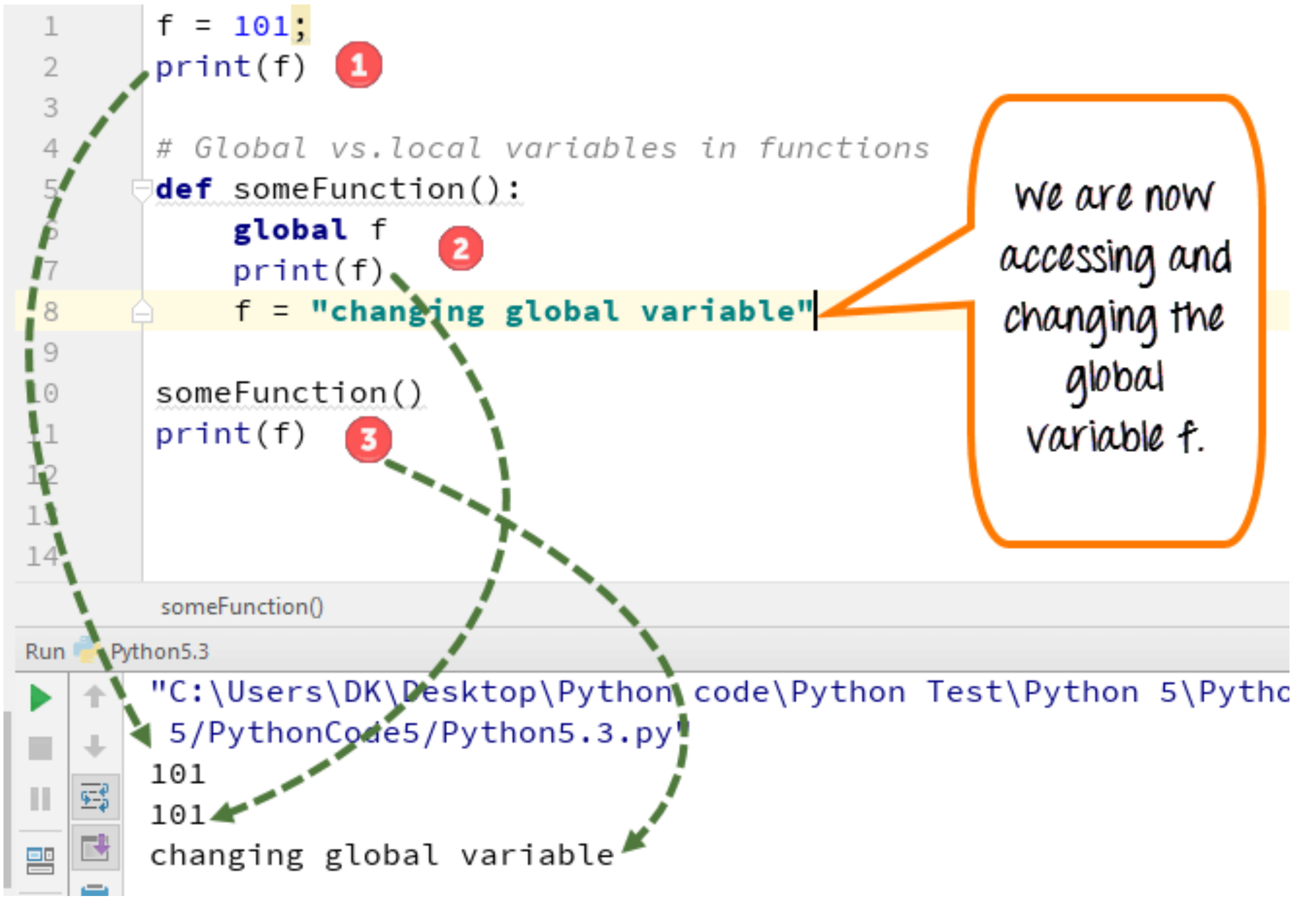
```
# Declare a variable and initialize it
f = 101
print f
# Global vs. local variables in functions
def someFunction():
# global f
    f = 'I am learning Python'
    print f
someFunction()
print f
```

Python 3 Example

```
# Declare a variable and initialize it
f = 101
print(f)
# Global vs. local variables in functions
def someFunction():
# global f
    f = 'I am learning Python'
    print(f)
someFunction()
print(f)
```

Using the keyword global, you can reference the global variable inside a function.

1. Variable "f" is global in scope and is assigned value 101 which is printed in output
2. Variable f is declared using the keyword global. This is NOT a local variable, but the same global variable declared earlier. Hence when we print its value, the output is 101
3. We changed the value of "f" inside the function. Once the function call is over, the changed value of the variable "f" persists. At line 12, when we again, print the value of "f" is it displays the value "changing global variable"



```
1   f = 101;
2   print(f)
3
4   # Global vs.local variables in functions
5   def someFunction():
6       global f
7       print(f)
8       f = "changing global variable"
9
10  someFunction()
11  print(f)
12
13
14
```

```
"C:\Users\DK\Desktop\Python code\Python Test\Python 5\Pytho
 5/PythonCode5/Python5.3.py"
101
101
changing global variable
```

Python 2 Example

```
f = 101;
print f
# Global vs.local variables in functions
def someFunction():
  global f
  print f
  f = "changing global variable"
someFunction()
print f
```

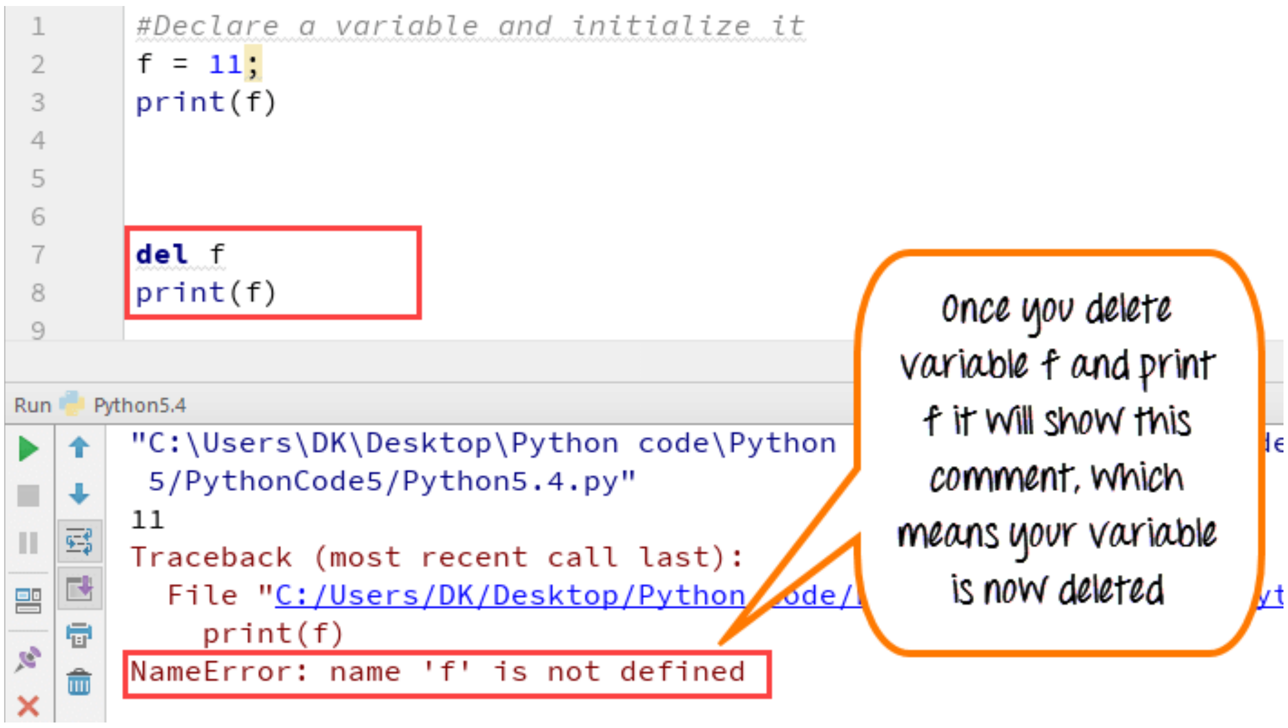
Python 3 Example

```
f = 101;
print(f)
# Global vs.local variables in functions
def someFunction():
  global f
  print(f)
  f = "changing global variable"
someFunction()
print(f)
```

Delete a variable

You can also delete variable using the command del "variable name".

In the example below, we deleted variable f, and when we proceed to print it, we get error "variable name is not defined" which means you have deleted the variable.



```
#Declare a variable and initialize it
f = 11;
print(f)



del f
print(f)
```

Run Python5.4

```
"C:\Users\DK\Desktop\Python code\Python
 5/PythonCode5/Python5.4.py"
11
Traceback (most recent call last):
  File "C:/Users/DK/Desktop/Python code/
    print(f)
NameError: name 'f' is not defined
```

Once you delete variable f and print f it will show this comment, which means your variable is now deleted

```
f = 11;
print(f)
del f
print(f)
```