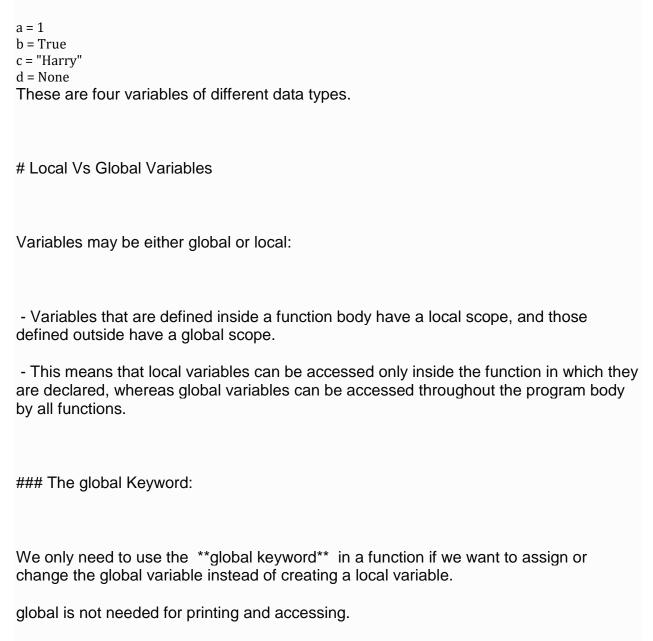
# **Variables and Data Types**

#### What is a variable?

Variable is like a container that holds data. Very similar to how our containers in kitchen holds sugar, salt etc Creating a variable is like creating a placeholder in memory and assigning it some value. In Python its as easy as writing:



Python "assumes" that we want a local variable due to the assignment to a variable inside of a function. Any variable which is changed or created inside of a function is local if it hasn't been declared as a global variable. To tell Python, that we want to use

```
the global variable, we have to use the keyword **global**, as can be seen in the
following example:
```python
a = 1
# Uses global because there is no local 'a'
def f():
       print('Inside f() : ', a)
# Variable 'a' is redefined as a local
def g():
       a = 2
       print('Inside g() : ', a)
# Uses global keyword to modify global 'a'
def h():
       global a
       a = 3
       print('Inside h() : ', a)
# Global scope
print('global : ', a)
```

```
f()

print('global : ', a)

g()

print('global : ', a)

h()

print('global : ', a)
```

# "What is a Data Type?

Data type specifies the type of value a variable holds. This is required in programming to do various operations without causing an error.

In python, we can print the type of any operator using type function:

```
a = 1
print(type(a))
b = "1"
print(type(b))
By default, python provides the following built-in data types:
```

### 1. Numeric data: int, float, complex

• int: 3, -8, 0

• float: 7.349, -9.0, 0.0000001

• complex: 6 + 2i

### 2. Text data: str

str: "Hello World!!!", "Python Programming"

### 3. Boolean data:

Boolean data consists of values True or False.

## 4. Sequenced data: list, tuple

**list:** A list is an ordered collection of data with elements separated by a comma and enclosed within square brackets. Lists are mutable and can be modified after creation.

#### Example:

```
list1 = [8, 2.3, [-4, 5], ["apple", "banana"]]
print(list1)
Output:
```

```
[8, 2.3, [-4, 5], ['apple', 'banana']]
```

**Tuple:** A tuple is an ordered collection of data with elements separated by a comma and enclosed within parentheses. Tuples are immutable and can not be modified after creation.

#### **Example:**

```
tuple1 = (("parrot", "sparrow"), ("Lion", "Tiger"))
print(tuple1)
Output:
(('parrot', 'sparrow'), ('Lion', 'Tiger'))
```

# 5. Mapped data: dict

**dict:** A dictionary is an unordered collection of data containing a key:value pair. The key:value pairs are enclosed within curly brackets.

#### Example:

```
dict1 = {"name":"Sakshi", "age":20, "canVote":True}
print(dict1)
Output:
```

{'name': 'Sakshi', 'age': 20, 'canVote': True}