Data Types

In [1]:

```python
x = 34 ; y = 67.89 ; z = True
print('x = ', x, '\ty = ', y, '\tz = ', z)
```

```
x =  34          y =  67.89      z =  True
```

In [2]:

```python
print('Type of \nx = ', type(x), '\ty = ', type(y), '\tz = ', type(z))
```

```
Type of 
x =  <class 'int'>       y =  <class 'float'>    z =  <class 'bool'>
```

In [3]:

```python
var = 'abc'
print('var = ', var)
print('type of var ', type(var))
```

```
var =  abc
type of var  <class 'str'>
```

Data Type Conversion

In [4]:

```python
x = 45.77
int(x)
```

Out[4]:

```
45
```

In [5]:

```python
str(x)
```

Out[5]:

```
'45.77'
```

In [6]:

```python
bool(x)
```

Out[6]:

```
True
```

In [7]:

```python
y = '45.88'
```

In [8]:

```python
float(y)
```

Out[8]:

```
45.88
```

In [10]:

```python
int(y)
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
C:\Users\ALPIKA~1.GUP\AppData\Local\Temp/ipykernel_8188/3927908206.py in <module>
----> 1 int(y)

ValueError: invalid literal for int() with base 10: '45.88'
```

Checking Refrences

In [11]:

```python
x = 34
y = x
print('x = ', x, ';  id of x = ', id(x))
print('y = ', y, ';  id of y = ', id(y))
```

```
x =  34 ;  id of x =  2837014670672
y =  34 ;  id of y =  2837014670672
```

In [12]:

```python
x = 65
print('x = ', x, ';  id of x = ', id(x))
print('y = ', y, ';  id of y = ', id(y))
```

```
x =  65 ;  id of x =  2837014860144
y =  34 ;  id of y =  2837014670672
```

In [13]:

```python
y = 78
print('x = ', x, ';  id of x = ', id(x))
print('y = ', y, ';  id of y = ', id(y))
```

```
x =  65 ;  id of x =  2837014860144
y =  78 ;  id of y =  2837014860560
```

Arithmetic Operators

In [14]:

```python
x = 50
y = 4
```

In [15]:

```python
print('Sum of x & y                    : ', x + y)
print('Difference between x & y        : ', x - y)
print('Product of x & y                : ', x * y)
print('Division of x by y              : ', x / y)
```

```
Sum of x & y                    :  54
Difference between x & y        :  46
Product of x & y                :  200
Division of x by y              :  12.5
```

In [16]:

```python
print('Remainder of x divided by y    : ', x % y)
print('Floor Division x divided by y  : ', x // y)
print('Exponential value for x raised to power y : ', x ** y)
```

```
Remainder of x divided by y    :  2
Floor Division x divided by y  :  12
Exponential value for x raised to power y :  6250000
```

Arithmetic Assignment Operators

In [17]:

```python
a = 10
print('Present value of a = ', a )
```

```
Present value of a =  10
```

In [18]:

```python
a += 5
print('Updated value of a = ', a )
```

```
Updated value of a =  15
```

In [19]:

```python
a = 10
print('Present value of a = ', a )
print('Present id of a = ', id(a))
```

```
Present value of a =  10
Present id of a =  2837014669904
```

In [20]:

```python
a += 15
print('Updated value of a = ', a )
print('Updated id of a = ', id(a))
```

```
Updated value of a =  25
Updated id of a =  2837014670384
```

Comparison Operator

In [21]:

```python
a = 20
b = 20
print('a = ', a, '  b = ', b)
print('a == b  : ', a == b)
```

```
a =  20   b =  20
a == b  :  True
```

In [22]:

```python
a = 20
b = 30
print('a = ', a, '  b = ', b)
print('a != b  : ', a != b)
```

```
a =  20   b =  30
a != b  :  True
```

In [23]:

```python
a = 40
b = 30
print('a = ', a, '  b = ', b)
print('a <= b  : ', a <= b)
```

```
a =  40   b =  30
a <= b  :  False
```

In [24]:

```python
a = 30
b = 30
print('a = ', a, '  b = ', b)
print('a >= b  : ', a >= b)
```

```
a =  30   b =  30
a >= b  :  True
```

Logical Operators

In [25]:

```python
a = 30
b = 30
print('a = ', a, '  b = ', b)
print('a < b            : ', a < b)
print('a == b           : ', a == b)
```

```
a =  30   b =  30
a < b            :  False
a == b           :  True
```

In [26]:

```python
print('a < b and a == b : ', a < b and a == b)
```

```
a < b and a == b :  False
```

In [27]:

```python
a = 30
b = 30
print('a = ', a, '  b = ', b)
print('a < b           : ', a < b)
print('a == b          : ', a == b)
```

```
a =  30   b =  30
a < b           :  False
a == b          :  True
```

In [28]:

```python
print('a < b or a == b : ', a < b or a == b)
```

```
a < b or a == b :  True
```

In [29]:

```python
a = 40
print('a = ', a)
print('a < 50      : ' , a < 50 )
```

```
a =  40
a < 50      :  True
```

In [30]:

```python
print('not a < 50  : ' , not(a < 50))
```

```
not a < 50  :  False
```

Miscellaneous Operators

Identity Operators

In [31]:

```python
a = ['a', 'b', 'c']
b = ['a', 'b', 'c']
print('a is b' , a is b)
```

```
a is b False
```

In [32]:

```python
a = ['a', 'b', 'c']
b =  a
print('a is b' , a is b)
```

```
a is b True
```

In [33]:

```python
id(a) == id(b)
```

Out[33]:

```
True
```

In [34]:

```python
a = ['a', 'b', 'c']
b = ['a', 'b', 'c']
print('a is not b' , a is not b)
```

```
a is not b True
```

Membership Operators

In [35]:

```python
x = 'a'
y = 'Dictionary'
print(x , ' in "', y, '"')
print( x in y)
```

```
a  in " Dictionary "
True
```

In [36]:

```python
x = 'a'
y = 'Dictionary'
print(x , ' in "', y, '"')
print( x not in y)
```

```
a  in " Dictionary "
False
```

In [37]:

```python
a = [20, 45, 10]
10 in a
```

Out[37]:

```
True
```

In [38]:

```python
a = [20, 45, 10]
10 not in a
```

Out[38]:

```
False
```

Strings in Python

In [39]:

```python
message_1 = 'Hi! Welcome to Python Programming!!'
message_2 = "Hi! Welcome to Python Programming!!"
print(message_1)
print(message_2)
```

```
Hi! Welcome to Python Programming!!
Hi! Welcome to Python Programming!!
```

In [40]:

```python
message_1 = 'Hi! Welcome to "Python Programming"!!'
message_2 = "Hi! Welcome to 'Python Programming'!!"
print(message_1)
print(message_2)
```

```
Hi! Welcome to "Python Programming"!!
Hi! Welcome to 'Python Programming'!!
```

String methods

In [41]:

```python
string = 'She seLLs sEa SHELLS oN tHe SeA sHoRe.'
```

In [42]:

```python
upper_case = string.upper()
print(upper_case)
```

```
SHE SELLS SEA SHELLS ON THE SEA SHORE.
```

In [43]:

```python
lower_case = string.lower()
print(lower_case)
```

```
she sells sea shells on the sea shore.
```

In [44]:

```python
sentence = string.capitalize()
print(sentence)
```

```
She sells sea shells on the sea shore.
```

In [45]:

```python
word_upper = string.title()
word_upper
```

Out[45]:

```
'She Sells Sea Shells On The Sea Shore.'
```

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In [ ]: