Type casting

- Convert one data type to another data type
- we learned 4 data types
    - integer: int
    - float : float
    - boolean: bool
    - string: str

int to other data types

In [1]:
```
number=100
type(number)
```

Out[1]:
```
int
```

In [5]:
```
float_number=float(number)
type(float_number)
```

Out[5]:
```
float
```

In [6]:
```
bool_number=bool(number)
type(bool_number)
```

Out[6]:
```
bool
```

In [7]:
```
str_number=str(number)
type(str_number)
```

Out[7]:
```
str
```

In [8]:
```
float(100),bool(100),str(100)
```

Out[8]:
```
(100.0, True, '100')
```

In [10]:
```
print(float(100))
print(bool(100))
print(str(100))
```

```
100.0
True
100
```

In [11]:
```
print(float(-100))
print(bool(-100))
print(str(-100))
```

```
-100.0
True
-100
```

- zero means off
- False means Off

In [12]:
```
print(float(0))
print(bool(0))
print(str(0))
```

```
0.0
False
0
```

float to other data types

In [13]:
```
number=100.5
int(number)
```

Out[13]: 100

In [14]:
```
bool(number)
```

Out[14]: True

In [15]:
```
str(number)
```

Out[15]: '100.5'

In [17]:
```
n1=int(100.5)
n2=bool(100.5)
n3=str(100.5)
print(n1)
print(n2)
print(n3)
```

```
100
True
100.5
```

In [18]:
```
n1=int(0.0)
n2=bool(0.0)
n3=str(0.0)
print(n1)
print(n2)
print(n3)
```

```
0
False
0.0
```

string to other types

In [ ]:
```
int('apple') # fail
float('apple') # fail
bool('apple') # works
```

In [19]:
```
bool('apple')
```

Out[19]:
```
True
```

- True : ON some thing is present
- False: Off that is not present

In [20]:
```
bool('0')
```

Out[20]:
```
True
```

In [26]:
```
bool('')
```

Out[26]:
```
False
```

In [22]:
```
len('apple')
```

Out[22]:
```
5
```

In [23]:
```
len('0')
```

Out[23]:
```
1
```

In [29]:
```
len('   ')
```

Out[29]:
```
3
```

- for number 0 and 0.0 boolean conversion gives **False**
- for strings empty boolean conversion gives **False**

In [30]:
```
float('10') # works 10.0
bool('10')  # works True
int('10')   # works  10
```

Out[30]:
```
10
```

In [ ]:
```
float('apple')  # fail
float('10')
```

object not callable

- python magic
- either you need open new notebook
- or go to kernel and restart

In [31]:
```
float('10'),bool('10'),int('10')
```

Out[31]:
```
(10.0, True, 10)
```

In [ ]:
```
float('10.5') # w  10.5
bool('10.5')  # w   True
int('10.5')   ######### Fail
```

In [ ]:
```
**float is the boss**

float('10') # w
float('10.5') # w

int('10') # w
int('10.5') # F
```

boolean other data types

In [32]:
```
print(int(True))  # w  1
print(float(True)) # w 1.0
print(str(True))  # 'True'
print(int(False)) # 0
print(float(False)) # 0.0
print(str(False)) # 'False'
```

```
1
1.0
True
0
0.0
False
```

In [ ]:
```
float(10) # 10.0
str(10)   # '10'
bool(10)  # T
int(10.5) # 10
str(10.5) # '10.5'
bool(10.5) # T
int('apple') # Fail
float('apple') # Fail
bool('apple') # T
int('10') # 10
float('10') # 10.0
bool('10') # T
int('10.5') # F
float('10.5') # 10.5
bool('10.5') # T
int(True) # 1
int(False) # 0
float(True) # 1.0
float(False) # 0.0
str(True) # 'True'
str(False) # 'False'
bool(0)  # False
bool(0.0) # False
bool('') #False
```