Type casting

- change one data type to another data type
- integer : **int**
- float : **float**
- string : **str**
- boolean : **bool**

In [ ]:
```
# int ==== float (decimals)
# int === str (quotes)
# int ==== bool (T or F)
```

In [1]:
```
number=10
type(number)
```

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

In [3]:
```
float(number)
```

Out[3]:
```
10.0
```

In [4]:
```
str(number)
```

Out[4]:
```
'10'
```

In [5]:
```
bool(number)
```

Out[5]:
```
True
```

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

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

In [9]:
```
n1=100
float(n1),str(n1),bool(n1)
```

Out[9]:
```
(100.0, '100', True)
```

In [11]:
```
print(float(n1))
print(str(n1))  # with out quotes
print(bool(n1))
```

```
100.0
100
True
```

In [14]:
```
n1=-100
float(n1) # -100.0
str(n1)  # '-100'
bool(n1) # True
```

Out[14]: True

In [ ]:
```
# On : True       yes avialable  +ve or -ve
# Off : false      not availabe   0
```

In [17]:
```
float(0),str(0),bool(0)
```

Out[17]: (0.0, '0', False)

float to other data types

In [20]:
```
int(10.5) # 10
str(10.5) # '10.5'
bool(10.5) # True
```

Out[20]: True

In [21]:
```
int(10.5), str(10.5), bool(10.5)
```

Out[21]: (10, '10.5', True)

In [22]:
```
int(-10.5), str(-10.5), bool(-10.5)
```

Out[22]: (-10, '-10.5', True)

In [23]:
```
int(0.0), str(0.0), bool(0.0)
```

Out[23]: (0, '0.0', False)

string to other data types

In [1]:
```
str1='python'
int(str1)

# integer ==== number
#  'python' === Not a number
# so can not convert
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[1], line 2
      1 str1='python'
----> 2 int(str1)

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

In [ ]:

In [2]:
```
str1='python'
float(str1)
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[2], line 2
      1 str1='python'
----> 2 float(str1)

ValueError: could not convert string to float: 'python'
```

In [3]:
```
bool('python')
```

Out[3]: True

In [ ]:
```
int('python')  # Fail
float('python') # Fail
bool('python')  # works  True
```

In [4]:
```
str2='10'
int(str2)
```

Out[4]: 10

In [5]:
```
float('10') # 10.0
```

Out[5]: 10.0

In [6]:
```
bool('10')
```

Out[6]: True

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

In [ ]:
```
int('10.5')  # 10 wrong fail
float('10.5') # 10.5 works
bool('10.5')  # True works
```

In [ ]:
```
int('10')  #    works
int('10.5') #   fail

float('10')  # works
float('10.5') # works
```

- float is the boss
- int conversion of **float value which is represented as string('10.5')** will fail

In [ ]:
```
int('apple')  # F
float('apple') # F
bool('apple') # True
int('10')   # 10
float('10')  # 10.0
bool('10')  # T
int('10.5')  # F
```

```
float('10.5') # 10.5
bool('10.5')  # T
```

In [7]:
```
bool(0) # F
bool(0.0) # F
```

Out[7]: False

In [10]:
```
len('01')
```

Out[10]: 2

In [11]:
```
len('off')
```

Out[11]: 3

In [12]:
```
len('')  # im not able to see anythin
```

Out[12]: 0

In [13]:
```
bool('')
```

Out[13]: False

In [14]:
```
bool('sarvani')
```

Out[14]: True

In [ ]:
```
int('')
float('')
```

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

In [15]:
```
int(10.5)
```

Out[15]: 10

In [16]:
```
int(10.2)
```

Out[16]: 10

In [ ]:
```
int('10.2') # f
```

In [17]:
```
str(10)
```

Out[17]: '10'

Not callable error

- python magic
- restart the notebook and run it again
- or open a new notebook and run

In [ ]: