- integer ==== int
- float ==== float
- string === str
- boolean === bool

Integer to other data types

In [1]:
```
num1=100
type(num1)
```

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

In [3]:
```
num_float=float(num1)
num_float
```

Out[3]:
```
100.0
```

In [4]:
```
type(num_float)
```

Out[4]:
```
float
```

- num1 is a variable, stored value: 100
- num1 is an integer type
- to convert float, float(num1)
- float(num1) gives 100.0
- float(num1) stored in a variable: num_float
- num_float is float type

In [7]:
```
python
```

Out[7]:
```
10
```

In [6]:
```
python=10
```

In [8]:
```
naresh
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[8], line 1
----> 1 naresh

NameError: name 'naresh' is not defined
```

Name error

- whenever if we see name error means that corresponding variable not intialized
- For example in above naresh is a variable
- Is Not defined before, thats why we are getting error
- So go above the lines and search for variable: naresh
- if you fell that is already defined then run again

In [10]:
```
# Integer to string conversion
num1=100
num_string=str(num1)
num_string
```

Out[10]: '100'

In [11]:
```
type(num_string)
```

Out[11]: str

In [12]:
```
# Integer to bool conversion
num1=100
num_bool=bool(num1)
num_bool
```

Out[12]: True

In [13]:
```
type(num_bool)
```

Out[13]: bool

In [14]:
```
num2=-100
num2_bool=bool(num2)
num2_bool
```

Out[14]: True

In [15]:
```
num3=0
num3_bool=bool(num3)
num3_bool
```

Out[15]: False

Note

- When boolean conversion of integer gives False
  - For 0 value , It gives Flase

In [16]:
```
num1=100
num1_float=float(num1)
num1_str=str(num1)
num1_bool=bool(num1)
num1_float,num1_str,num1_bool
```

Out[16]: (100.0, '100', True)

In [17]:
```
float(1000),str(1000),bool(1000)
```

Out[17]: (1000.0, '1000', True)

In [20]:
```
10,20,30
```

Out[20]: (10, 20, 30)

Float to other data types

In [24]:
```
num1=100.5  # Float
num1_int=int(num1)
num1_str=str(num1)
num1_bool=bool(num1)
num1_int,num1_str,num1_bool
```

Out[24]: (100, '100.5', True)

In [23]:
```
print(num1_str)
```

```
100
```

- first mistake conversion
- printing the string value
- providing some gap

In [25]:
```
int(0.0),str(0.0),bool(0.0)
```

Out[25]: (0, '0.0', False)

String to other data type

In [42]:
```
# Case-1:
str='apple'
int('apple') # error
float('apple') # error
bool('apple')  # True
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[42], line 3
      1 # Case-1:
      2 str='apple'
----> 3 int('apple') # error
      4 float('apple') # error
      5 bool('apple')

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

In [ ]:
```
# Case-2:
str='apple123'
int('apple123') # Error
```

```
float('apple123') # Error
bool('apple123')  # True
```

In [ ]:
```
# Case-3:
str='0'
int('0') # 0
float('0') # 0.0
bool('0')  # True
```

In [ ]:
```
# Case-4:
str=''
int('') # error
float('') # error
bool('')  # False
```

In [ ]:
```
# Case-5:
str='10'
int('10') # 10
float('10') # 10.0
bool('10')  # True
```

In [28]:
```
int('apple')
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[28], line 1
----> 1 int('apple')

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

In [29]:
```
float('apple')
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[29], line 1
----> 1 float('apple')

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

In [27]:
```
bool('apple')
```

Out[27]: True

In [30]:
```
int('apple123')
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[30], line 1
----> 1 int('apple123')

ValueError: invalid literal for int() with base 10: 'apple123'
```

In [31]:
```
float('apple123')
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[31], line 1
----> 1 float('apple123')

ValueError: could not convert string to float: 'apple123'
```

In [32]:
```
bool('apple123')
```

Out[32]: True

In [33]:
```
int('0')
```

Out[33]: 0

In [34]:
```
float('0')
```

Out[34]: 0.0

In [35]:
```
bool('0')
```

Out[35]: True

In [36]:
```
int('')
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[36], line 1
----> 1 int('')

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

In [37]:
```
float('')
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[37], line 1
----> 1 float('')

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

In [38]:
```
bool('')
```

Out[38]: False

In [39]:
```
int('10')
```

Out[39]: 10

In [40]:
```
float('10')
```

Out[40]: 10.0

In [41]:
```
bool('10')
```

Out[41]: True

In [ ]:
```
# Case-6:
str='10.5'
int('10.5') # 10 ==== > error
float('10.5') # 10.5
bool('10.5')  # True
```

- english letters as string represntation
  - apple
    - intger coversion fail
    - float conversion fail
    - boolean coversion True
- english letters with numbers as string representation
  - apple123
    - intger coversion fail
    - float conversion fail
    - boolean coversion True
- 0 as string representation
  - intger coversion will give 0
  - float conversion will give 0.0
  - boolean coversion True
- empty string as string representation
  - intger coversion fail
  - float conversion fail
  - boolean coversion False
- 10 as string representation
  - intger coversion will give 10
  - float conversion will give 10.0
  - boolean coversion True
- 10.5 as string representation
  - intger coversion will fail
  - float conversion will give 010.5

- boolean coversion True

```
In [43]: int('10')
```

```
Out[43]: 10
```

```
In [44]: float('10.5')
```

```
Out[44]: 10.5
```

```
In [45]: float('10')
```

```
Out[45]: 10.0
```

```
In [46]: int('10.5678')
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[46], line 1
----> 1 int('10.5')

ValueError: invalid literal for int() with base 10: '10.5'
```

```
In [47]: 10.678

         # 10.68
         # 10.7
         # 10.0
         # 10
```

```
Out[47]: 10.678
```

```
In [49]: int(float('10.5678'))
```

```
Out[49]: 10
```

float is the boss

float('10')

float('10.5')

integer will works only int famliy int('10')

int('10.5') # Error

- boolean conversion of empty string gives False
- Otherwise True

```
In [52]: bool(''),bool(' ')
```

```
Out[52]: (False, True)
```

```
In [53]: len('')
```

Out[53]:
```
0
```

In [54]:
```
len(' ')
```

Out[54]:
```
1
```

In [ ]:
```
int(10.8) # Number system It will works
int('10.5') # This will not works
```

In [ ]:
```
int(True)  # 1
float(True) # 1.0
str(True)   # 'True'
```

In [ ]:
```
int(False)  # 0
float(False) # 0.0
str(False)   # 'False'
```

In [1]:
```
str(True)
```

Out[1]:
```
'True'
```

In [2]:
```
str(False)
```

Out[2]:
```
'False'
```

In [ ]:
```
sir, one doubt, in my note book , str/int/float is in green colour as it's keywo
```

In [ ]:
```
9701962333
```