Type casting :The process of conerting one type of possible value into another .

pyhon has 5 types of type casting

1.int() #Only works on number string('1') or ("9014854817"),etc...,can not work on other like alpha,symblos string etc. (gives ValueError) and complex(gives TypeError)

2.float() #Only works on number string('1') or ("9014854817"),etc...,can not work on other like alpha,symblos string etc. (gives ValueError) and complex(gives TypeError)

3.bool()

4.complex() #Only works on number string('1') or ("78788"),etc..,can not work on others like alpha,symblos string etc.(gives ValueError).

5.str()

1.int()

In [4]:
```
#float ---int
a=2.4
b=int(a)
print(b,type(b))
```

```
2 <class 'int'>
```

In [6]:
```
a=7.8
b=int(a)
print(a,type(a))
```

```
7.8 <class 'float'>
```

In [8]:
```
a=-8.00
b=int(a)
print(a,type(a))
```

```
-8.0 <class 'float'>
```

In [10]:
```
#bool --- int()
a=True
b=int(a)
print(b,type(b))
```

```
1 <class 'int'>
```

In [12]:
```
a=True+False
b=int(a)
print(b,type(b))
```

```
1 <class 'int'>
```

In [14]:
```
a=True/False #This type always gives ZeroDivisonError
b=int(a)
print(b,type(b))
```

```
---------------------------------------------------------------------------
ZeroDivisionError                         Traceback (most recent call last)
Cell In[14], line 1
----> 1 a=True/False
      2 b=int(a)
      3 print(b,type(b))

ZeroDivisionError: division by zero
```

In [16]:
```
#complex---int()
a=10+2j
b=int(a)
print(b,type(b))
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[16], line 3
      1 #complex---int()
      2 a=10+2j
----> 3 b=int(a)
      4 print(b,type(b))

TypeError: int() argument must be a string, a bytes-like object or a real number, not 'complex'
```

In [18]:
```
#str---int
a='t'
b=int(a)
print(b)
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[18], line 3
      1 #str---int
      2 a='t'
----> 3 b=int(a)
      4 print(b)

ValueError: invalid literal for int() with base 10: 't'
```

In [20]:
```
a='hello'
b=int(a)
print(b,type(b))
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[20], line 2
      1 a='hello'
----> 2 b=int(a)
      3 print(b,type(b))

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

In [22]:
```
a='23'
b=int(a)
print(b,type(b))
```

```
23 <class 'int'>
```

In [24]:
```
a='9014854817'
b=int(a)
print(b,type(b))
```

```
9014854817 <class 'int'>
```

In [26]:
```
a='#1'
b=int(a)
print(b)
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[26], line 2
      1 a='#1'
----> 2 b=int(a)
      3 print(b)

ValueError: invalid literal for int() with base 10: '#1'
```

In [28]:
```
a='1'
b=int(a)
print(b,type(b))
```

```
1 <class 'int'>
```

2.float()

In [38]:
```
#int---float
a=12
b=float(a)
print(b,type(b))
```

```
12.0 <class 'float'>
```

In [40]:
```
a=34
b=float(a)
print(b,type(b))
```

```
34.0 <class 'float'>
```

In [44]:
```
a=89
b=float(a)
print(b,type(b))
```

```
89.0 <class 'float'>
```

In [46]:
```
#bool---float
a=True
b=float(a)
print(b,type(b))
```

```
1.0 <class 'float'>
```

In [52]:
```
a=True/False #This type always gives ZeroDivisonError
b=float(a)
print(b,type(b),id(b),len(b))
```

```
---------------------------------------------------------------------------
ZeroDivisionError                         Traceback (most recent call last)
Cell In[52], line 1
----> 1 a=True/False
      2 b=float(a)
      3 print(b,type(b),id(b),len(b))

ZeroDivisionError: division by zero
```

In [54]:
```
a=False-False
b=float(a)
print(b,type(b))
```

```
0.0 <class 'float'>
```

In [56]:
```
a=True+True+True-False+false  #NameError because false is different and False is different
b=float(a)
print(b,type(b))
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[56], line 1
----> 1 a=True+True+True-False+false
      2 b=float(a)
      3 print(b,type(b))

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

In [58]:
```
#complex--float
a=2+5j
b=float(a)
print(b,type(b))
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[58], line 3
      1 #complex--float
      2 a=2+5j
----> 3 b=float(a)
      4 print(b,type(b))

TypeError: float() argument must be a string or a real number, not 'complex'
```

3.bool()

In [62]:
```
#int--bool
a=34
b=bool(a)
print(b,type(b))
```

```
True <class 'bool'>
```

In [64]:
```
a=89
b=bool()
print(b,type(b))
```

```
False <class 'bool'>
```

In [66]:
```
a=87
b=bool(a)
print(b,type(b),id(b))
```

```
True <class 'bool'> 140703191337856
```

In [68]:
```
#float--bool
a=3.6
b=bool(a)
print(b,type(b))
```

```
True <class 'bool'>
```

In [70]:
```
a=3.5
b=bool(a)
print(b,type(b))
```

```
True <class 'bool'>
```

In [72]:
```
a=5.66
b=bool(a)
print(b,type(b))
```

```
True <class 'bool'>
```

In [74]:
```
#complex--bool
a=3+5j
b=bool(a)
print(b,type(b))
```

```
True <class 'bool'>
```

In [76]:
```
a=3-7j
b=bool(a)
print(b,type(b))
```

```
True <class 'bool'>
```

In [78]:
```
a=0+0j
b=bool(a)
print(b,type(b))
```

```
False <class 'bool'>
```

In [80]:
```
#str--bool
a='hello'
b=bool(a)
print(b,type(b))
```

```
True <class 'bool'>
```

In [82]:
```
a='2'
b=bool(a)
print(b,type(b))
```

```
True <class 'bool'>
```

In [84]:
```
a='hello,dear'
b=bool(a)
print(b,type(b))
```

```
True <class 'bool'>
```

In [86]:
```
a='hello,57'
b=bool(a)
print(b,type(b))
```

```
True <class 'bool'>
```

4.complex()

In [130…
```
#int--complex
a=67
b=complex(a)
print(b,type(b))
```

```
(67+0j) <class 'complex'>
```

In [91]:
```
a=89
b=complex(a)
```

```
print(b,type(b))
```

```
(89+0j) <class 'complex'>
```

In [93]:
```
a=45
b=complex(a)
print(b,type(b))
```

```
(45+0j) <class 'complex'>
```

In [97]:
```
a=-89
b=complex(a)
print(b,type(b))
```

```
(-89+0j) <class 'complex'>
```

In [99]:
```
#float--complex
a=5.7
b=complex(a)
print(b,type(b))
```

```
(5.7+0j) <class 'complex'>
```

In [101…
```
a=-98
b=complex(a)
print(b,type(b))
```

```
(-98+0j) <class 'complex'>
```

In [103…
```
#bool---complex
a=True
b=complex(a)
print(b,type(b))
```

```
(1+0j) <class 'complex'>
```

In [105…
```
a=1-True
b=complex(a)
print(b,type(b))
```

```
0j <class 'complex'>
```

In [107…
```
a=1+1-True
b=complex(a)
print(b,type(b))
```

```
(1+0j) <class 'complex'>
```

In [109…
```
a=True/False     #This always gives ZeroDivisionError
b=complex(a)
print(b,type(b))
```

```
---------------------------------------------------------------------------
ZeroDivisionError                         Traceback (most recent call last)
Cell In[109], line 1
----> 1 a=True/False
      2 b=complex(a)
      3 print(b,type(b))

ZeroDivisionError: division by zero
```

In [111…
```
a=False/True
b=complex(a)
print(b,type(b))
```

```
0j <class 'complex'>
```

In [117…
```
#str--complex
a='hello'
b=complex(a)
print(b,type(b))
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[117], line 3
      1 #str--complex
      2 a='hello'
----> 3 b=complex(a)
      4 print(b,type(b))

ValueError: complex() arg is a malformed string
```

In [119…
```
a='h'
b=complex(a)
print(b,type(b))
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[119], line 2
      1 a='h'
----> 2 b=complex(a)
      3 print(b,type(b))

ValueError: complex() arg is a malformed string
```

In [121…
```
a='1'
b=complex(a)
print(b,type(b))
```

```
(1+0j) <class 'complex'>
```

In [123…
```
a='9014854817'
b=complex(a)
print(b,type(b))
```

```
(9014854817+0j) <class 'complex'>
```

In [127…
```
a="380"
b=complex(a)
print(b,type(b))
```

```
(380+0j) <class 'complex'>
```

5.str()

In [1]:
```
#int--str
a=54
b=str(a)
print(b,type(b))
```

```
54 <class 'str'>
```

In [3]:
```
a=-08
b=str(a)
print(b,type(b))
```

```
  Cell In[3], line 1
    a=-08
      ^
SyntaxError: leading zeros in decimal integer literals are not permitted; use an 0o prefix for octal integers
```

In [5]:
```
a=-80
b=str(a)
print(b,type(b))
```

```
-80 <class 'str'>
```

In [7]:
```
a=89908
b=str(a)
print(b,type(b))
```

```
89908 <class 'str'>
```

In [9]:
```
#float--str
a=8.7
b=str(a)
print(b,type(b))
```

```
8.7 <class 'str'>
```

In [11]:
```
a=89.99
b=str(a)
print(b,type(b))
```

```
89.99 <class 'str'>
```

In [13]:
```
a=-800.98
b=str(a)
print(b,type(b))
```

```
-800.98 <class 'str'>
```

In [15]:
```
a=-879,89.98
b=str(a)
print(b,type(b))
```

```
(-879, 89.98) <class 'str'>
```

In [17]:
```
a=hlle.898
b=str(a)
print(b,type(b))
```

```
  Cell In[17], line 1
    a=hlle.898
           ^
SyntaxError: invalid syntax
```

In [19]:
```
#bool--str
a=True-True+False
b=str(a)
print(b,type(b))
```

```
0 <class 'str'>
```

In [21]:
```
a=True-false
b=str(a)
print(b,type(b))
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[21], line 1
----> 1 a=True-false
      2 b=str(a)
      3 print(b,type(b))

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

In [23]:
```
a=True/False
b=str(a)
print(b,type(b))
```

```
---------------------------------------------------------------------------
ZeroDivisionError                         Traceback (most recent call last)
Cell In[23], line 1
----> 1 a=True/False
      2 b=str(a)
      3 print(b,type(b))

ZeroDivisionError: division by zero
```

In [25]:
```
a=True%False
b=str(a)
print(b,type(b))
```

```
---------------------------------------------------------------------------
ZeroDivisionError                         Traceback (most recent call last)
Cell In[25], line 1
----> 1 a=True%False
      2 b=str(a)
      3 print(b,type(b))

ZeroDivisionError: integer modulo by zero
```

In [27]:
```
a=True*False
b=str(a)
print(b,type(b))
```

```
0 <class 'str'>
```

In [29]:
```
a=True//False
b=str(a)
print(b,type(b))
```

```
---------------------------------------------------------------------------
ZeroDivisionError                         Traceback (most recent call last)
Cell In[29], line 1
----> 1 a=True//False
      2 b=str(a)
      3 print(b,type(b))

ZeroDivisionError: integer division or modulo by zero
```

In [31]:
```
a=True-False
b=str(a)
print(b,type(b))
```

```
1 <class 'str'>
```

In [33]:
```
#complex--str
a=5+7j
b=str(a)
print(b,type(b))
```

```
(5+7j) <class 'str'>
```

In [37]:
```
a.imag
```

Out[37]: 7.0

In [39]:
```
a.real
```

Out[39]: 5.0

In [41]:
```
b.real
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
Cell In[41], line 1
----> 1 b.real

AttributeError: 'str' object has no attribute 'real'
```

In [43]:
```
a=-800,89-79j
b=str(a)
print(b,type(b))
```

```
(-800, (89-79j)) <class 'str'>
```

In [45]:
```
a=8997,78j   #This is not complex ,this is tuple
b=str(a)
print(b,type(b))
```

```
(8997, 78j) <class 'str'>
```

In [47]:
```
a.real
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
Cell In[47], line 1
----> 1 a.real

AttributeError: 'tuple' object has no attribute 'real'
```

In [49]:
```
print(a,type(a))
```

```
(8997, 78j) <class 'tuple'>
```

In [51]:
```
a=7*8j
b=str(a)
print(a,type(a))
```

```
56j <class 'complex'>
```

In [53]:
```
a=7/8j
print(a,type(a))
```

```
-0.875j <class 'complex'>
```

In [55]:
```
a=5&7j
print(type(a))
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[55], line 1
----> 1 a=5&7j
      2 print(type(a))

TypeError: unsupported operand type(s) for &: 'int' and 'complex'
```