

Type casting Notes

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The phenomenon of converting the data/value from one datatype to another.

Q. How Can we perform Type casting?

Syntax: Destination Variable =Destination Type(source variable)

Example: a= 32.32



Note: Storing variable(destination variable) Note mandatory directly we can convert.

Syntax: Destination Type(source variable)

Example: int(a)

Note:

- Converting from Single Value Data Types to Multi value data types only "string" is supported.
- Converting from Multi value data types to Single Value Data Types only "Boolean" is supported .

1. Conversion of integer to Other Data Types:

Source Type	Destination Type
Integer(int)	Float Complex Bool String List Tuple Set Dictionary

Example: i=67

int(i)
Output:-67

float(i)
Output:-67.0

complex(i)
Output:-(67+0j)

bool(i)
Output:-True

str(i)
'67'

list(i)

```

Output:-Traceback (most recent call last):
  File "<pyshell#6>", line 1, in <module>
    list(i)
TypeError: 'int' object is not iterable

```

Reason: The list() function is used to convert integer into a list.
 But it can only convert things that contain multiple values like a string, tuple, or another list.
 number like 67 is just a **single value**, not a group you **can't go through it one by one**.

```

tuple(i)
Output:-Traceback (most recent call last):
  File "<pyshell#7>", line 1, in <module>
    tuple(i)
TypeError: 'int' object is not iterable

```

Reason: The tuple() function is used to convert integer into a tuple.
 But it can only convert things that contain multiple values like a string, tuple, or another list.
 number like 67 is just a **single value**, not a group you **can't go through it one by one**.

```

set(i)
Output:-Traceback (most recent call last):
  File "<pyshell#8>", line 1, in <module>
    set(i)
TypeError: 'int' object is not iterable

```

Reason:

- set() is used to **create a set** a group of unique values.
- It expects an **iterable** (something with multiple values).

```

dict(i)
Output:-Traceback (most recent call last):
  File "<pyshell#10>", line 1, in <module>
    dict(i)
TypeError: 'int' object is not iterable

```

Reason:

- dict() is used to create a **dictionary**, which needs **key-value pairs**.
- It expects an **iterable** of pairs like: [(1, 'a'), (2, 'b')]

2. Conversion of Float to Other Data Types:

Example:f=4.5

```

int(f)
4
float(f)
4.5
complex(f)
(4.5+0j)
bool(f)
True
str(f)
'4.5'
list(f)
Traceback (most recent call last):
  File "<pyshell#6>", line 1, in <module>
    list(f)
TypeError: 'float' object is not iterable
tuple(f)
Traceback (most recent call last):
  File "<pyshell#7>", line 1, in <module>
    tuple(f)
TypeError: 'float' object is not iterable

```

Source Type	Destination Type
Float	Integer=>data loss
	Complex
	Boolean
	String
	List
	Tuple
	Set
	Dictionary

Not Possible to convert

```

set(f)
Traceback (most recent call last):
  File "<pyshell#8>", line 1, in <module>
    set(f)
TypeError: 'float' object is not iterable
dict(f)
Traceback (most recent call last):
  File "<pyshell#9>", line 1, in <module>
    dict(f)
TypeError: 'float' object is not iterable

```

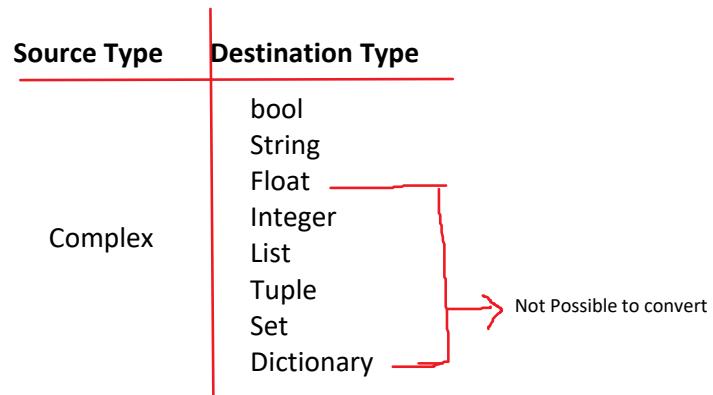
3. Conversion of Complex to Other Data Types:

Example :-

```

c=10+8j
int(c)
Output:-Traceback (most recent call last):
  File "<pyshell#1>", line 1, in <module>
    int(c)
TypeError: int() argument must be a string,
a bytes-like object or a real number, not 'complex'
float(c)
Output:-Traceback (most recent call last):
  File "<pyshell#2>", line 1, in <module>
    float(c)
TypeError: float() argument must be a string or a real
number, not 'complex'
bool( c )
Output:-True
str(c)
Output:'(10+8j)'
list(c)
Output:-Traceback (most recent call last):
  File "<pyshell#5>", line 1, in <module>
    list(c)
TypeError: 'complex' object is not iterable
tuple(c)
Output:-Traceback (most recent call last):
  File "<pyshell#6>", line 1, in <module>
    tuple(c)
TypeError: 'complex' object is not iterable
set(c)
Output:-Traceback (most recent call last):
  File "<pyshell#7>", line 1, in <module>
    set(c)
TypeError: 'complex' object is not iterable
dict(c)
Output:-Traceback (most recent call last):
  File "<pyshell#8>", line 1, in <module>
    dict(c)
TypeError: 'complex' object is not iterable

```



4. Conversion of bool to Other Data Types:

Examples:-

```

a=True
b=False
int(a)
Output:-1
int(b)
Output:-0
float(a)

```

Source Type	Destination Type
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```

int(b)
Output:-0
float(a)
Output:-1.0
float(b)
Output:-0.0
complex(a)
Output:-(1+0j)
complex(b)
Output:-0j
str(a)
Output:-'True'
str(b)
Output:-'False'
list(a)
Output:-Traceback (most recent call last):
File "<pyshell#12>", line 1, in <module>
list(a)
TypeError: 'bool' object is not iterable
list(b)
Output:-Traceback (most recent call last):
File "<pyshell#13>", line 1, in <module>
list(b)
TypeError: 'bool' object is not iterable
tuple(a)
Output:-Traceback (most recent call last):
File "<pyshell#14>", line 1, in <module>
tuple(a)
TypeError: 'bool' object is not iterable
tuple(b)
Output:-Traceback (most recent call last):
File "<pyshell#15>", line 1, in <module>
tuple(b)
TypeError: 'bool' object is not iterable
set(a)
Output:-Traceback (most recent call last):
File "<pyshell#16>", line 1, in <module>
set(a)
TypeError: 'bool' object is not iterable
set(b)
Output:-Traceback (most recent call last):
File "<pyshell#17>", line 1, in <module>
set(b)
TypeError: 'bool' object is not iterable
dict(a)
Output:-Traceback (most recent call last):
File "<pyshell#18>", line 1, in <module>
dict(a)
TypeError: 'bool' object is not iterable
dict(b)
Output:-Traceback (most recent call last):
File "<pyshell#19>", line 1, in <module>
dict(b)
TypeError: 'bool' object is not iterable

```

Source Type	Destination Type
Boolean	Integer Float Complex string List Tuple Set Dictionary

Not Possible to convert