

# 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

b=int(a)

source variable  
Destination Type  
Destination Variable

**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

Not Possible to convert

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)
```

Output:-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

```

Source Type	Destination Type
Complex	bool
	String
	Float
	Integer
	List
	Tuple
	Set
	Dictionary
	Not Possible to convert

### 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
-------------	------------------

-----

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