Python from Scratch

Python Numbers

Lesson 5

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  - **float**
  - **Complex**
- **Type Conversion**
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Python Numbers

Python Numbers

There are three numeric types in Python:

- `int`
- `float`
- `complex`

- Variables of numeric types are created when you assign a value to them:

Example

```
x = 1    # int
y = 2.8  # float
z = 1j   # complex
```

- To verify the type of any object in Python, use the type() function:

Example

```
print(type(x))
print(type(y))
print(type(z))
```

Int

Int, or integer, is a whole number, positive or negative, without decimals, of unlimited length.

Example

Integers:

```
x = 1
y = 35656222554887711
z = -3255522

print(type(x))
print(type(y))
print(type(z))
```

Float

- Float, or "floating point number" is a number, positive or negative, containing one or more decimals.

  ### Example

  Floats:

  ```
  x = 1.10
  y = 1.0
  z = -35.59

  print(type(x))
  print(type(y))
  print(type(z))
  ```

- Float can also be scientific numbers with an "e" to indicate the power of 10.

  ### Example

  Floats:

  ```
  x = 35e3
  y = 12E4
  z = -87.7e100

  print(type(x))
  print(type(y))
  print(type(z))
  ```

Complex

Complex numbers are written with a "j" as the imaginary part:

Example

Complex:

```
x = 3+5j
y = 5j
z = -5j

print(type(x))
print(type(y))
print(type(z))
```

Type Conversion

You can convert from one type to another with the int(), float(), and complex() methods:

Example

Convert from one type to another:

```
x = 1    # int
y = 2.8  # float
z = 1j   # complex

#convert from int to float:
a = float(x)

#convert from float to int:
b = int(y)

#convert from int to complex:
c = complex(x)

print(a)
print(b)
print(c)

print(type(a))
print(type(b))
print(type(c))
```

Note: You cannot convert complex numbers into another number type.

Random Number

Python does not have a random() function to make a random number, but Python has a built-in module called random that can be used to make random numbers:

Example

Import the random module, and display a random number between 1 and 9:

```
import random

print(random.randrange(1, 10))
```

In our Random Module Reference you will learn more about the Random module.

Test Yourself with Exercises

Exercise:

Insert the correct syntax to convert x into a floating point number.

```
x = 5
x = ____(x)
```