

Chapter 1

Built-In Data Types

1.1 Mutable or immutable? That is the question

Custom objects in Python are mutable (unless you code them not to be). Keep this concept in mind, as it's very important.

1.2 Numbers

1.2.1 Integers

Python has two division operators, one performs the so-called **true division** (`/`), which returns the quotient of the operands, and another one, the so-called **integer division** (`//`), which returns the *floored* quotient of the operands. Integer division in Python is **always rounded toward minus infinity**.

1.2.2 Booleans

Boolean algebra is that subset of algebra in which the values of the variables are the truth values, true and false. Booleans are a subclass of integers, so True and False behave respectively like 1 and 0. The equivalent of the int class for Booleans is the bool class, which returns either True or False. Every built-in Python object has a value in the Boolean context, which means they basically evaluate to either True or False when fed to the bool function.

Upcasting is a type conversion operation that goes from a subclass to its parent.

1.2.3 Real numbers

Real numbers, or floating point numbers, are represented in Python according to the IEEE 754 double-precision binary floating point format, which is stored in

64 bits of information divided into three sections: sign, exponent, and mantissa.