**Booleans**

Sometimes we have a need for variables that are either true or false. This datatype, which can only ever take one of two values, is called a boolean. In Python, we define booleans using the keywords Trueand False:

a = True b = False

A boolean is actually a special case of an integer. A value of True corresponds to an integer value of 1, and will behave the same. A value of False corresponds to an integer value of 0.

# ValueError

Python automatically assigns a variable the appropriate datatype based on the value it is given. A variable with the value 7 is an integer, 7. is a float, "7" is a string. Sometimes we will want to convert variables to different datatypes. For example, if we wanted to print out an integer as part of a string, we would want to convert that integer to a string first. We can do that using str():

age = 13 print "I am " + str(age) + " years old!"

This would print:

>>> "I am 13 years old!"

Similarly, if we have a string like "7" and we want to perform arithmetic operations on it, we must convert it to a numeric datatype. We can do this using int():

number1 = "100" number2 = "10" string\_addition = number1 + number2 #string\_addition now has a value of "10010" int\_addition = int(number1) + int(number2) #int\_addition has a value of 110

If you use int() on a floating point number, it will round the number down. To preserve the decimal, you can use float():

string\_num = "7.5" print int(string\_num) print float(string\_num)

>>> 7 >>> 7.5