Removing duplication is particularly important when programs are maintained for a long time. When there are two sets of statements with the same effect, it can easily happen that a programmer modifies one set but not the other.

Special Topic 3.1

Conditional Expressions

Python has a conditional operator of the form

value_1 `if` $\mathit{condition}$ `else` value_2

The value of that expression is either value_1 if the condition is true or value_2 if it is false. For example, we can compute the actual floor number as

```
actualFloor = floor - 1 if floor > 13 else floor
```

which is equivalent to

```
if floor > 13 :
   actualFloor = floor - 1
else :
   actualFloor = floor
```

Note that a conditional expression is a single statement that must be contained on a single line or continued to the next line (see Special Topic 2.3). Also note that a colon is not needed because a conditional expression is not a compound statement.

You can use a conditional expression anywhere that a value is expected, for example:

```
print("Actual floor:", floor - 1 if floor > 13 else floor)
```

We don't use the conditional expression in this book, but it is a convenient construct that you will find in some Python programs.

3.2 Relational Operators

Use relational operators (< <= > >= == !=) to compare numbers and strings.

In this section, you will learn how to compare numbers and strings in Python.

Every `if` statement contains a condition. In many cases, the condition involves comparing two values. For example, in the previous examples we tested `floor > 13`. The comparison > is called a **relational operator**. Python has six relational operators (see Table 1).

In Python, you use a relational operator to check whether one value is greater than another.

As you can see, only two Python relational operators (> and <) look as you would expect from the mathematical notation. Computer keyboards do not have keys for ≥, ≤, or ≠, but the >=, <=, and != operators are easy to remember because they look similar. The == operator is initially confusing to most newcomers to Python.