Part II
Types and Operations

Chapter 4: Introducing Python Object Types

1. Name four of Python's core data types.

2. Why are they called "core" data types?

3. What does "immutable" mean, and which three of Python's core types are considered immutable?

4. What does "sequence" mean, and which three types fall into that category?

5. What does "mapping" mean, and which core type is a mapping?

6. What is "polymorphism," and why should you care?

Chapter 5: Numbers

1. What is the value of the expression `2 * (3 + 4)` in Python?

2. What is the value of the expression `2 * 3 + 4` in Python?

3. What is the value of the expression `2 + 3 * 4` in Python?

4. What tools can you use to find a number's square root, as well as its square?

5. What is the type of the result of the expression `1 + 2.0 + 3`?

6. How could you truncate and round a floating-point number?

7. How can you convert an integer to a floating-point number?

8. How would you display an integer in octal or hexadecimal notation?

9. How might you convert an octal or hexadecimal string to a plain integer?

Chapter 6: The Dynamic Typing Interlude

1. Consider the following three statements. Do they change the value printed for A?

```
A = "spam"
B = A
B = "shrubbery"
```

2. Consider these three statements. Do they change the value of A?

```
A = ["spam"]
B = A
B[0] = "shrubbery"
```

3. How about these—is A changed?

```
A = ["spam"]
B = A[:]
B[0] = "shrubbery"
```

Chapter 7: Strings

1. Can the string `find` method be used to search a list?

2. Can a string slice expression be used on a list?

3. How would you convert a character to its ASCII integer code? How would you convert the other way, from an integer to a character?

4. How might you go about changing a string in Python?

5. Given a string S with the value `"s,pa,m"`, name two ways to extract the two characters in the middle.

6. How many characters are there in the string `"a\nb\x1f\000d"`?

7. Why might you use the string module instead of string method calls?

Chapter 8: Lists and Dictionaries

1.   Name two ways to build a list containing five integer zeros.

2.   Name two ways to build a dictionary with two keys `'a'` and `'b'` each having an associated value of `0`.

3.   Name four operations that change a list object in-place.

4.   Name four operations that change a dictionary object in-place.

Chapter 9: Tuples, Files, and Everything Else

1.   How can you determine how large a tuple is?

2.   Write an expression that changes the first item in a tuple. `(4, 5, 6)` should become `(1, 5, 6)` in the process.

3.   What is the default for the processing-mode argument in a file `open` call?

4.   What module might you use to store Python objects in a file without converting them to strings yourself?

5.   How might you go about copying all parts of a nested structure at once?

6.   When does Python consider an object `true`?

7.   What is your quest?