Exercises (Your First Programs)

Exercise 1. Suppose a Python program called fruits.py is run as follows:

```
~/workspace/ipp.exercises
$ python3 fruits.py Apple Banana Cherry Durian Fig Gooseberry Jackfruit
```

(a. How many command-line arguments does the program receive, i.e., how many values does sys.argv contain?

(b. What is the value of sys.argv[0]?

(c. What is the value of sys.argv[4]?

Exercise 2. Consider the following program:

```
mystery.py
import stdio
import sys
stdio.write("Hi ")
stdio.write(sys.argv[4])
stdio.write(".")
stdio.write(sys.argv[2])
stdio.write(" and ")
stdio.write(sys.argv[1])
stdio.writeln("!")
```

What does the program write to standard output when it is run as follows?

```
~/workspace/ipp.exercises
$ python3 mystery.py Alice "Bob Carol" Dan Eve Fred George
```

Exercise 3. Write a program called fivehellos.py that writes the message “Hello, World” to standard output five times.

```
~/workspace/ipp.exercises
$ python3 fivehellos.py
Hello, World
Hello, World
Hello, World
Hello, World
Hello, World
$ 
```

Exercise 4. Write a program called reverse.py that accepts five strings as command-line arguments and writes them to standard output in reverse order.

```
~/workspace/ipp.exercises
$ python3 reverse.py Alice Bob Carol Eve Fred
Fred
Eve
Carol
Bob
Alice
$ 
```

Exercise 5. Write a program called phone.py that accepts an area code (str), exchange code (str), and subscriber number (str) as command-line arguments, and writes to standard output the corresponding phone number in +1 (XXX) XXX-XXXX format.

```
~/workspace/ipp.exercises
$ python3 phone.py 728 560 3845
+1 (728) 560-3845
$ 
```
Solutions

Solution 1.

a. 8
b. "fruits.py"
C. "Durian"

Solution 2.

Hi Eve, Bob Carol, and Alice!

Solution 3.

```python
import stdio
stdio.writeln("Hello, World")
stdio.writeln("Hello, World")
stdio.writeln("Hello, World")
stdio.writeln("Hello, World")
stdio.writeln("Hello, World")
```

Solution 4.

```python
import stdio
import sys
stdio.writeln(sys.argv[5])
stdio.writeln(sys.argv[4])
stdio.writeln(sys.argv[3])
stdio.writeln(sys.argv[2])
stdio.writeln(sys.argv[1])
```

Solution 5.

```python
import stdio
import sys
stdio.write("+1 (")
stdio.write(sys.argv[1])
stdio.write("-"
stdio.writeln(sys.argv[2])
stdio.write("-")
stdio.writeln(sys.argv[3])
```