

# Introduction

*Although most users think of the shell as an interactive command interpreter, it is really a programming language in which each statement runs a command. Because it must satisfy both the interactive and programming aspects of command execution, it is a strange language, shaped as much by history as by design.*

Brian Kernighan and Rob Pike, *The UNIX Programming Environment*, Prentice-Hall, 1984

The shell *is* a programming language. Don't let anyone tell you otherwise. The shell is not just glue that sticks bits together. The shell is a lot more than a tool that runs other tools. *The shell is a complete programming language!*

When a Linux user asked me about membership databases, I asked him what he really needed. He wanted to store names and addresses for a couple of hundred members and print mailing labels for each of them. I recommended using a text editor to store the information in a text file, and I provided a shell script to create the labels in PostScript. (The script, `ps-labels`, appeared in my first book, *Shell Scripting Recipes: A Problem-Solution Approach*.)

When the SWEN worm was dumping hundreds of megabytes of junk into my mailbox every few minutes, I wrote a shell script to filter them out on the mail server and download the remaining mail to my home computer. That script has been doing its job for several years.

I used to tell people that I did most of my programming in the shell but switched to C for anything that needed the extra speed. It has been several years since I have needed to use C, so I no longer mention it. I do everything in the shell.

A shell script is as much a program as anything written in C, Python, or any other language. Just because shell scripts are easier to write doesn't mean they should take a backseat to compiled programs or other scripting languages. I use the terms *script* and *program* interchangeably when referring to tasks written in the shell.

## Why the Shell?

Some Linux users do all of their work in a GUI environment and never see a command line. Most, however, use the shell at least occasionally and know something about Unix commands. It's not a big