Most Unix programs can be used to form pipes. Some programs that are commonly used as filters are described in the next sections. Note that these programs aren't used only as filters or parts of pipes. They're also useful on their own.

grep

The **grep** program searches a file or files for lines that have a certain pattern. The syntax is:

grep *"pattern" file(s)*

The name "grep" derives from the **ed** (a Unix line editor) command **g/re/p**, which means "*g*lobally search for a *r*egular *e*xpression and *p*rint all lines containing it." A *regular expression* is either some plain text (a word, for example) and/or special characters used for pattern matching. When you learn more about regular expressions, you can use them to specify complex patterns of text.

The simplest use of **grep** is to look for a pattern consisting of a single word. It can be used in a pipe so that only those lines of the input files containing a given string are sent to the standard output. But let's start with an example reading from files: searching all files in the working directory for a word—say, *Unix*. We'll use the wildcard * to quickly give **grep** all filenames in the directory.

```
$ grep "Unix" *
ch01:Unix is a flexible and powerful operating system
ch01:When the Unix designers started work, little did
ch05:What can we do with Unix?
$
```

When **grep** searches multiple files, it shows the filename where it finds each matching line of text. Alternatively, if you don't give **grep** a filename to read, it reads its standard input; that's the way all filter programs work:

```
$ ls -l | grep "Aug"
-rw-rw-rw-   1 john  doc     11008 Aug  6 14:10 ch02
-rw-rw-rw-   1 john  doc      8515 Aug  6 15:30 ch07
-rw-rw-r--   1 john  doc      2488 Aug 15 10:51 intro
-rw-rw-r--   1 carol doc      1605 Aug 23 07:35 macros
$
```

First, the example runs **ls –l** to list your directory. The standard output of **ls –l** is piped to **grep**, which only outputs lines that contain the string *Aug* (that is, files that were last modified in August). Because the standard output of **grep** isn't redirected, those lines go to the terminal screen.