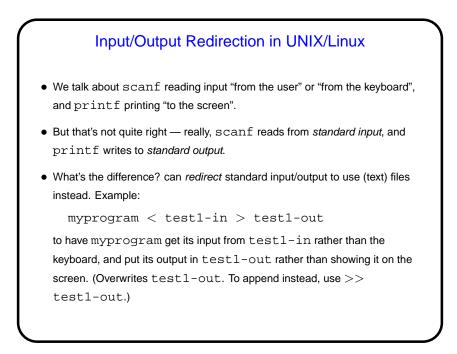


• Reminder: Homework 5 due today. (Sketch out a solution in class for second problem.)

Slide 1



Slide 3

Files and C
Why files? You probably already know: Things stored in memory vanish when you turn the computer off; to preserve them, usually save them as *files*.
We know one way for a C program to get its input from a file, or write its output to a file — I/O (input/output) redirection. But this makes it difficult or impossible to also get input from the keyboard, write output to the screen.
So C (like many other programming languages) provides ways to work more generally with files.

Streams

 C's notion of file I/O is based on the notion of a stream — a sequence of characters/bytes. Streams can be *text* (characters arranged into lines separated by something platform-dependent) or *binary* (any kind of bytes). Unix doesn't make a distinction, but other operating systems do.

- An input stream is a sequence of characters/bytes coming into your program (think of characters being typed at the console).
- An output stream is a sequence of characters/bytes produced by your program (think of characters being printed to the screen, including special characters such as the one for going to the next line).

Slide 5

Streams in C
In C, streams are represented by the type FILE *. FILE is something defined in stdio.h. The * means pointer (which we'll talk about later).
A few streams are predefined — stdin for standard input, stdout for standard output, stderr) for standard error (also output, but distinct from stdout so you can separate normal output from error messages if you want to).
To create other streams — next slide.

Creating Streams in C
To create a stream connected with a file — fopen.
Parameters, from its man page:

First parameter is the name of the file (for now, text in double quotes).
Second parameter is how we want to access the file – read or write, overwrite or append — plus a b for binary files.
Return value is a FILE * — a somewhat mysterious thing, but one we can pass to other functions. If NULL, the open did not succeed. (Can you think of reasons this might happen?)

