Slide 1

Administrivia

- Reminder: Quiz 2 Monday. Likely topics conditional execution, functions.

Slide 2

Minute Essay From Last Lecture

- More than half of you wanted a review of binary numbers and such. We will do that Monday (not today because one person who wanted it will be away), perhaps after the quiz so those who don't want/need the review can skip it.
- Several people commented that Homework 3 was a bit more challenging than the previous ones. Yup! One person said, of the second problem, that it was "frustrating but fun". Programming can be like that!

Slide 3

A Little About Character Data

- (We can't work with strings of character data until we know about arrays. But we can work with single characters, which allows for more kinds of examples.)
- Single characters represented by type `char`. 7-bit, usually ASCII, so range is enough to represent digits, alphabetic characters (upper- and lower-case), various punctuation. Not enough for all non-English languages, alas.
- Worth noting that `char` values are a subset of `int` values, so functions for working with characters sometimes take/return `int`s.
- Can do I/O with `scanf` and `printf`, but simpler to use `getchar` and `putchar`.

Slide 4

Functions and Recursion, More Examples

- First a trivial but fun(?) example of using recursion: Print line of text in reverse order.
- Next a less-trivial example using recursion and also the use of functions to decompose a problem: Get an integer from standard input, without scanf.

Slide 5

Minute Essay

- Here is a C function that does — something.

```
unsigned int foobar(unsigned int a, unsigned int b) {
    if (b == 0) {
        return a;
    }
    else {
        return 1 + foobar(a, b-1);
    }
}
```

What does `foobar(5, 2)` return?

- Can you say what this function seems designed to accomplish?

Slide 6

Minute Essay Answer

- `foobar(5, 2)` returns 7. Why . . .

```
foobar(5, 2) = 1 + foobar(5, 1)
             = 1 + 1 + foobar(5, 0)
             = 1 + 1 + 5
             = 7
```

- It's a roundabout way of doing addition!