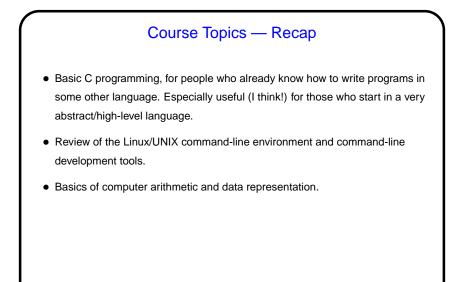


Slide 1

Minute Essay From Last Lecture More about pointers? (As time permits.) "Anything dynamics you can do?" Yes, but you have to do it yourself. Networking in C? Library functions exist, but system-specific (though POSIX defines a standard for UNIX-like systems — fairly low-level). man socket is a starting point. GUIs in C? Even more variation. Base in "X Window System", and then there are many "widget" libraries that build on it. C versus C++? C++ intended in part as "a better C" and also as "C with classes". Almost a strict superset of C, plus syntax for object-oriented programming and standard libraries somewhat similar to collections found in Python/Scala. Strongest C influence is probably explicit pointers and memory management.

Slide 2

Slide 3



Why Learn C? (For Java/Python/Scala Programmers — Recap)

- Scala and Python (and Java, less so) provide a programming environment that's nice in many ways lots of safety checks, nice features, extensive standard library. But they hide a lot about how hardware actually works.
- Slide 4

C, in contrast, has been called "high-level assembly language" — so it seems primitive in some ways compared to many other languages. What you get (we think!) in return for the annoyances is more understanding of hardware — and if you do low-level work (e.g., operating systems, embedded systems), it may well be in C. (Performance *may* also be better, though "measure and be sure".)



• From a key figure in the early days of computing:

"As soon as we started programming, we found to our surprise that it wasn't as easy to get programs right as we had thought. Debugging had to be discovered. I can remember the exact instant when I realized that a large part of my life from then on was going to be spent finding mistakes in my own programs." (Maurice Wilkes: 1948)

Slide 5

• From someone in a discussion group for the Java programming language: "Compilers aren't friendly to anybody. They are heartless nitpickers that enjoy telling you about all your mistakes. The best one can do is to satisfy their pedantry to keep them quiet :)"

