C Programming Language

Lecture 1
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Overview of Computers

- Electronic Computers Then and Now
- Computer Hardware
- Computer Software
  - Operating System
  - Application Software
  - Computer Languages
Computer Languages

- Machine language
- Assembly language
- High-level languages
High-level Languages

- Fortran (Formula translation): Scientific programming, numerical analysis (IMSL)
- COBOL (Common Business-Oriented Language): Business data processing
- LISP (List processing): Artificial intelligence
- C: System programming
High-level Languages (Cont’d)

- Prolog (Logic programming): AI
- Ada: Real-time distributed systems
- Smalltalk: GUI, OOP
- C++: OOP
- Java: internet programming
Program: How-to

- Edit the program using a text editor
- Compile
- Link
- Execute

P.S. Integrated Development Environment (IDE)
Why Learn C?

- “Least common denominator” – good building block for learning other languages
  - Subset of C++, similar to Java
- Closeness to machine allows one to learn about system-level details
- Portable – compilers available for most any platform!
- Very fast (almost as fast as assembly)
  - C/C++ are languages of choice for most programmers
Web Programming

- Hypertext Markup Language (HTML)
- eXtensible Markup Language (XML)
- Java
- Javascript, VBScript
- CGI using Perl, C
- Active Server Page (ASP), PHP, JSP
Software Development Method

- Specify the problem requirements.
- Analyze the problem.
- Design the algorithm to solve the problem.
- Implement the algorithm.
- Test and verify the completed program.
- Maintain and update the program.
Case Study

- Converting Miles to Kilometers

1 Mile = 1.609 kilometers