CS-701 Lecture 17

March 29, 2001

Preregistration

- New system under development
- Starts April 16
- Go to
  http://babbage.cs.qc.edu/GradRegistration

Exam 1 Structure

- Written, not short, answers
- Write and/or explain/interpret code, commands, Makefiles
- Assumes knowledge of Unix commands and C syntax. Will not test them explicitly
- Concepts: shell, environment variables, processes, version control, etc.

Course Grade

- Subject to change, but approximately:
- 30%   Exam 1
- 35%   Exam 2
- 02%   Assignments 1 and 2
- 10%   Assignment 3
- 10%   Assignment 4
- 15%   Other Assignments

Assignment 4 Outline

Due April 17

- Execute external commands in the user's PATH
  - Print error messages for command not found and file not executable conditions
- Implement *which* command

  Tells whether the arguments are builtin or external commands; full path for externals

  -a option causes *all* possibilities to be listed
- Implement simple I/O redirection for external commands.
  - Optional: built-in commands too.

I/O Redirection

- Each process uses file descriptors (*fd*s) 0, 1, 2 for standard in, standard out, and standard error.
- The *open()* system call returns a new *fd*.
  - Numerically, the next-largest unused integer.
  - This sequence will redirect *stdin* for the executing process:
    ```
    close( 0 );
    int stdin_fd = open( afile, O_RDONLY );
    ```
      - The *open( )* call returns 0 because that is the smallest unused *fd*.