CS-701 Lecture 8

February 27, 2001

Administrivia

- From now on, use *g++* instead of *gcc*.
  - Making source file names end with .cc instead of .c will do it.
  - Set the CXXFLAGS environment variable
    -g –Wall
  - On forbin, you must use *gmake* instead of *make.*
  - Relaxes some language rigidities of C.
    - for (int i; …
    - Struct tags are automatically types
  - Requires function prototypes.
    - Makes code more robust.
  - You can use classes if you want to.
  - But do *not* use iostream.h; stay with functions declared in stdio.h.

The 3 D's of Functions

- Declare it (function prototype)
  type name(*formal parameter types*);
- Define it
  type name(*formal parameters*) { … }
- Do it (call or invoke it)
  [*variable* =] *name*(*actual parameters*);

Assignment 3 Topics

- Using *rcs* to manage versions.
- Using *make* to build programs with multiple modules.
- Structuring multi-module programs.
- String processing in C.
  - #include <string.h>
- Process management in Unix.
  - #include < unistd.h>
- C programming techniques
  - Dispatch table
  - etc.

Versions 1.x

- Version 1.1
  - Print prompt string.
- Version 1.2
  - Print prompt string and read command lines using *fgets()*.
- Version 1.3
  - Use *strtok()* to break the command line into tokens.
  - Use a dispatch table to implement the *exit* command.
- Version 1.4
  - Implement the *exit* command as a separate module.
    - Need Makefile, also under *rcs* control.
- Version 1.5
  - Use *fork()* and *execvp()* to implement external commands.

Read a String Using *fgets()*

- Need to allocate memory for the string
  - char cmdBuf[256]; // OK
  - char * cmdBuf;
    - Requires cmdBuf = (char *) malloc (256);
      - But there is no reason to allocate the memory at run time, so it's better to let the compiler allocate it as an array.
  - It would be better to declare the size of the buffer with a "manifest constant" that can be changed easily in the future:
    - #define BUF_SIZE 256
    - char cmdBuf [BUF_SIZE];
- fgets(cmdBuf, sizeof(cmdBuf), stdin);