Final Study Guide

This is simply a guide of topics that I consider important for the final. I don't promise to ask you about them all, or about any of these in particular; but I may very well ask you about any of these, as well as anything we discussed in class, in the discussion section, or that is in the programs and handouts.

1. Anything from the midterm study guide or sample (or actual!) midterm

2. Command-line arguments `argc`, `argv`

3. Function parameters

    (a) How arguments are passed to functions

    (b) Pointers and arrays as parameters

    (c) Changing values in the caller using pointers as parameters

4. Recursion

    (a) The stack and how it is used in recursion

    (b) Base case and recursive case

5. Structures

    (a) What it is

    (b) Declarations, fields, and the `.` operator

    (c) Pointers to structures and the `->` operator

    (d) Arrays of structures

6. Dynamic memory allocation

    (a) `malloc`, `realloc`, `free`

    (b) Linked lists

7. Some C operators and pointers

    (a) `sizeof` operator

    (b) Defining a type (`typedef`)

    (c) `?  :`

    (d) Function pointers

8. Bits and C bit operations

    (a) Binary, hexadecimal numbers

    (b) Operators `&`, `|`, $\sim$

    (c) Extracting a particular bit from a word

9. The standard I/O library

    (a) File pointers, especially stdin, stdout, stderr

    (b) Opening and closing files

    (c) `getc, fgetc, fscanf, fgets, fread`

    (d) `putc, fputc, fprintf, fputs, fwrite`

    (e) *fseek*, `ftell`

    (f) *ungetc*

10. C Preprocessor

    (a) `#define`: macros with and without parameters

(b) `#include`: include files (like `stdio.h`)

(c) `#if`, `#ifdef`,`#elif`, `#else`, `#endif`

11. Managing multi-file programs

(a) user-defined header files (.h files)

(b) `static`, *extern* keywords

(c) *make*