Notes for ECE 26400 - Advanced C Programming

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> These are lecture notes for fall 2023 ECE 26400 at Purdue. Modify, use, and distribute as you please.

Contents

Course Introduction

This class will be taught by Joy Xiaoqian Wang. There will be four online exams, weekly online quizzes, and 20 homework assignments. For more information, consult the syllabus here.

Tools

UNIX System: The environment we'll use in this course. No matter your machine, you can use the UNIX environment. Some common commands in UNIX-like systems are:

For a comprehensive list of UNIX commands, see Wikipedia's excellent page

- `ls` - List directory contents

- `cd` - Change directory

- `mkdir` - Make directory

- `rm` - Remove files or directories. Use -rf to recursively delete files regardless of permission

- `mv` - Move files or directories

- `diff` - Comparing two files and showing their difference. Use -w to ignore whitespace

- `cat` - Shows contents of file without opening

- `cp` - Create a copy of a file

- `[CTRL + U]` - Undoes what was last typed

- `chmod` - Change file permissions

- `chown` - Change file ownership

- `kill` - Terminate processes

- `ssh` - Secure shell remote login

- `scp` - Securely copy files between hosts

- `wget` - Download files from the web

- `find` - Search for files and directories

- `vim` - Powerful text editor

To use these, simply type them in bash. For example, ls will print the contents of your directory.

```
$ ls
code-folder/    helloworld.c    homework/
```

Git for Version Control: Distributed version control system. Git helps you manage, store, and collaborate on your project. The "version control" refers to how Git stores previous versions of your code, so unwanted changes can be reverted. Git is useful for when several people work on a project at a time or when you want to keep track of changes.

You have a local and remote repository (repo). What's on the remote repo is what's graded. You work on your local repo and then push it to the remote repo.

We can also get updates form the remote repo to your local. This is a "pull".

GCC:

Makefile:

GDB:

This is sample text to outline how notes will be structured. Notes will be a combination of text, code snippets, and math (when appropriate). would otherwise interrupt the notes.

Listing 1: Example Code

```
#include <stdio.h>
int main() {
    printf("Hello, World!");
    return 0;
}
```