CS3157: Advanced Programming

Midterm Study Plan
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Important stuff

- Midterm : 10/17
- In class, Open book

- Study labs, and class notes, and homework

Perl

- Basic programming
  - Scalars
  - Arrays
  - Hashes
  - Subroutines
    - Should know how to write, and how things are passed in, and how to call them
  - Perl debugger
    - Basic commands, how to call, why we use it
  - File handles
    - Open, close, processing

Sample Definition List

- $ENV
- foreach
- for
- while
- next
- last
- unless
- until
- use strict
- $/
- $_
- $$
- $'
- my
- local
- die

- $!
- $0
- @_
- print
- =~
- ~
- <=>
- &&=
- chop
- exists
- eof
- split
- chomp
- our
- fork/exec
- open

Regular Expressions

- What they are
- How to use them in perl
  - Matching
  - Substitution
    - Flags and modifiers

- See the lab on this

CGI

- What is CGI?
- How and why we use cgi
- Typical errors
- Getting and processing user input
- Html formatting basics
  - Tags, webpages, etc
- Security related to CGI

C

- What is gcc, how do we use it
- Language basics
  - Basic data types
  - Basic loops
  - printf/scanf formatting and usages
  - Casting
  - Bitwise operators
  - String and string functions
- Makefiles and linking
  - Object files

Exam format

- ~6 definitions
- 4 understanding questions
- 2 programming questions

- Will be expected to take about 1+ hour

Sample programming question

- What is wrong with this script?

```perl
#!/usr/local/bin/perl
# print the longest line in a file, excluding
    newline character.
while (<>) {
    chomp;
    if (length ($_) > length ($maxlength))
    {
        $longest = $_;
    }
}
 print "The longest line is $longest.\n";
```

sample

1. Write a perl script to show the current working directory.

2. write a program in perl to open a file and print each line out backwards

C

```c
#include

void main()
{
  int z = 2;

  z = 7;
  for (i = 1 i < 5; i++) {
    printf("%d\n" i*z);
    z += 2
  }
  printf("\n");
```

This program contains 5 errors. Circle each of these 5 errors in the code above and by each circle, write a short sentence describing the error.

cgi

- Write a simple html page to replace google's main page, and a perl script to grab the user's search term and store it in a log file named searched.txt

Theory

- How do you set the file permissions so that everyone can read some file tempsig.dat but not write to it?

- During running gcc, you notice .o files being created, what are they?

- Can you think of a reason why strings in perl needs the equals function and not the == ?

- The CGI specifies an interface whereby a CGI script called with method POST should expect to receive the data from the server in which variable ? How is the GET method different?

Good Luck!