CSE 351 Section 1

Introduction & Course Tools

Introduction

Contact Info

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Office Hours: Wed 3:00-3:50 in CSE 002

About me

CSE Master's student (BS/MS program)
Interested in embedded software

Why CSE 351 is awesome

Understand computers
Learn a bit of C
Work on cool labs!

Student Introductions

Name
Year
Majors/Minors
Favorite hobby
Summer highlight

Course Tools

Basic course tools

Text editor

GNU Compiler Collection (GCC)

GNU Project Debugger (GDB)

(all of these are in the CSE home VM!)

The CSE Home VM

Why?

- Like having a lab computer at home
- Helps us troubleshoot code instead of fixing configuration problems

Information link:

http://www.cs.washington.edu/lab/labVMs/homeVMs.shtml

Demo!

Text editors

There is no ”best” text editor

Command-line editors:

- Nano (simple, but limited)
- Vim
- Emacs

Graphical editors:

- Gedit
- Emacs

GCC

Command line utility
Compiles C and C++ programs

What is compiling?

- Convert code so the processor can execute it

How to compile?

- Simple command is:

```
gcc <your code file> -o <program name>
```

Hello World in C

The code:

```
#include <stdio.h>

int main (int argc, char* argv[]){
  printf("Hello World\n");
}
```

Let's talk about each part

Your turn!

Find a person with a laptop and gcc

Using a browser or wget, download the file:

http://students.washington.edu/dutchsct/CSE351/HelloWorld.c

```
wget http://students.washington.edu/dutchsct/CSE351/HelloWorld.c
```

Open a terminal window

Navigate to the source file

Your turn!

Now run:

```
gcc HelloWorld.c -o hello
```

Check that it's there:

```
ls
```

Now run the program:

```
./hello
```

About printf()

Takes a format string with placeholders for numbers, strings, etc.

Common placeholders:

- ”%d”, signed int
- ”%u”, unsigned int
- ”%f”, float
- ”%s”, string
- ”%x”, hexadecimal int
- ”%p”, pointer address

printf() examples

```
printf(”I am %d years old”, 20)
```

I am 20 years old

```
printf(”My name is %s”, ”Matt”)
```

My name is Matt

```
printf(”%d in hex is %x”, 2827, 2827)
```

2827 in hex is 0xb0b

A more complicated example

Now, download the file:

http://students.washington.edu/dutchsct/CSE351/MoreComplicated.c

```
wget http://students.washington.edu/dutchsct/CSE351/MoreComplicated.c
```

Compile the file

```
gcc MoreComplicated.c -o MoreComplicated
```

Run the file

./MoreComplicated

Open this in a text editor, find examples of printf and function calls in C.

Linux shell commands

See what directory you're in

```
pwd
```

See what's in the directory

```
ls
```

Go into a directory

```
cd <directory name>
cd .. (takes you up a directory)
```

chmod

If "permission denied" error when trying to run

```
./MyProgramName
```

You may need to change the executable's permissions

To give yourself R/W/X permissions, run

```
chmod 744 [filename]
```

Linux man pages

Say you need to know more about printf()

You can certainly use Google

Another option is

```
man 3 <function>
```

ex: `man 3 printf`

Brings up the man page for the C version of the function you provide

For more general Linux help, use man without the 3