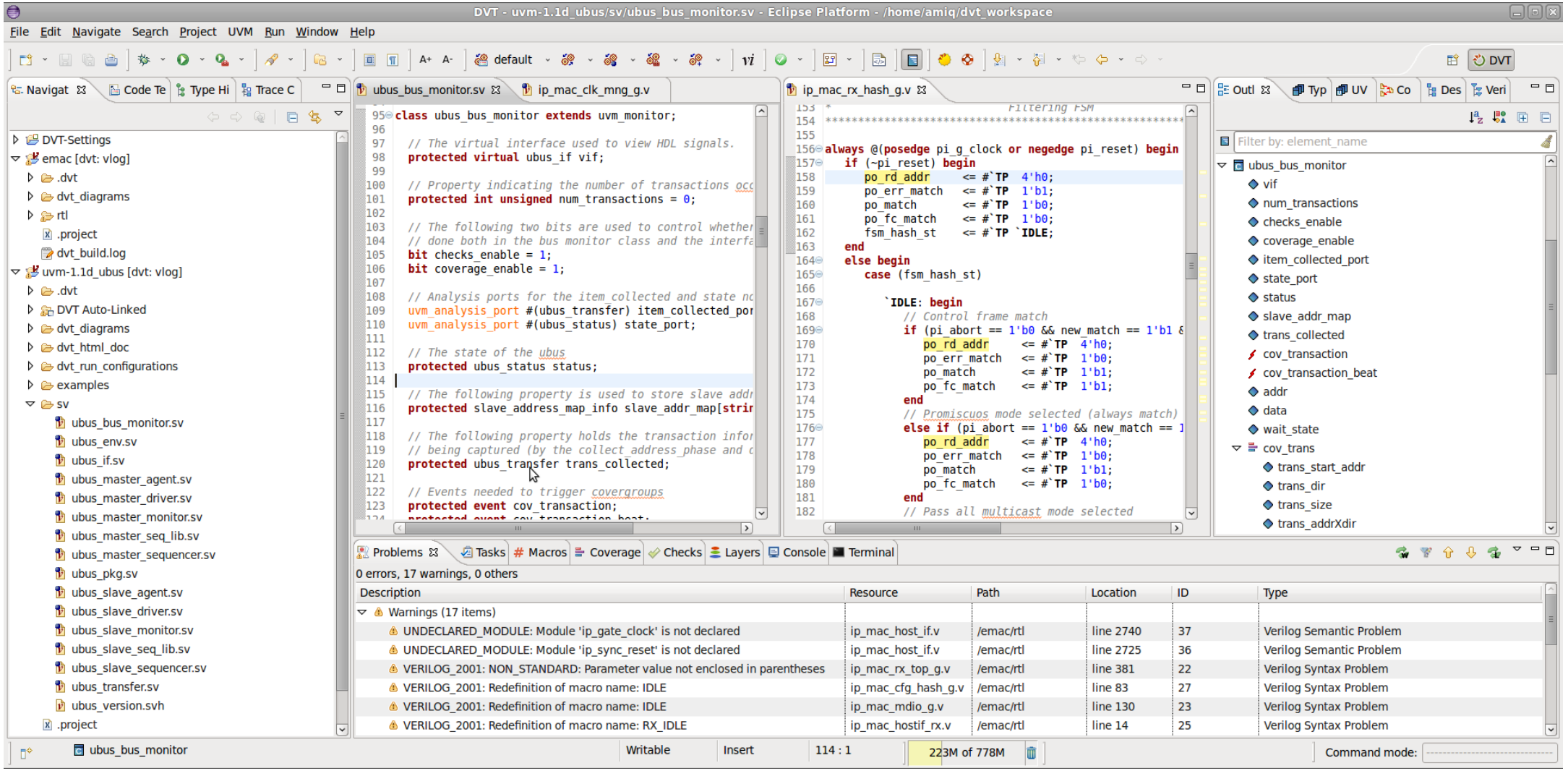
CS-211 Development Environment

IDE vs. Command Line

Editor, Compiler, Builder, Debugger

Picking the right tool for the job

Integrated Development Environment



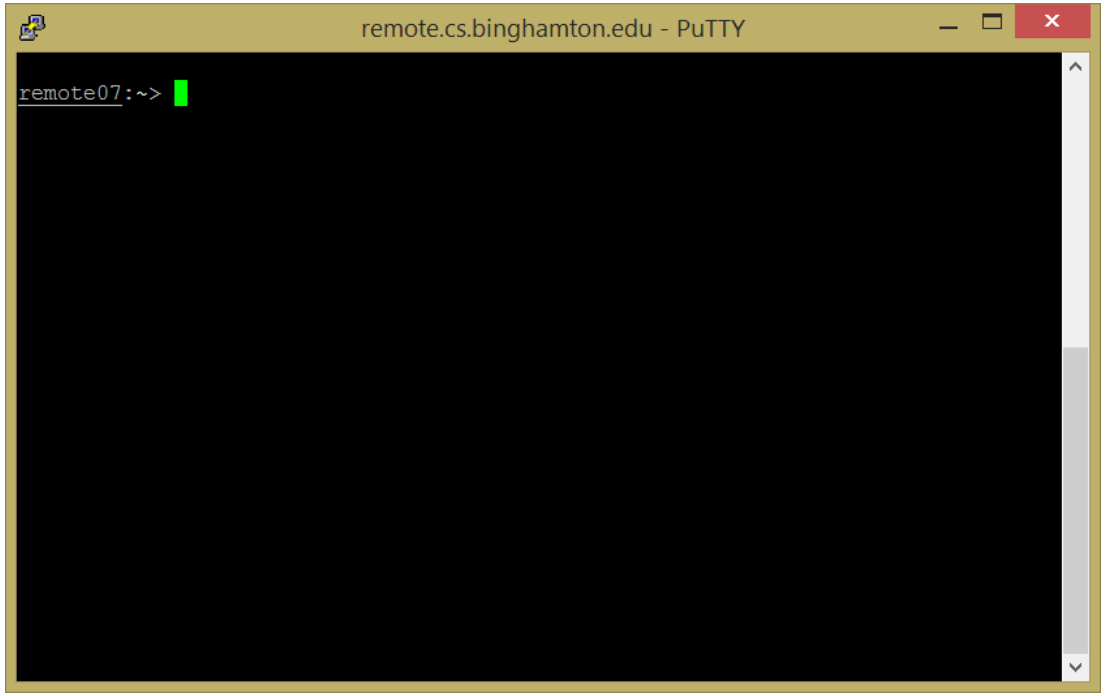
IDE

- Single interactive graphical user interface (GUI)
- Includes:
  - File/Project Management
  - Editor
  - Compiler
  - Builder
  - Debugger
  - Execution Environment

Command Line Mentality

- Artisan vs. Factory Worker
- Learn to use lots of tools
- May be slower
- Take more knowledge
- Require more effort
- Tools you can take with you
- Tools universally available
- Applicable to wide variety of projects

UNIX shell



- "Shell" is a command line window
- "Prompt"
  - Machine name
  - Current Directory
  - ">"
- Type commands at prompt
  - Nothing happens until you hit "<enter>"
- When you hit enter…
  - Command is executed
  - Response appears
  - Another prompt appears

Project / File Management

UNIX File & Directory Commands

- mkdir to make a new project directory
- cd to that project
- run all other tools inside that directory
- “tar” to consolidate directory into a single transmittable file

Edit Source Code

gedit

- Remember, displayed version not written to file until “save”
- If you have made edits and not saved, an “*” will precede file name
- Start with the command “gedit <file>&”
- Recommend Edit/Preferences/
  - View - ☑ Display line numbers
  - View - ☑ Highlight matching brackets
  - Editor - ☐ Create a backup copy of files before saving

Build Executable

make

- To start, we don't need "make"
- As projects get more complicated, we will learn "make"

Compile Code

gcc

- For now, “gcc –o <executable_file> -g <source_file>”
- More as time goes on

Debug Code

gdb

- Command “gdb <executable file>”
- Opens gdb prompt: “(gdb)”
- Type gdb commands at prompt
  - “break <linenumber>” - stop and prompt before executing line
  - “run” – start program and run to next break or end of program
  - “step” – execute next line of source code (to next semi-colon)
  - “quit” – to exit debugger

Demo…

Resources

- Programming in C, Chapters 1 & 2
- Wikipedia: Integrated Development Environment (https://en.wikipedia.org/wiki/Integrated_development_environment)
- Wikipedia: List of Unix Commands (https://en.wikipedia.org/wiki/List_of_Unix_commands)
- gedit wiki (https://wiki.gnome.org/Apps/Gedit)
- gcc online documentation (https://gcc.gnu.org/onlinedocs/)
- gdb online documentation (http://www.gnu.org/software/gdb/documentation/)