Programming Languages and Tools: Programming with C++ CS:3210:0003

Lecture/Lab #2

FastX Desktop Client

1. Open FastX 3 on your Windows computer (let me know if one of the lab computers doesn't have it)
2. Create a new https connection by clicking +, selecting https instead of ssh on top, typing the following details, and clicking Ok:
   - fastx.divms.uiowa.edu for *Host*
   - your hawkID for *User*
   - 3443 for *Port*
   - uncheck Ignore SSL errors and Force SSH authentication
3. Double click the connection you created and enter your password
4. Create a new session by clicking + and selecting Mate (enter password if prompted)
5. Click the toggle fullscreen mode (⛶) button
6. Open Slack (Applications -> Internet -> Slack) and login to the cs3210spr24 channel
7. Open VSCode (Applications -> Computer Science -> Visual Studio Code)
8. Open a Terminal (Applications -> MATE Terminal) and move to class using the command cd Desktop/class

Class Structure

- Mix of lecture, live coding, coding activities
- Communication:
  - Raise hand, call me by name to grab my attention
  - I will walk around during activities
  - Ask questions on #questions Slack channel
- We’ll try to stick with Linux machines using Desktop client
- C++ vs Linux vs Git

Git Repo

- Last week we cloned the class repo
- I have pushed changes to the repo that you will pull
- To avoid conflicts, don’t change any repo files
- Instead, create a directory called workspace in class and copy/create any files/directories you want to work on there
- Start by moving helloworld.cpp from last week to workspace

HelloWorld

Binary Names

- Use -o option with g++ to name the binary (defaults to a.out):

```
g++ -o binaryname.bin filename.cpp
```

- Use the convention of .bin extension for binaries

Variables

- Store values
- Names for memory addresses on the RAM (random access memory)
- Define a variables using either syntax:
  1. `VariableType VariableName;`
  2. `VariableType VariableName = InitialValue;`
- Type tells compiler the nature of data the variable can store, to determine how much space it needs

Activity

- Add a function called MultiplyNumbers that inputs 2 integers and prints their product on to the screen
- Call it from main after AddNumbers
- Take help from the AddNumbers code. * is the operator for multiplication of integers

Scope

- Compiler recognizes variable name only within its scope
- Local scope: scope restricted to a block/function
- Global scope: all of the program