CPTR-141 Fundamentals of Programming I

Software Setup

Spring 2021

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There are three major steps, A, B, C, to setting up the software that you will use this quarter.

A) Initial Setup: CS Lab Account

The first step is to create your CS Lab account by following the instructions below.

Register for your CS Lab Account
1. Open a web browser and go to cs.wallwalla.edu
2. Sign in using your regular WWU username and password.
3. Make note of your CS username
     (first four characters of your last name and first 2 characters of your first name)
4. Change your lab account password to something you will remember.

You only need to do this once, but can return here if you need to reset your CS lab password.

B) Initial Setup: Gitlab Account

The next step is to log into the CS department's source code repository website to initialize your account.

Log into GitLab

1. Go to gitlab.cs.wallawalla.edu
2. Make sure the **LDAP** tab is selected, and sign in with your CS username and new password.
3. You don't need to do anything else now in this account. You can sign out.

You only need to do this once, but can access your code through this website later if you wish.
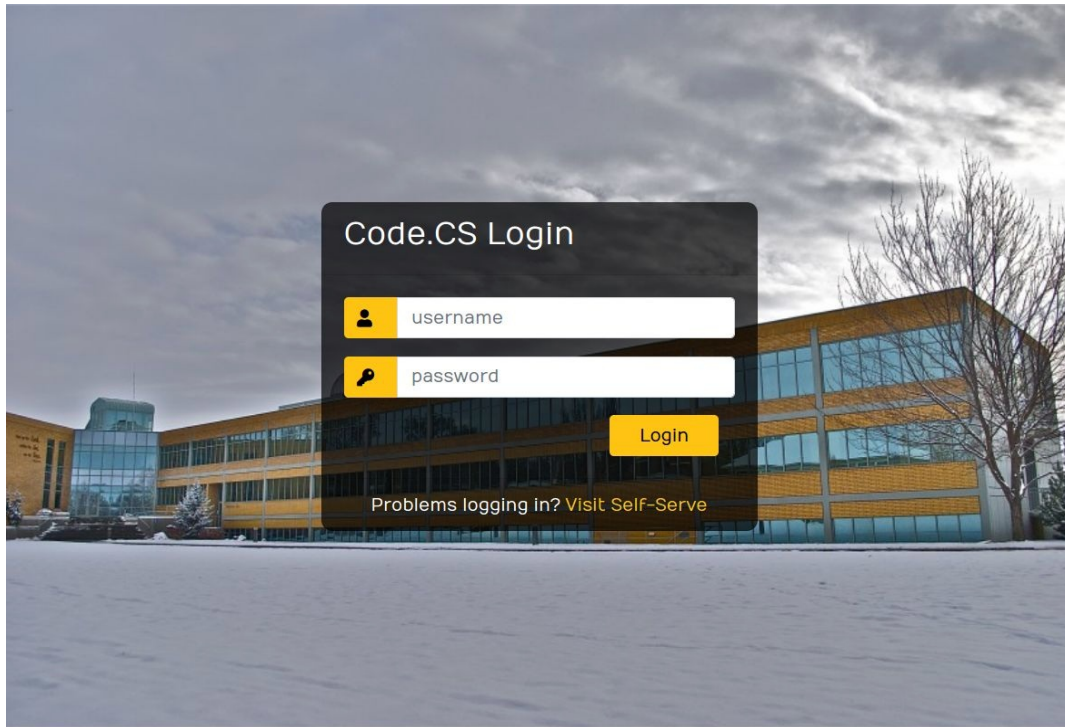
C) Initial Setup: Code.cs
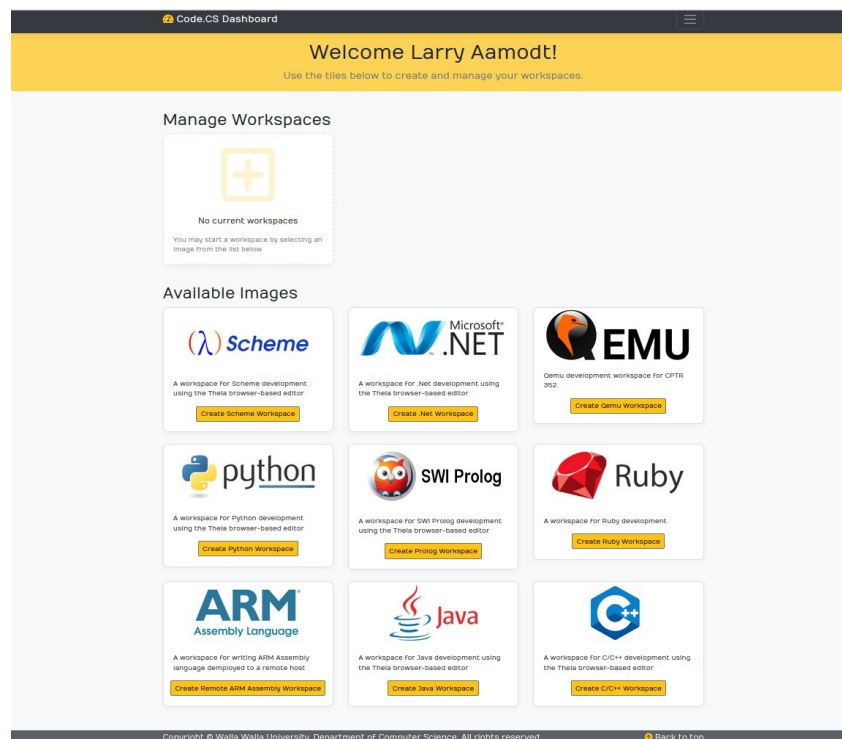Then you can create your programming workspace and prepare it for the class.

Log into Code.cs and Prepare Workspace
1. Go to code.cs.wallawalla.edu and log in with your CS username and password.
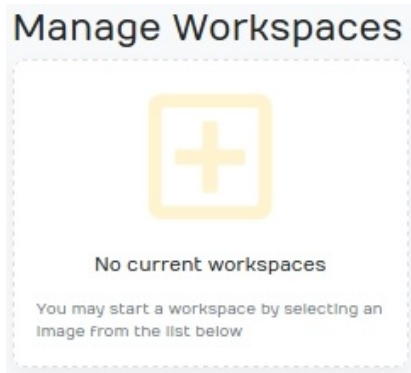
The login page looks like this:

The first page after logging in looks something like this:

The upper left icon shows the workspace(s) you have created. Initially none:
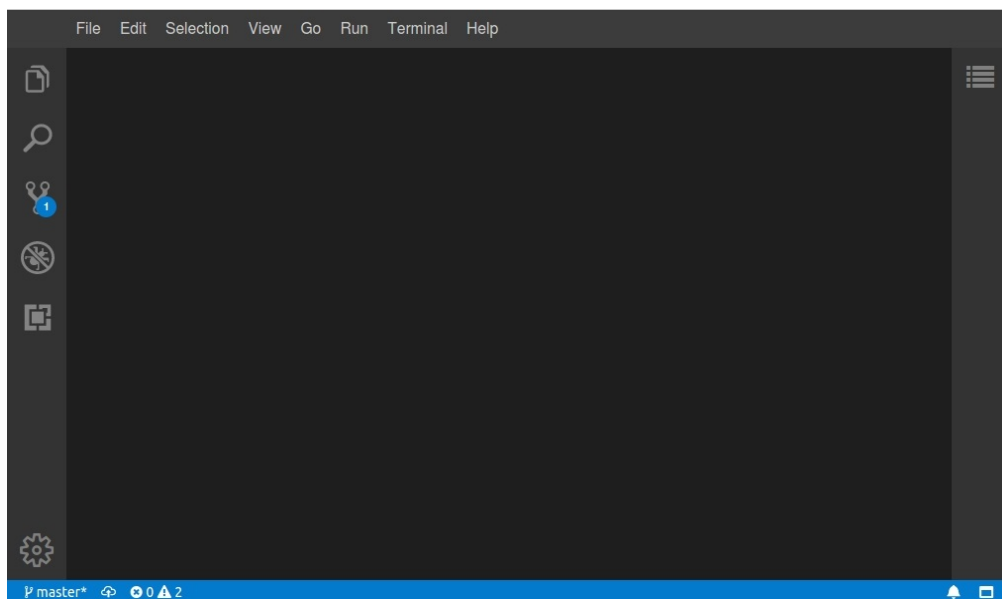

The other icons are used to create various software setups. At the lower right is the C++ icon:
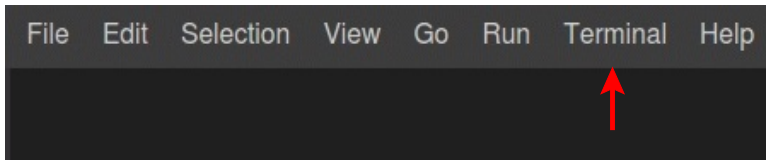

2. Click on this to create a new C++ workspace. A box will open to allow naming the workspace. Name it anything you like.
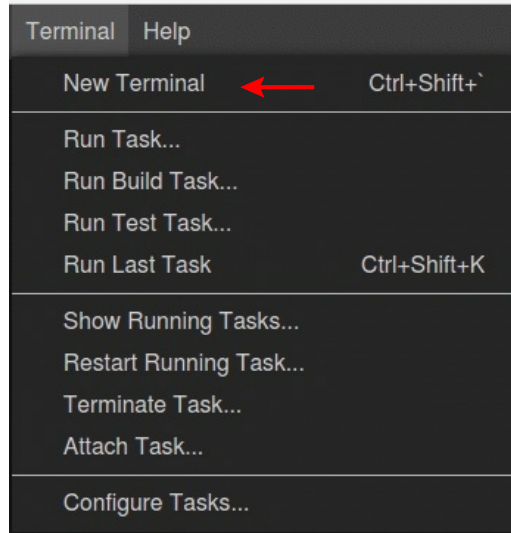

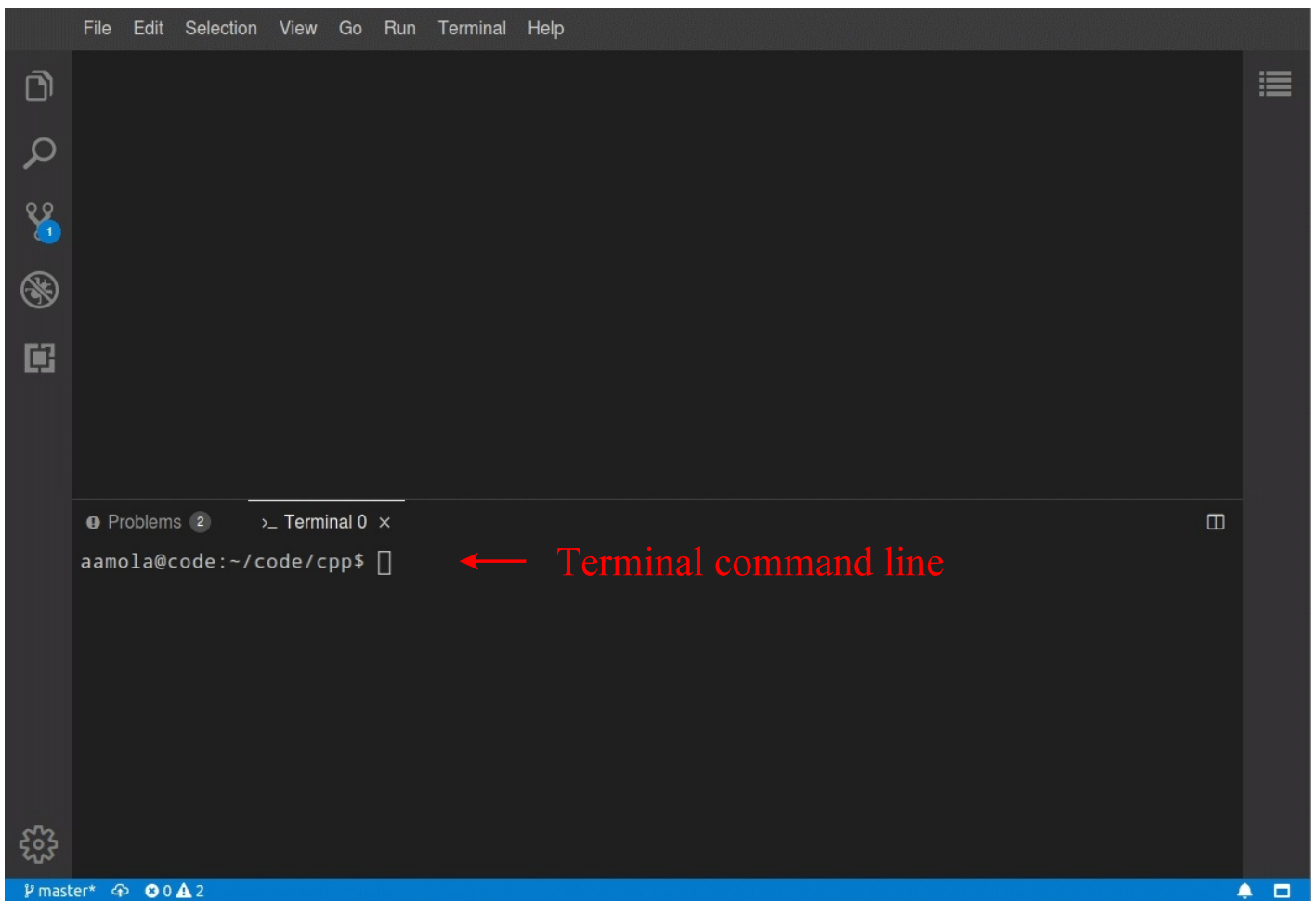Once the workspace is created a Theia-cpp window will open:

At the top of the Theia window is a tool bar:

3. Click on Terminal. A drop down menu will open:

Select New Terminal to open a terminal area within the Theia window.

4. Type `setup141.sh` into the terminal and press *Enter*.
5. Provide your CS lab username and password. Note: as you type the password nothing will be displayed, that is normal. Here is an example transcript from running setup141.sh

```
aamola@code:~/code/cpp$ setup141.sh
Username: aamola
Password:
Cloning into 'student141'...
remote: Enumerating objects: 18, done.
remote: Counting objects: 100% (18/18), done.
remote: Compressing objects: 100% (15/15), done.
remote: Total 18 (delta 2), reused 13 (delta 1), pack-reused 0
Receiving objects: 100% (18/18), 135.73 KiB | 16.97 MiB/s, done.
Resolving deltas: 100% (2/2), done.
aamola@code:~/code/cpp$ █
```

NOTE: You should only complete steps 4 and 5 above **once**.

This quarter you will be doing your coding for this class on the Code.cs server using the Theia software development environment.

There is a left tool bar in Theia. The top icon is Explorer

After setup141.sh has run, clicking on Explorer will open
a list of projects within Theia
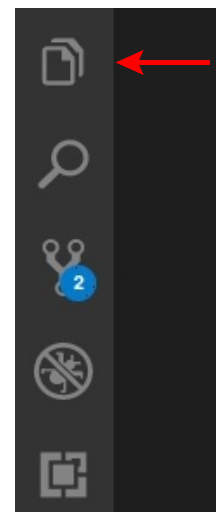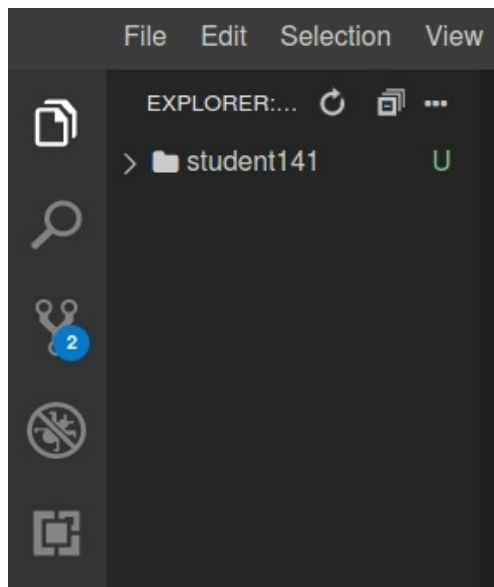
Clicking on a project will expand it to see folders and files within it.

Here is expansion of the student141 project
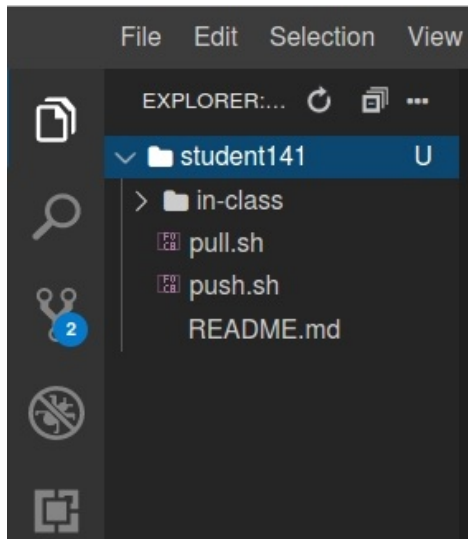
Note the pull.sh script. You need to click on and run this each day to get new material being distributed to the class

Further expansion of in-class and then day 0331 which is March 31

Hello World!
============

On the prior page in the expanded Explorer you will find a file named hello.cpp
A C++ source file has the extension .cpp.

Clicking on hello.cpp opens the file in the editor portion of the Theia window:

Zooming in on the text:

```cpp
 1    /**********************************************************************
 2     *
 3     * In-Class Exercise:  A "hello world" program.
 4     *
 5     * File Name: hello.cpp
 6     * Name:        ?
 7     * Course:     CPTR 141
 8     *
 9     */
10
11    #include <iostream>
12    using namespace std;
13
14    int main() {
15
16        // print out some text (replace the question mark with your name)
17        cout << "Hello World! My name is ? and this may be my first program in CPTR 141!"
18
19        return 0;
20    }
21
```

Edit and put your name where the question marks are.

If you right click on the edit window (where the hello world text is) you get this pop-up:

Call Hierarchy	Ctrl+F1
Go to Declaration	
Go to Definition	Ctrl+F11
Go to Implementations	Ctrl+F12
Go to References	Shift+F12
Go to Symbol...	Ctrl+Shift+O
Go to Type Definition	
Run Code	
Peek	▶
Change All Occurrences	Ctrl+F2
Format Document	Ctrl+Shift+I
Format Selection	Ctrl+K, Ctrl+F
Refactor...	Ctrl+Shift+R
Rename Symbol	F2
Source Action...	
Redo	Ctrl+Shift+Z
Undo	Ctrl+Z
History	
Toggle Blame Annotations	Alt+B
Cut	Ctrl+X
Copy	Ctrl+C
Paste	

Select Run Code to run the program

Running the hello world program causes a terminal area to "open" below the text edit area, the output from the program will be displayed, and then a terminal prompt will be displayed.

The terminal prompt shows what we call the "path" from the "root" of the file index to what is called the "current" folder. The "path" is just the sequence of folders that must be navigated to get to the "current" folder. If we use a command, such as a command that lists files in a folder, the folder whose list will be shown is the "current" folder.

> Example: In this system the command to list files in the "current" directory is **ls** which is short for list.

On the next page is shown the screen after the hello world program runs. Note the long path shown in the terminal prompt. The path matches the path shown graphically by the Explorer. 01_helloWorld is the current folder.

```cpp
/****************************************************************
 *
 * In-Class Exercise:  A "hello world" program.
 *
 * File Name: hello.cpp
 * Name:        ?
 * Course:     CPTR 141
 *
 */

#include <iostream>
using namespace std;

int main() {

    // print out some text (replace the question mark with your name)
    cout << "Hello World! My name is ? and this may be my first program in CPTR 141!"

    return 0;
}
```

● Problems 2   >_ Terminal 0   >_ Code ×

Hello World! My name is ? and this may be my first program in CPTR 141!
aamola@code:~/code/cpp/student141/in-class/01_helloWorld$ ▮

Completing Your Setup

Before you leave this class period, make sure that:

1. You can log into Code.cs

2. You have a folder `student141` in your workspace

3. You have the sub-folder `student141/in-class/0331`

Updating Your Workspace

Certainly do this when starting a new assignment. To get the latest updates:

1. Log into Code.cs

2. Connect to your workspace

3. Expand your `student141` folder and run the `pull.sh` script

4. You should have a sub-folder called `student141/in-class/0331` etc.