

# What's up brahs?

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Quote of the week:

“Everyday might not be a good day but there's something good in everyday”

# How was Midterm and Lab09?

```
top - 07:26:42 up 9d 18:52, 5 users,  load average: 0.02, 0.02, 0.00
Tasks: 147 total,  1 running, 123 sleeping,  4 stopped,  0 zombie
Cpu(s):  0.0 us,  0.3 syms,  0.0 ni, 99.7 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
Mem:  4194M total,  581.7 free,  3612.9 used,  3544.4 avail Mem
Swap:  932.4 total,  18.3 free,  914.1 used,  554.4 avail Mem

PID USER      PR  NI    VIRT    RES    SHR S  %CPU %MEM TIME COMMAND
 1 root      20   0 169312 13144  8664  0  0.0  2144.93 systemd
 2 root      20   0
 3 root      20   0
 4 root      20   0
 5 root      20   0
 6 root      20   0
 7 root      20   0
 8 root      20   0
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212 root      20   0
```

USER	PID	%CPU	%MEM	VSZ	RSS	TT	06:25:59 PM	STAT	STARTED
							TIME		
aidencox	840	1.8	0.0	435314448	6432	s000	S	Thu03PM	0:05.03 -zsh
root	5565	0.0	0.0	435299424	1824	s000	R+	6:26PM	0:00.01 ps au
aidencox	1052	0.0	0.0	410763248	3872	s000	S	Thu03PM	0:00.94 /opt/homebrew/Ce
aidencox	1051	0.0	0.0	435310368	1104	s000	S	Thu03PM	0:00.24 -zsh
aidencox	1049	0.0	0.0	435310384	880	s000	S	Thu03PM	0:00.00 -zsh
aidencox	853	0.0	0.0	435305392	976	s000	S	Thu03PM	0:00.01 -zsh
root	838	0.0	0.0	435308576	6048	s000	Ss	Thu03PM	0:00.02 /usr/bin/login -

Processes and system-y things?  
Midterm questions?

# Second AWS Check-In!

1. Ability to connect to AWS instance
2. Command history relevant to Lab 09 and / or 10
3. At least one branch in GitHub repository

```
ubuntu@ceg2350-sandbox: ~
1923 git switch main
1924 git pull
1925 git branch
1926 git pull
1930 git switch sigma
1932 git switch main
1934 git branch
1935 git merge sigma
1937 man git
1938 man git add
1939 man git branch
1940 man git-branch
1941 git checkout -b 67
1942 git branch
1944 git switch
1945 git switch main
1946 git pull
1948 git push
1949 git branch
1950 git logs
1951 git log
1953 git branch
1960 git clone git@github.com:aidenc17/CEG3310.git
1966 git pull
```

Check off in-person (with your instructor or TAs)

# Beginning Lab10

Lab Instructions: <https://pattonsgirl.github.io/CEG2350/Labs/Lab10/Instructions>

Lab Template:

<https://raw.githubusercontent.com/pattonsgirl/CEG2350/refs/heads/main/docs/Labs/Lab10/LabTemplate.md>

Feeling comfortable with the course?

Questions from lecture?

# Issues and Branches - Part 0

## Part 0 - Issues & Branches

Useful git commands: **branch, switch, commit, push, merge**

1. To begin, create and add the Lab Template to your **main** branch in your **Lab10** folder
2. In your GitHub repository, go to the **Issues** tab. Create an Issue **for each part** of this lab - you may do this all at once or as you start each part.
3. Through this lab, you will create **one** branch **for each** issue.
4. Merge the branch with the **main** branch as your **complete each part**. You may then mark your issue as complete.
5. If you make **adjustments after merging** you need to create an Issue describing what needs correcting, then resolve the issue.

**One merge** must be completed via a **Pull Request** - all others should be done via branch merging on the command line.

Make sure that **EACH PART** of lab has an issue, a branch, and that each one gets **MERGED** via command line, or a Pull Request.

# My Girlfriend Says I have a lot of Issues? - Part 0

pattonsgirl / CEG2350

Issues 17

Pull requests Actions Projects Wiki Security Insights Settings

is:issue state:open

Open 17 Closed 14

Author Labels Projects Milestones Assignees Newest

**Lab 08 - unique instance?**  
#54 · pattonsgirl opened 2 weeks ago

**Lab 04 - Add Main to bash?**  
#47 · aidenc17 opened on Sep 26

**lab 02 clarification / wording issue**  
#45 · b-wens-kedar opened on Sep 11

**Grading & GH Issues**  
#43 · pattonsgirl opened on Sep 5

**Lab 12 - Citations used for Part 5 (need some bold letters)**  
#41 · aidenc17 opened on Apr 26

**Lab 11 - Extract and Profit Permissions**  
#40 · aidenc17 opened on Apr 21

**Exam 2 Missing**  
#38 · pattonsgirl opened on Apr 4

**Lab 06 - relative pathing or use ENV variable**  
#35 · pattonsgirl opened on Mar 11

New issue

Our course Repo's Issues!

# My Girlfriend Says I have a lot of Issues? - Part 0



Create new issue

Add a title \*

git guide - Part 0

Add a description

Write Preview



Need to start filling out Part 0 (the git guide)

 Paste, drop, or click to add files

 Write with Copilot

Create more

Cancel

Create 

You will end up making an issue for each part of the lab!

The button for this is found under issue, and new issue on the top right.

After creating the issue, the next slide shows what it looks like to click back into it.

# My Girlfriend Says I have lot of Issues? - Part 0

git guide - Part 0 #2

Issue title

aidenc17 opened 22 minutes ago

Need to start filling out Part 0 (the git guide)

Create sub-issue

Issue description

Add a comment

Write Preview

Use Markdown to format your comment

Button to close issues

Paste, drop, or click to add files

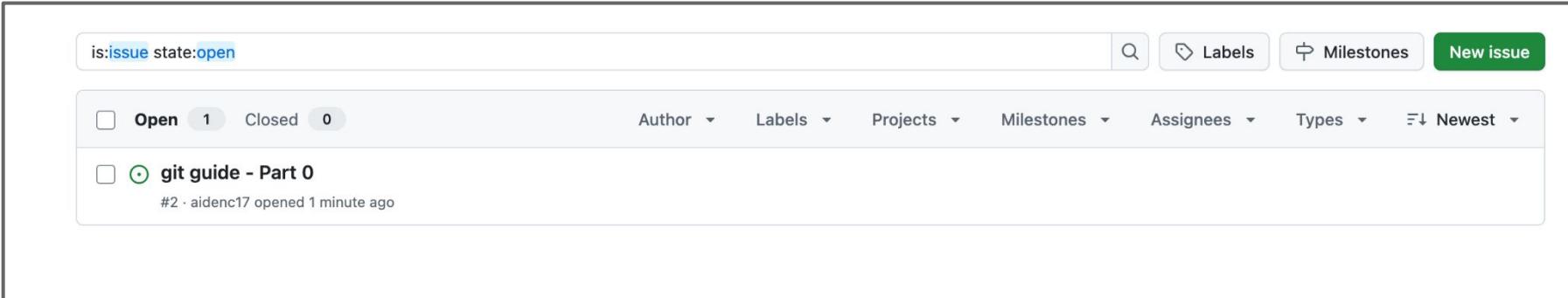
Close issue

Comment

Issue details sidebar:

- Assign yourself
- Labels
- No labels
- Type
- No type
- Projects
- No projects
- Milestone
- No milestone
- Relationships
- None yet

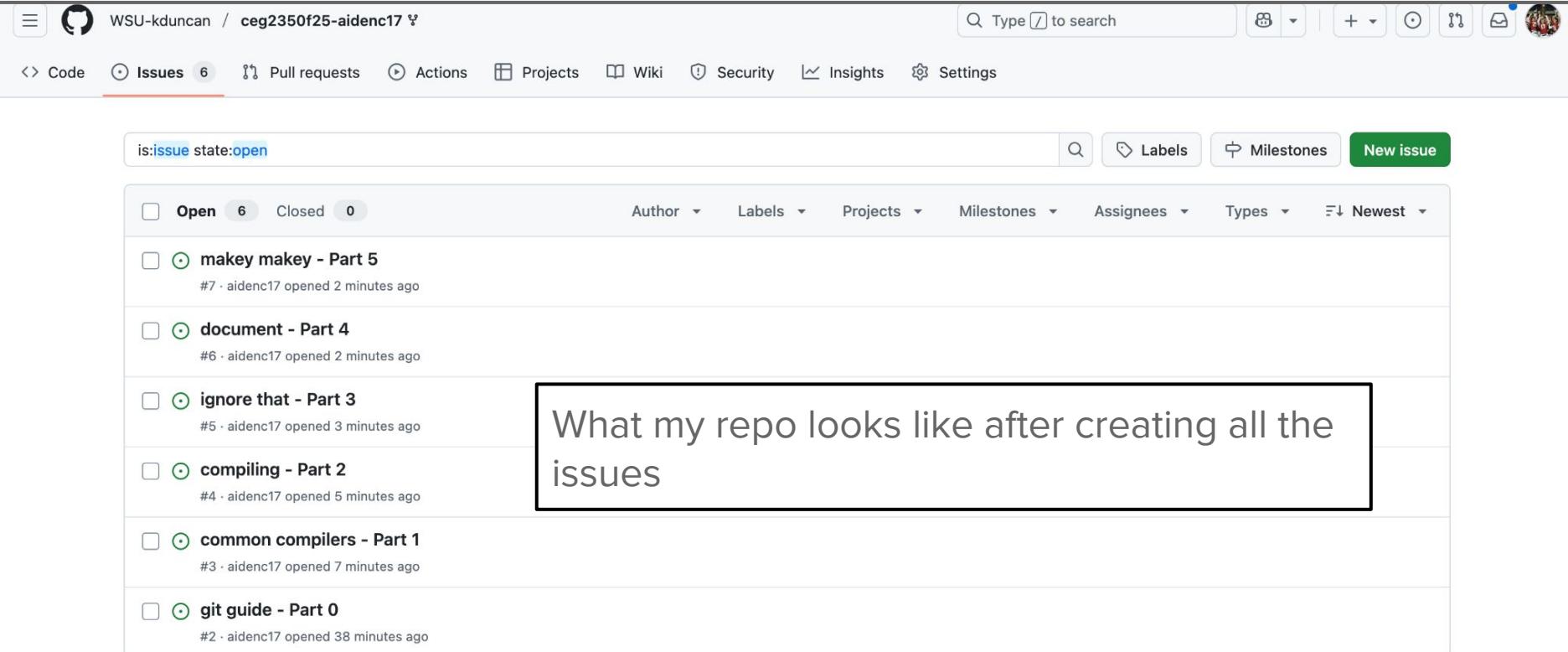
# My Girlfriend Says I have a lot of Issues? - Part 0



Open	1	Closed	0			
Author	Labels	Projects	Milestones	Assignees	Types	Newest
<input type="checkbox"/>  git guide - Part 0 #2 · aidenc17 opened 1 minute ago						

After clicking create, you'll go to the main issue page. Your's will all be populated with your grades for the labs, but you can catch my drift!

# My Girlfriend Says I have a lot of Issues? - Part 0



A screenshot of a GitHub repository page. The repository is named 'ceg2350f25-aidenc17'. The 'Issues' tab is selected, showing 6 open issues. The search bar contains the query 'is:issue state:open'. The issues listed are:

- makey makey - Part 5 (#7 · aidenc17 · 2 minutes ago)
- document - Part 4 (#6 · aidenc17 · 2 minutes ago)
- ignore that - Part 3 (#5 · aidenc17 · 3 minutes ago)
- compiling - Part 2 (#4 · aidenc17 · 5 minutes ago)
- common compilers - Part 1 (#3 · aidenc17 · 7 minutes ago)
- git guide - Part 0 (#2 · aidenc17 · 38 minutes ago)

Below the list of issues is a text box with the following content:

What my repo looks like after creating all the issues

# Branches (But not tree ones. Well, kinda) - Part 0

On the course repo, make a branch!



ubuntu@ceg2350-sandbox: ~/ceg2350f25-aidenc17

```
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17$ git branch gitGuide-Part0
```

Swap to new branch!

```
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17$ git switch gitGuide-Part0
```

Switched to branch 'gitGuide-Part0'

```
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17$ █
```

Do this for each of your issues, (all of the parts) and commit to each of those branches. When complete, merge branches. One MUST be done using a Pull Request (PR)

# Branches (But not tree ones. Well, kinda) - Part 0

When trying to push from a new branch, you will get an error message!

```
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17$ git push
fatal: The current branch compiling-Part2 has no upstream branch.
To push the current branch and set the remote as upstream, use

    git push --set-upstream origin compiling-Part2
```

To have this happen automatically for branches without a tracking upstream, see 'push.autoSetupRemote' in 'git help config'.

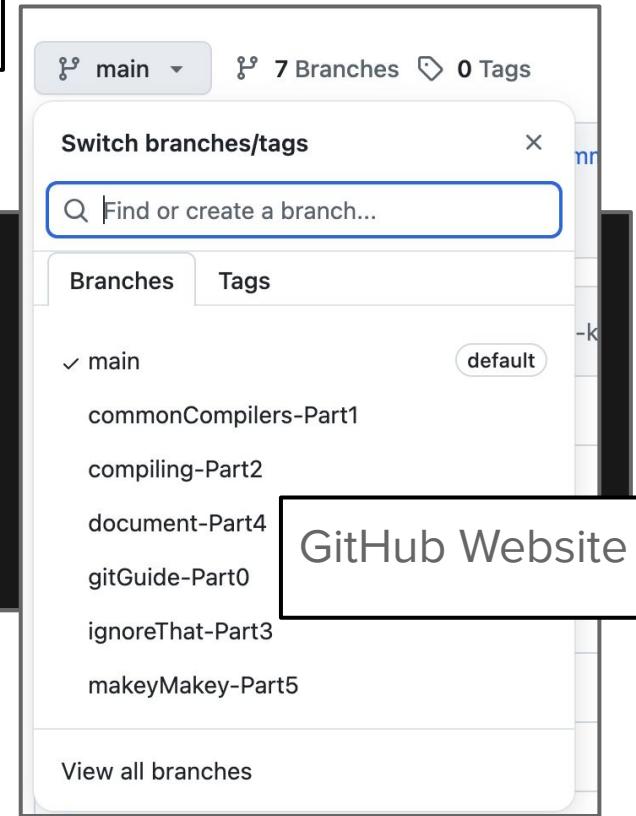
That's expected! Just run the command it tells you to and life will be good!

# Branches (But not tree ones. Well, kinda) - Part 0

What my repo looks like after the branches are made:

```
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17$ git branch
  commonCompilers-Part1
  compiling-Part2
  document-Part4
  gitGuide-Part0
  ignoreThat-Part3
* main
  makeyMakey-Part5
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17$
```

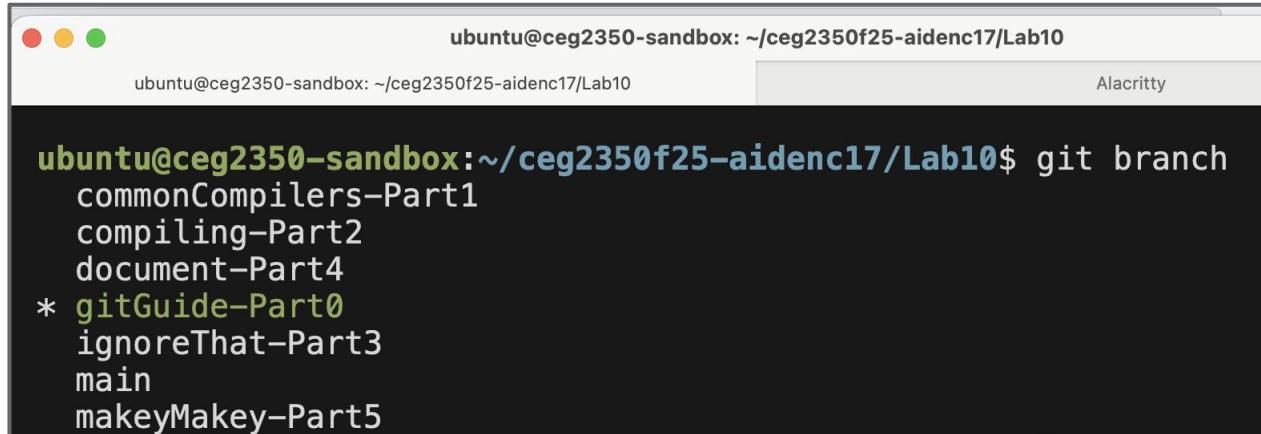
Inside my AWS instance / Command Line



# Merging (But Not as Bad as Merge Sort) - Part 0

After making changes to a branch, the changes only pertain to that branch. Swapping to the Main branch will contain the changes that were made before branching.

To bring the changes over from our Part0 branch, (and the rest of the branches for this lab), you will need to do a `git merge`.



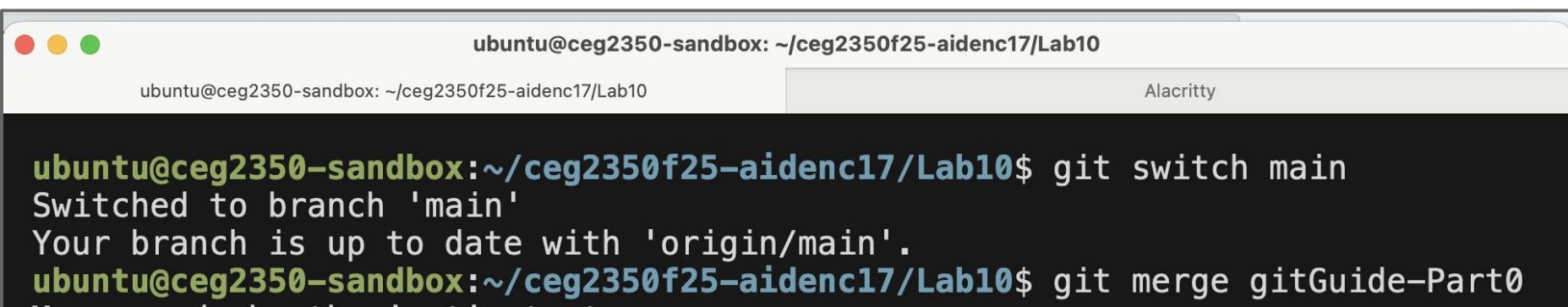
A screenshot of a terminal window titled "ubuntu@ceg2350-sandbox: ~/ceg2350f25-aidenc17/Lab10" in the Alacritty terminal emulator. The terminal shows a list of branches with the command "git branch". The output is as follows:

```
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/Lab10$ git branch
commonCompilers-Part1
compiling-Part2
document-Part4
* gitGuide-Part0
ignoreThat-Part3
main
makeyMakey-Part5
```

One of them will be a Pull Request, more on that later

We want to be on the branch that we are merging INTO. Swap on over to Main!

# Merging (But Not as Bad as Merge Sort) - Part 0



ubuntu@ceg2350-sandbox: ~/ceg2350f25-aidenc17/Lab10

ubuntu@ceg2350-sandbox: ~/ceg2350f25-aidenc17/Lab10 Alacritty

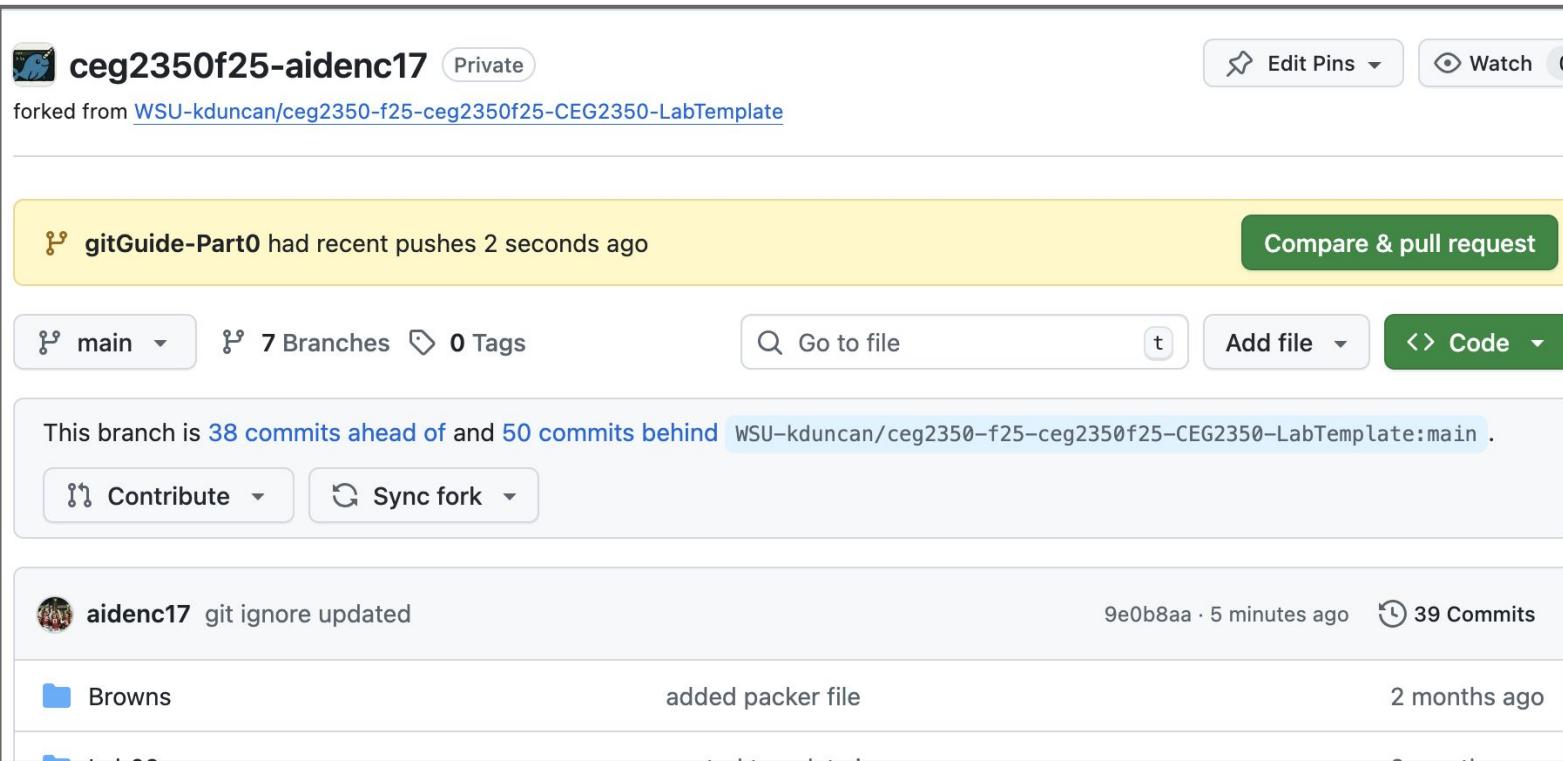
```
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/Lab10$ git switch main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/Lab10$ git merge gitGuide-Part0
```

Congrats! You have successfully merged (moved) your changes from the Part0 branch into Main!

Next on how to do a Pull Request

# Pull That Shit In - Part 0

After making changes to a branch, you may see the big scary green button on GitHubs website for your course repo. You will need to use this button for ONE of your merges.



The screenshot shows a GitHub repository page for a forked repository. The repository name is `ceg2350f25-aidenc17`, marked as `Private`. It was forked from [WSU-kduncan/ceg2350-f25-ceg2350f25-CEG2350-LabTemplate](#). The main branch is selected. A yellow banner at the top indicates recent pushes from `gitGuide-Part0`. A prominent green button labeled `Compare & pull request` is visible. Below the banner, there are buttons for `main`, `7 Branches`, `0 Tags`, and a search bar. A message states the branch is 38 commits ahead of and 50 commits behind the template. At the bottom, a commit from `aidenc17` is shown, and a file named `Browns` is listed with the commit message `added packer file`.

ceg2350f25-aidenc17 Private

forked from [WSU-kduncan/ceg2350-f25-ceg2350f25-CEG2350-LabTemplate](#)

gitGuide-Part0 had recent pushes 2 seconds ago

Compare & pull request

main 7 Branches 0 Tags

Go to file Add file Code

This branch is 38 commits ahead of and 50 commits behind [WSU-kduncan/ceg2350-f25-ceg2350f25-CEG2350-LabTemplate:main](#).

Contribute Sync fork

aidenc17 `git ignore updated` 9e0b8aa · 5 minutes ago 39 Commits

Browns `added packer file` 2 months ago

# Pull That Shit In - Part 0

## Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#) or [learn more about pull requests](#).

base: main ▾

compare: gitGuide-Part0 ▾

✓ Able to merge. These branches can be automatically merged.



Add a title

Notice we are going to now “merge” or bring our changes from our Part0 branch over to our main branch.

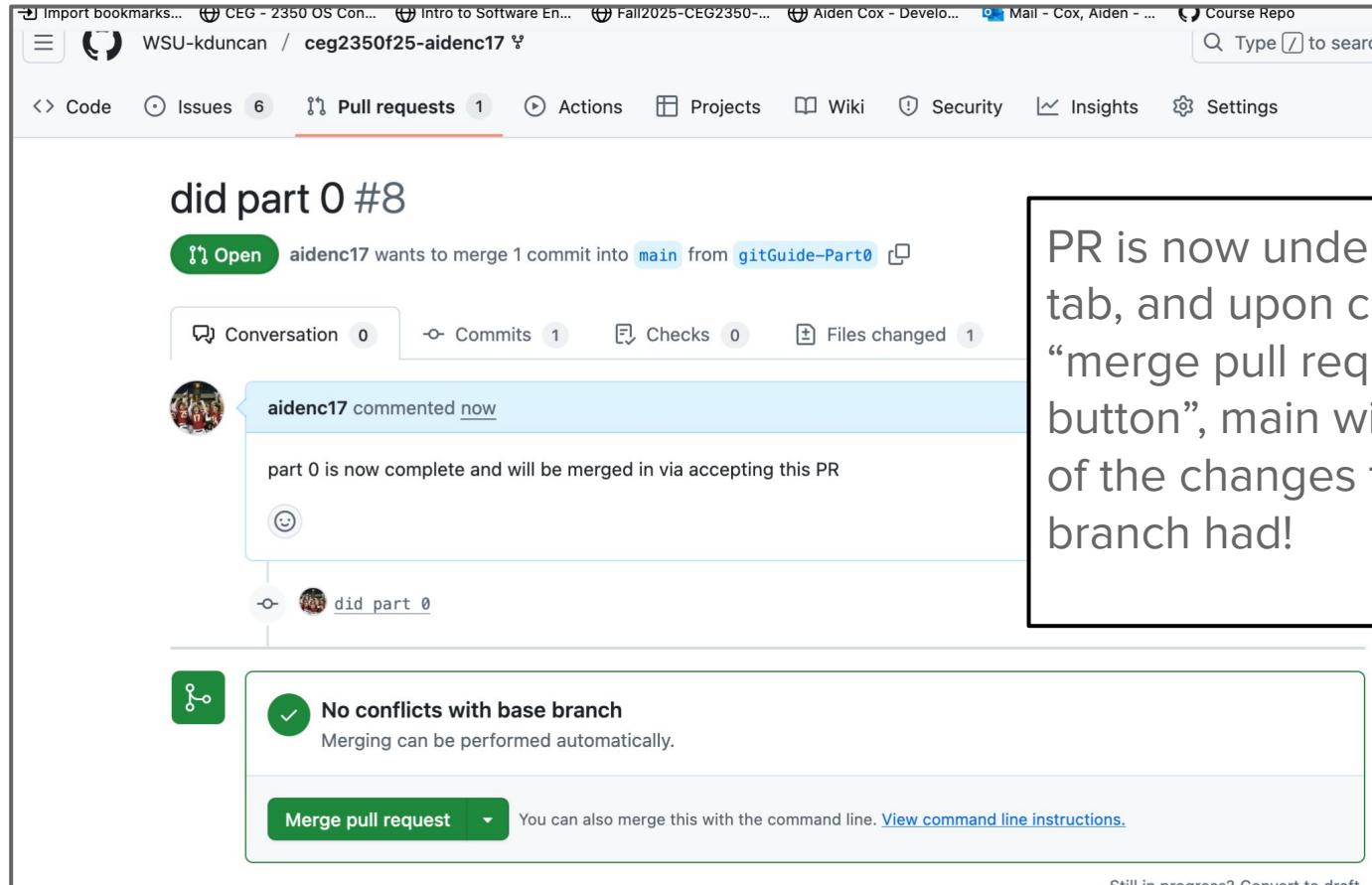
“Able to merge” means there aren’t any merge conflicts going to arise. Perfect!

Markdown is supported

Paste, drop, or click to add files

Create pull request ▾

# Pull That Shit In - Part 0



The screenshot shows a GitHub pull request page for a repository named 'ceg2350f25-aidenc17'. The pull request is titled 'did part 0 #8' and is in the 'Open' state. It is merging 1 commit from the 'gitGuide-Part0' branch into the 'main' branch. The pull request has 0 conversations, 1 commit, 0 checks, and 1 file changed. A comment from 'aidenc17' states: 'part 0 is now complete and will be merged in via accepting this PR'. Below the comment, a user 'did part 0' has replied with a smiley face emoji. A green box highlights the 'No conflicts with base branch' message, which says 'Merging can be performed automatically.' and includes a 'Merge pull request' button. A note at the bottom says 'You can also merge this with the command line. [View command line instructions.](#)'

PR is now under the PR tab, and upon clicking the “merge pull request button”, main will have all of the changes that our branch had!

# Compilery Things - Part 1

## Part 1 - Compilers

---

**Reminder** - create an Issue for this part -> create a branch to work on this issue -> make your commits to this branch -> verify your changes (no broken markdown, good spelling) -> merge to main

Fill out the following charts regarding the three most commonly used languages - C/C++, Java, and Python. The bonus is you'll make a guide for yourself on how to install these or how to check if they are already available. I'm going to give you the answers for C / C++ - you'll need to complete the chart for Java and Python.

Fill out the tables with information on where to install the languages and "how to verify" - which / whereis and version (--version) on each Linux, Mac, and Windows.

# Compilery Things - Part 1



ubuntu@ceg2350-sandbox: ~

```
ubuntu@ceg2350-sandbox:~$ gcc --version
gcc (Ubuntu 13.3.0-6ubuntu2~24.04) 13.3.0
Copyright (C) 2023 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  T
here is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE.
```

```
ubuntu@ceg2350-sandbox:~$ python3 --version
Python 3.12.3
ubuntu@ceg2350-sandbox:~$ javac --version
javac 21.0.8
ubuntu@ceg2350-sandbox:~$ █
```

Your AWS  
instance is  
Linux!

# Compiling on the Command Line - Part 2

## Part 2 - Compiling

**Reminder** - create an Issue for this part -> create a branch to work on this issue -> make your commit to this branch -> verify your changes (no broken markdown, good spelling) -> merge to main

**Useful Commands:** `gcc`, `g++`, `wget`

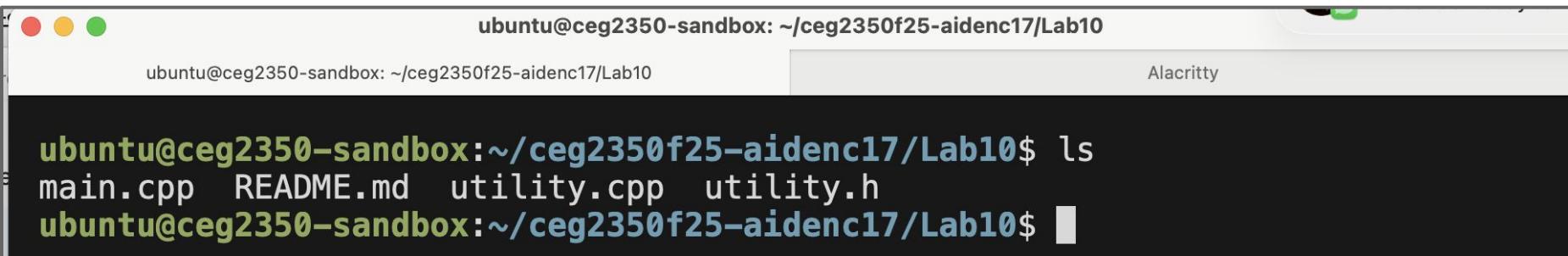
1. Select from either [TODO-C](#) or [TODO-CPP](#). Download the files in the folder to the `Lab10` folder in your repository folder. `add`, `commit` and `push` the source code files.
2. Install the C / C++ compiler on your AWS instance.
3. Verify the installation of the C / C++ compiler on your AWS instance.
  - It is recommended to query for the version of the program to validate installation.
4. Using your AWS instance, compile the source code into an executable program.
5. Using your AWS instance, run the executable program.
6. Add the program source code file - `.c` or `.cpp` files - to your repository. Do not add the compiled executable for tracking.

Grab either the `'c'` or `'c++'` code from the course GitHub repo, and figure out a way to pull them onto your system!

Follow Part 1 on how to install compilers and verification of them.

Next slide for compilation process!

# Compiling on the Command Line - Part 2



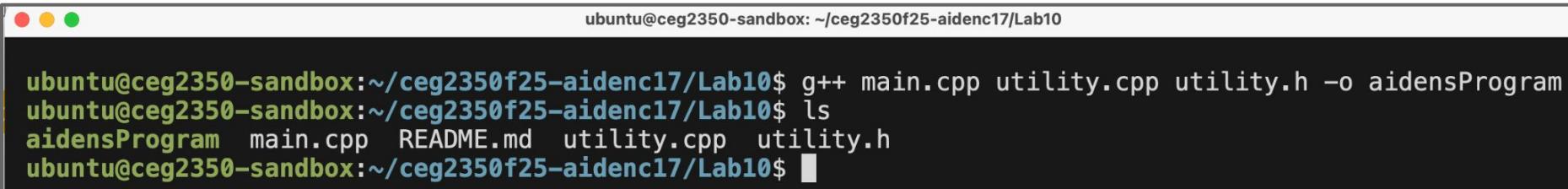
ubuntu@ceg2350-sandbox: ~/ceg2350f25-aidenc17/Lab10\$ ls  
main.cpp README.md utility.cpp utility.h  
ubuntu@ceg2350-sandbox: ~/ceg2350f25-aidenc17/Lab10\$ █

Grab either the `c` or `c++` code from the course GitHub repo, and figure out a way to pull them onto your system!

Follow Part 1 on how to install compilers and verification of them.

Next slide for compilation process!

# Compiling on the Command Line - Part 2

A screenshot of a terminal window on an Ubuntu system. The window has a title bar with three colored dots (red, yellow, green) and the text "ubuntu@ceg2350-sandbox: ~/ceg2350f25-aidenc17/Lab10". The main area of the terminal shows the following command-line session:

```
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/Lab10$ g++ main.cpp utility.cpp utility.h -o aidensProgram
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/Lab10$ ls
aidensProgram  main.cpp  README.md  utility.cpp  utility.h
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/Lab10$
```

The terminal window has a dark background and light-colored text.

Since I snagged the `c++` files, I used `g++` to compile. The `-o` specifies the output file, and the ARG after give the program the name.

Run the program like you would an executable with the executable bit!

# .gitignore Me Like My Girlfriend Does - Part 3

aidenc17	git ignore updated	9e0b8aa · 17 hours ago	39 Commits
 Browns	added packer file	2 months ago	
 Lab02	pasted template in	2 months ago	
 Lab03	added lab 3 template	2 months ago	
 Lab04	idk what i messed up	last month	
 Lab05	idoit	3 weeks ago	
 Lab07	Delete Lab07/00C5D5C1-2E02-4D1D-8AD3-31CFFF98E1...	last month	
 Lab08	idoit	3 weeks ago	
 Lab10	test to see if i need to merge	last week	
 Scripts	added loose files	2 months ago	
 WeHateNano	i dont like using nano	2 months ago	
 sample	Initial commit	3 months ago	
 .gitignore	git ignore updated	17 hours ago	
 KalliShoppingList	added her shopping list that she needs to grab ASAP	2 days ago	
 README.md	Initial commit	3 months ago	
 ThisWasMadeFromABranch	here is a commit on the new branch	last week	

```
.*.i
.*.o
*.exe
~
~
```

Put a file named `.gitignore` in the root of your repository! (Outside all of the Lab folders)

Inside the file, list files you do not want to track. This way, they aren't added to GitHub, and when using shortcuts git will completely skip over it

# Document the Code - Part 4

Example of best practice formatting - do this for each function in your .c or .cpp files:

```
/*
 * Function: approx_pi
 * -----
 * computes an approximation of pi using:
 *   pi/6 = 1/2 + (1/2 x 3/4) 1/5 (1/2)^3 + (1/2 x 3/4 x 5/6) 1/7 (1/2)^5
 *
 *   n: number of terms in the series to sum
 *
 *   returns: the approximate value of pi obtained by summing the first n terms
 *           in the above series
 *   returns zero on error (if n is non-positive)
 */

double approx_pi(int n) {
    ...
}
```

```
#include "utility.h"

TodoList::TodoList() {}

// this is where the comment should go
// what func does
// params of func
// what it returns
// example JAVA code provided if you are unsure what the code does!
void TodoList::displayMenu() {
    std::cout << "\n===== To-Do List Menu =====" << std::endl;
    std::cout << "1. Add Task" << std::endl;
    std::cout << "2. Mark Task as Completed" << std::endl;
    std::cout << "3. Remove Task" << std::endl;
    std::cout << "4. View To-Do List" << std::endl;
    std::cout << "5. Exit" << std::endl;
}
```

Using the code from Part 2, go over all of the files and make a comment block on each function including what the function does, parameters, and returns.

# Makey Makey - Part 5

Tired of using Part 2's code? Too bad. Let's create a `Makefile` to build, run, and clean up our TaskToDo program.

```
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/Lab10$ touch Makefile
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/Lab10$ ls
main.cpp  Makefile  README.md  utility.cpp  utility.h
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/Lab10$ █
```

A `Makefile` is just a text file that describes how to build your system. In this case, how to build our program so we don't have to type out the long command each time

# Makey Makey - Part 5

Tired of using Part 2's code?  
Too bad. For this part, create  
a `Makefile` to build, run, and  
clean up our TaskToDo  
program.

Demo directory with example  
cpp files!



```
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/demoMakeFile$ ls  
file2.cpp  header.h  main.cpp  Makefile  
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/demoMakeFile$ █
```

# Makey Makey - Part 5

Example Makefile:

```
aiden: main.cpp file2.cpp header.h
        g++ -Wall main.cpp file2.cpp -o aiden
```

```
execute: aiden
        ./aiden
```

```
remove:
        ~
        rm -f aiden
```

Dependencies (what is needed to do the things)

These are targets (what you put after `make` is called)

Commands. The “do things part”

# Makey Makey - Part 5

Running the targets:

```
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/demoMakeFile$ ls
file2.cpp  header.h  main.cpp  Makefile
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/demoMakeFile$ make aiden
g++ -Wall main.cpp file2.cpp -o aiden
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/demoMakeFile$ ls
aiden  file2.cpp  header.h  main.cpp  Makefile
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/demoMakeFile$ make execute
./aiden

===== To-Do List Menu =====
1. Add Task
2. Mark Task as Completed
3. Remove Task
4. View To-Do List
5. Exit
Enter your choice (1-5): 5
Exiting program. Goodbye!
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/demoMakeFile$ ls
aiden  file2.cpp  header.h  main.cpp  Makefile
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/demoMakeFile$ make remove
rm -f aiden
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/demoMakeFile$ ls
file2.cpp  header.h  main.cpp  Makefile
ubuntu@ceg2350-sandbox:~/ceg2350f25-aidenc17/demoMakeFile$ █
```

# Have a Good Weekend!

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Don't hesitate to reach out and ask questions!

Quote of the week:

“Everyday might not be a good day but there's something good in everyday”