Homework 5 - Review

Due Wednesday, October 23rd, 2024 at 11:59pm.

October 15, 2024

1 Branching

Branching allows you to make a new/separate version of the main/master repository. They also allow you to work on different parts of a project without impacting your main/master branch. You can switch between branches and work on different projects without them interfering with each other.

1.1 Problem 1

For this first problem, you don't need your terminal open. Just answer the following questions to the best of your ability. There are a few bonus questions that, if you don't know already, will require you to ask the internet what command is needed.
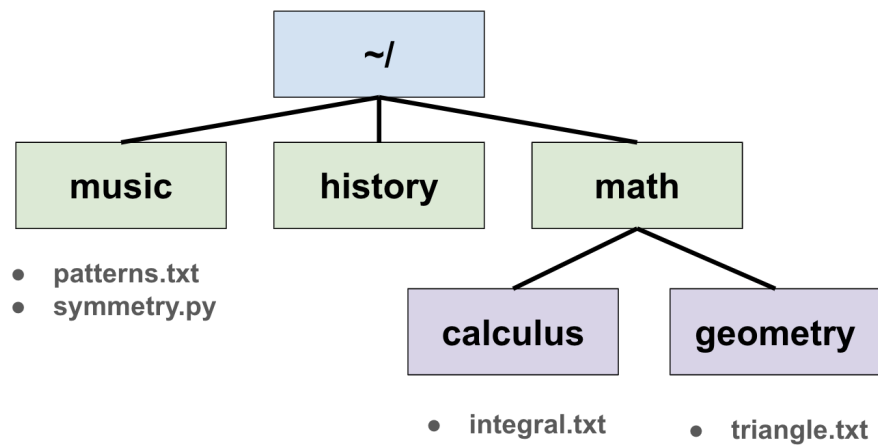
1. Someone plops you into the middle of this directory system. What command will allow you to know what your absolute path is?

   The command is "pwd".

2. Your terminal tells you that ~/`music`/ is your absolute path. What command will allow you view all of the directories and files inside of ~/`music`/? What files should be listed?

The command is "ls". The "patterns.txt" and "symmetry.py" files should show up.

3. What command(s) will allow you to open up `patterns.txt` inside of ~/`music`/ and edit the file?

nano patterns.txt

4. What command will allow you to print the file on your terminal instead of opening it up in a text editor?

cat patterns.txt

5. **Bonus:** What command will allow you to see the difference between `patterns.txt` and `symmetry.txt`?

diff patterns.txt symmetry.txt

6. What command will allow you to move `patterns.txt` to ~/`math/calculus`/?

mv patterns.txt ~/math/calculus/

7. What command will allow you to remove `triangle.txt` from ~/`math/geometry`?

rm ~/math/geometry/triangle.txt

8. The file `patterns.txt` is now only located at ~/`math/calculus/patterns.txt`. What singular command will allow you (the user) to move from ~/`music`/ to ~/`math`/? (*Hint: What is your relative path to* ~/***math/?***)

cd ../math/

9. Your absolute path is now ~/`math`/. What command would make `math`/ a local git repository?

git init

10. The `math`/ directory is now a local git repository. How would you connect your local `math`/ repository with a remote `math`/ repository?

git remote add origin git@github.com:username/math.git

11. Your local `math`/ repository is now connected to a remote one. What command will allow you to copy `symmetry.txt` from ~/`music`/ to your local `math`/ repository?

cp ~/music/symmetry.txt .

12. What command will allow you to view the current state of your working directory and staging area? Is git currently tracking `symmetry.txt`, why or why not?

git status. Git is not currently tracking symmetry.txt, because it has not been added to the staging area.

13. What command adds only the copy of `symmetry.txt` to your `math`/ staging area? What command adds all changes to all files and directories to your staging area?

The first command is "git add symmetry.txt", and the second is "git add ."

14. The file `symmetry.txt` is now in your staging area. Is git currently tracking `symmetry.txt`? **Bonus:** What command would allow you to unstage `symmetry.txt`?

Yes, git is tracking it. To unstage the file, type "git reset symmetry.txt".

15. What command will allow you to commit your staged files to your local repository? Include the message.

git commit -m "Copied symmetry.txt from music directory"

16. Your staged files have now been committed to your local repository. What command will allow you to push your local repository to your remote repository. What branch should you be pushing to? Why?

git push origin main. The branch you should push to is the main branch, since it is the only branch that exists at the moment.

17. What command will allow you to make a new branch off of `math/` called `applied_math`?

    git branch applied_math

18. What command will allow you to move into the `applied_math` branch?

    git checkout applied_math

19. You are now located inside of the `applied_math` branch. You make a new directory called `physics/` and inside of that directory you make a file called `mechanics.txt` with some fun facts in it. How would you push all of these changes to your remote repository? What would happen if you switched back to your original branch before committing these changes?

    "git add .", then "git commit -m "Added physics directory and mechanics.txt.", and finally "git push origin applied_math". Changing branches will make you lose all your progress.

20. What command will list all of your branches? What branch will be currently highlighted in green?

    git branch. The branch in green is the current branch.

21. What command will allow you to move back to your original branch?

    git checkout main

22. **Bonus:** What command will allow you to combine `applied_math` with your original branch?

    git merge applied_math

23. Make a tree diagram of your directory system (with all the files and folders) after working through this problem. Specify which directories are repositories and what the branch of a repository will look like. **Take a screenshot or a photo (if you drew it by hand) and save it. You will need it for later.**

1.2 Problem 2

COMMIT TO GITHUB AFTER EACH STEP!

1. Inside of `~/ulab/ulab_yourname` make a new branch called `solar_system`. Move into the `solar_system` branch. **Take a screenshot of making and moving into the branch.**

2. Inside of `solar_system` make a directory called `planets`. Remove everything inside of this branch. **CAREFULLY!**

3. Inside of `planets` make a file named after your favorite planet in our solar system. Example: `~/ulab/ulab_yourname/earth.txt`.

4. Look up a fact about your favorite planet and add at least one sentence to your `.txt` file you created last step.

5. Inside of your `solar_system` branch make another file called `github.txt` that contains all your answers to Problem 1. **Take a screenshot of committing `github.txt` and `solar_system` to your remote repository.**

6. Switch back to your `main` branch. **Take a screenshot of switching back into your main branch after committing `solar_system` to your remote repository.**

7. Submit your `solar_system` branch to Gradescope! Along with the three screenshots of your terminal and the drawing of your tree diagram!

At the end of this problem you should be on your `main` branch while having a new branch called `solar_system` that only contains two `.txt` files both locally and remotely.

2   Extra Help

Did you finish early? Or would you like extra practice? Please check out the links down below for more information. I really like these resources and the way they discuss what we have gone over in class.

1. **GitHub:** https://swcarpentry.github.io/git-novice/index.html

2. **GitHub:** https://www.w3schools.com/git/default.asp

3. **Python:** https://www.w3schools.com/python/default.asp