STAT 1010 Lecture Notes

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2023-08-11

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Preface

This is a book for STAT 1010: Introduction to Data Science at Auburn University at Montgomery. The book is written using Quarto.

To learn more about Quarto books visit https://quarto.org/docs/books.

1 Introduction

This is a book for STAT 1010: Introduction to Data Science offered at Auburn University at Montgomery.

See Knuth (1984) for additional discussion of literate programming.

2 Use Git and GitHub

I assume you already have an account on https://github.com. If not, you need to create an account there.

2.1 Download Git

1. Go to the website https://git-scm.com/downloads, select an appropriate operating system, select "Click here to download"
2. Run the downloaded setup file with a name such as `Git-2.42.0.2-64-bit.exe`, and accept all default options.

2.2 Establish a connection between a Local repo and a Remote GitHub repo

2.2.1 Create your own

3. Sign in to your github account.
4. Create a GitHub **empty** repo (such as named `homework0`) on `GitHub` (https://github.com) but make sure it is empty (do not add Readme.md file)
5. Start a Git Bash Terminal window on your local computer. Navigate to the project directory; if you haven't yet created a project directory such as `homework0`, do

   `mkdir project_dir` Example: `mkdir homework0`

   Use `cd project_directory_name` to enter your local project directory;

   `cd ..` # back to the dir of the parent level of the current dir

   use `ls` to list all files and directories or use `ls -al` to include all hidden files and directories. In your local Git Terminal, (Note at this moment your local project directory is empty)

```
echo "# homework0" >> README.md  #create a file README.md
git init
git add README.md
git commit -m "first commit"
git branch -M main #rename the branch name to main
git remote add origin https://github.com/ywanglab/homework0.git #(change the remote to y
git push -u origin main
```

if your local project directory already 1) contains files and 2) had performed `init git` before, then push an existing repository from the command line

```
git remote add origin https://github.com/ywanglab/homework0.git #(change the remote to y
git branch -M main
git push -u origin main
```

6. in the pop-out `GitHub Sign in` window, click on `Sign in with your browser`.

2.2.2 clone an existing GitHub account

This is an easier way to establish a connection between a local repo and a remote repo

```
git clone https://github.com/ywanglab/tflite-pi.git
```

2.3 Some other common commands

6. check git status: `git status`
7. git add filename or git add . # to add everything
8. use `git log` to check all commits. Use `git log -pretty=oneline` for shorter display.
9. use `git checkout .` to revert back to previous commit. Any changes after the previous commit will be abandoned.
10. to get to a previous commit, use `git checkout six_character_commit_ID`. To get back to main, use `git checkout main`.
11. To permanently go back to a previous commit, use

    `git reset -hard six_char_commit_IDgit`
12. `git remote -v` Get the reminder of the remote repo
13. if you want to remove the file only from the remote GitHub repository and not remove it from your local filesystem, use:

```
git rm --cached file1.txt
git commit -m "remove file1.txt"

```

And to push changes to remote repo

```
git push origin branch_name
```

10. you might need to tell GitHub who you are. To to this type the following two commands in our terminal window:

```
git config --global user.name "Your Name"
git config --global user.mail "your@email.com"
```

This will change the Git configuration in a way that anytime you use Git, it will know this information. Note that **you need to use the email account that you used to open your GitHub account**.

2.4 When the upstream repo changes

When Git tells you the upstream repo is ahead,

11. Do `git pull`. Then you can commit and push a new version to the remote repo.

2.5 Collaborate

12. `git clone remote-repo` to a local directory
13. create a new branch: `git branch [your_branch_name]`
14. `git checkout [your_branch_name]`
15. Submitting your changes for review
    1. **Commit your changes locally.** Once you are ready to submit your changes, run these commands in your terminal:

```
git add -A                              # Stages all changes
git status                              # Lists all staged changes
git commit -m '[your commit message]' # Makes a git commit
```

Make a pull request. A GitHub pull request allows a collaborator to review and make comments on your changes. Once approved, the collaborator can merge the changes. Run:

```
git push origin HEAD # Push current branch to the same branch on GitHub
```

Now, open the remote GitHub repo such as: https://github.com/ywanglab/textbook in your browser. You should see a **green** button titled "Compare & pull request". Click that button. Fill out the form on the resulting page with a title and description for your changes. Finally, click the "Create pull request" button.

3 Use Git and Github

```
### Install Git
```

```
Hello, World!
```

4 Summary

In summary, this book has no content whatsoever.

References

Knuth, Donald E. 1984. “Literate Programming.” *Comput. J.* 27 (2): 97–111. https://doi.org/10.1093/comjnl/27.2.97.