

# Github: What, Why, and Welcome

*Friendly Github Workshop, UBC -  
Vancouver*



Welcome & Hello!

We're so happy you're here!

Let's learn some GitHub together!

Don't worry if you miss anything - we will be around to clarify.



# Examples of Git/Github Magic



friendly-githu... 2016-02-08-f... https://...ex.html x Markdown G... WOW 2016 processing/p... Leaflet/Leaf... GitHub For C... grants/peer... +

https://stat545-ubc.github.io/index.html Search

Most Visited Getting Started Commits · joeykle... Etherpads interesting-people

**STAT 545** Home FAQ Syllabus Topics People

# Data wrangling, exploration, and analysis with R

## UBC STAT 545A and 547M

Learn how to

- explore, groom, visualize, and analyze data
- make all of that reproducible, reusable, and shareable
- using R

### Selected topics

- Introduction to [R](#) and the [RStudio IDE](#); scripts, the workspace, RStudio Projects
- Generate reports from R scripts and [R Markdown](#)
- Care and feeding of data in R
- Data manipulation and split-apply-combine with [dplyr](#) and [tidyr](#)
- Data visualization with [ggplot2](#)
- Graphs and descriptive stats for quantitative and categorical variables
- Writing R functions
- Coding style and project organization
- Version control with Git; collaboration via [GitHub](#)
- Character data; regular expressions

<https://stat545-ubc.github.io/faq.html>


friendly-git... 2016-02-0... https://...ex.html Markdown... WOW 2016 Katie K... Leaflet/Le... GitHub Fo... grants/pee... Oh hai +

katiekowalsky.me/portfolio/ Search


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**KATIE KOWALSKY** Resume Work Blog Contact


## Katie Makes Maps!




**Starterpack**




**Vermont Map**



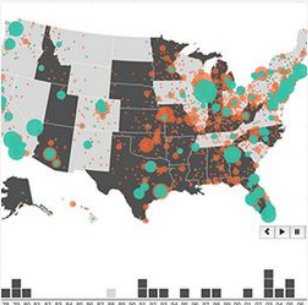
**Unemployment Map**



**World Map**

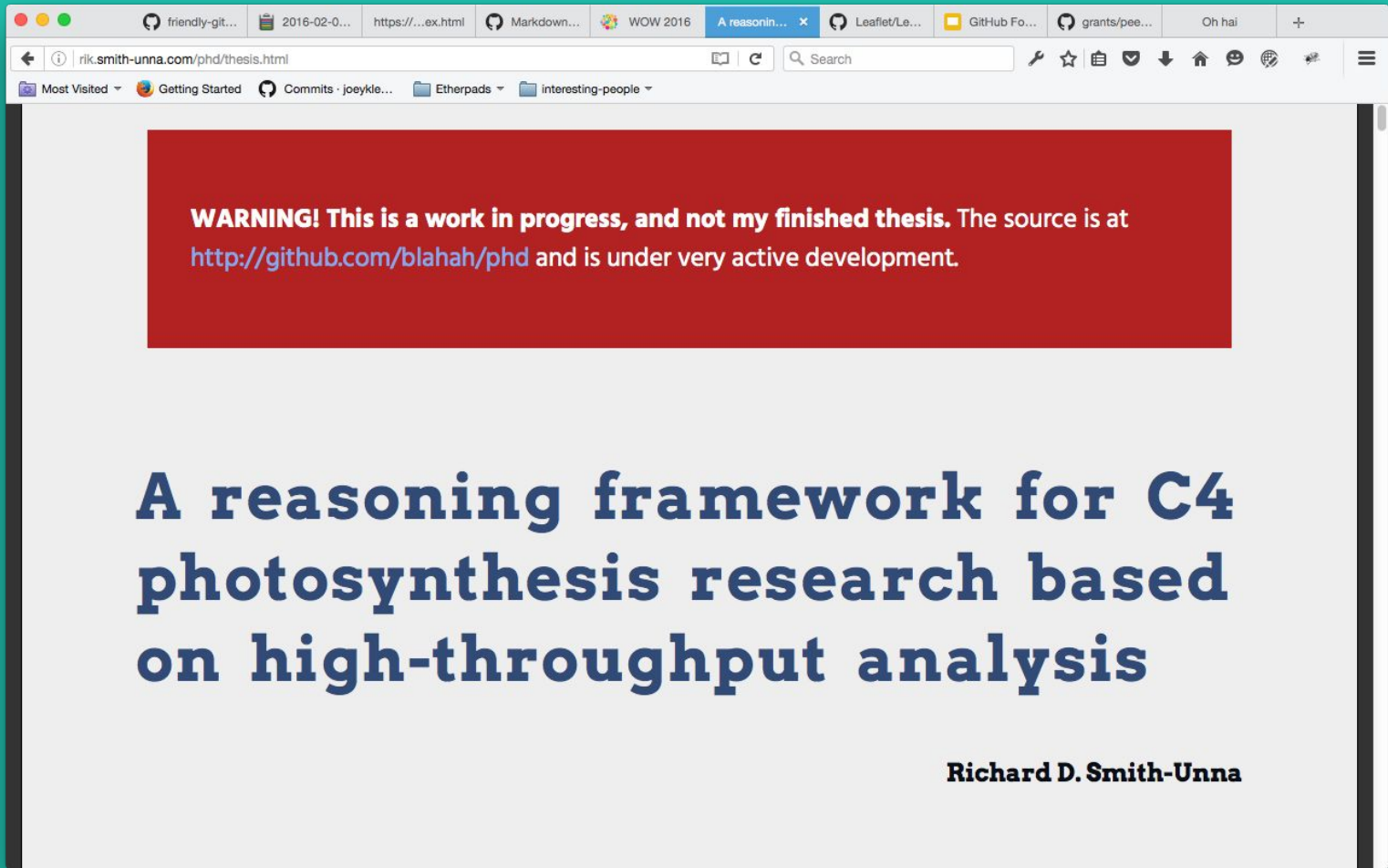


**United States Map**



**US Data Map**

<http://katiekowalsky.me/portfolio/>



<https://github.com/Blahah/phd>

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Introduction

- 1. Why Open?
  - 1.1. Working Open Basics
  - 1.2. Open at Mozilla
- 2. Project Setup
  - 2.1. Lowering Barriers
  - 2.2. Roadmapping
  - 2.3. Legal
  - 2.4. Project Checklist
- 3. Working with Contributors
  - 3.1. Mechanics of Contributing
  - 3.2. Engaging Contributors
  - 3.3. Developing Leaders
- 4. Getting Unstuck
  - 4.1. Where to Get Help
  - 4.2. Toxic Members
- 5. Maintaining Momentum
  - 5.1. Events

## 'Working Open' Project Guide

DOI: [10.5281/zenodo.33748](https://doi.org/10.5281/zenodo.33748)

### Hello There!

Welcome to Mozilla Science Lab's Working Open Guide. This guide was created by MSL's core team, along with our broader community, to introduce you to "working open" and provide a framework and resources for running successful open science projects. **In a nutshell, working openly enables a community of skilled contributors to collaborate and build together, making better, more useful products and research. Sounds great, right?**

### Who is this Working Open Guide For?

This guide was created for researchers, grad students, professors, citizen scientists.. **The Working Open Guide is for anyone who is interested in leading or contributing to an open science project, or just learning more.**

If you're completely new to "open", section x of this guide will help you understand what working open means, with special attention to working open in the sciences and scientific research. If you've got a pretty good handle on what "open" is and means, and want to dive right into the details of designing and running an open project, skip ahead to section x. If you've got a project up and running and want to grow an strong community of contributors, head over to section x.

About the format

<http://mozillascience.github.io/leadership-training/>



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population.io Search

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Population.io *Beta*

The World Population Project

About Methodology API English

Selamat

Current world population clock 7,379,594,644

Bahrain

# What's my place in the world population? How long will I live?

The Journey of your life in numbers and dates!  
Please enter your date of birth, country of birth and sex at birth:

Day Month Year Country Female Male

go

Watch the TED talk!

Share!

f t in

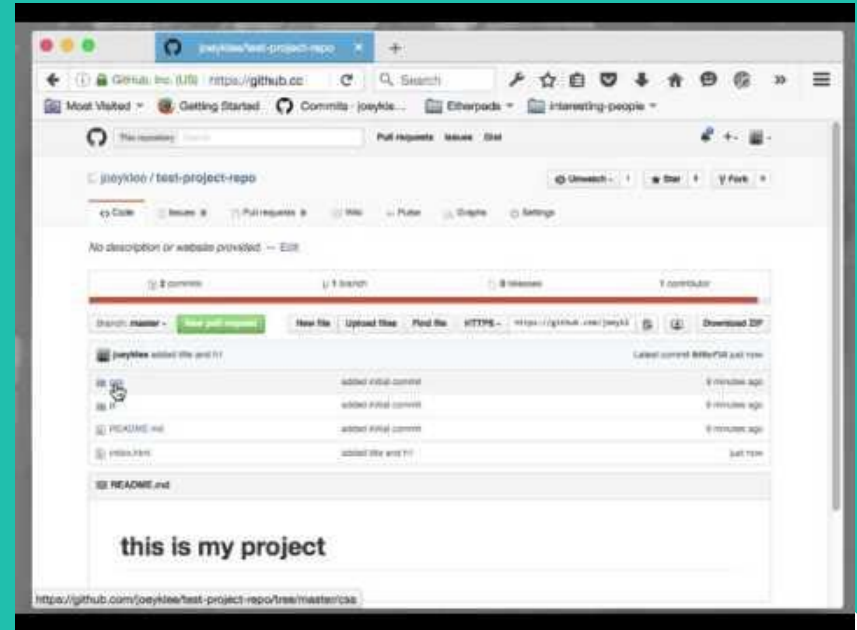
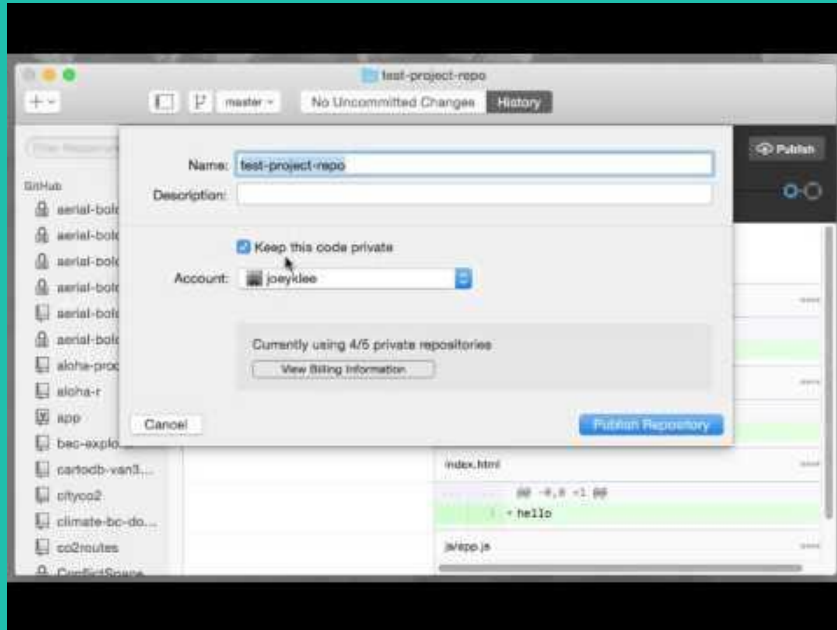
<https://github.com/worldpopulation/>



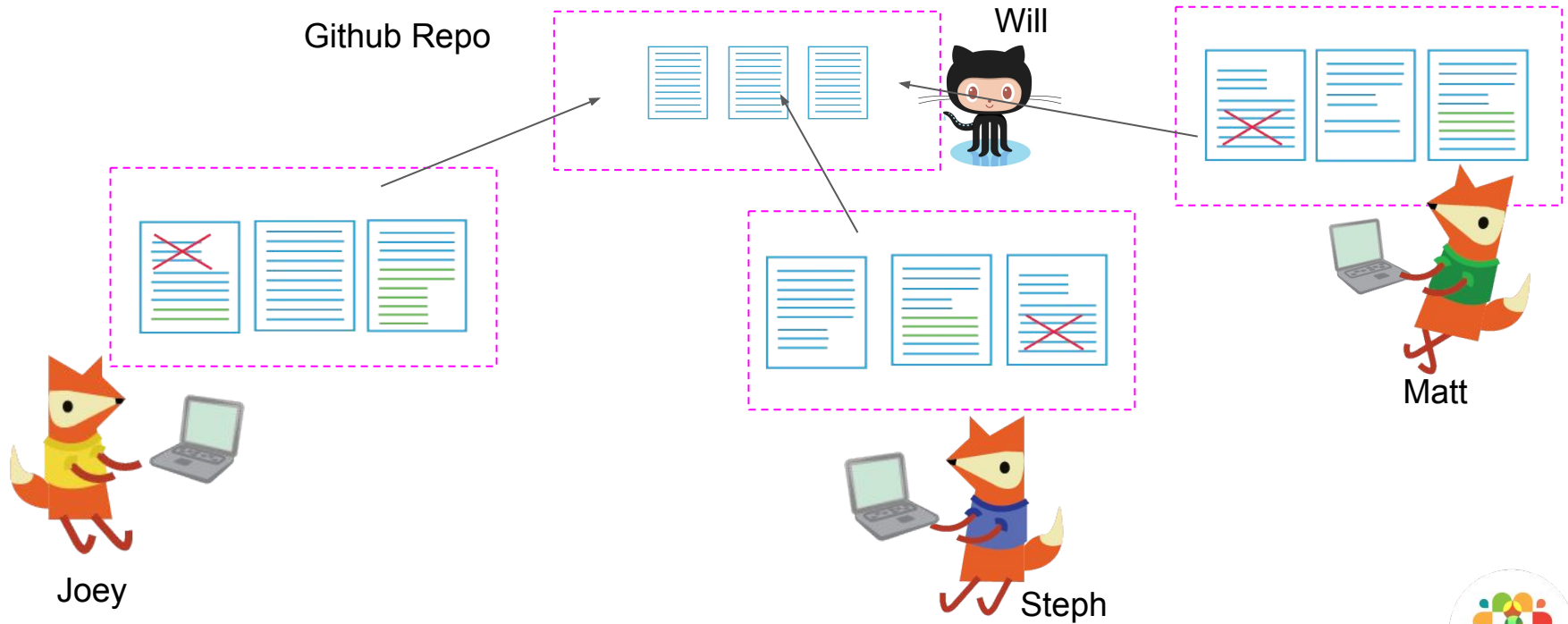
# What is Git/GitHub?



# Git/GitHub is... a software!



# GitHub is... a collaboration tool!





This repository Search

Pull requests Issues Gist



mozillascience / learning

Watch 6

Star 2

Fork 0

Code

Issues 10

Pull requests 1

Wiki

Pulse

Graphs

## Give feedback on our new Code of Conduct #12

New issue

Open

zee-moz opened this issue 13 minutes ago · 2 comments



zee-moz commented 13 minutes ago

Owner

We drafted a Code of Conduct. Help us fix typos!



zee-moz added the `good first bugs` label 13 minutes ago

Labels

`good first bugs`

Milestone

No milestone



joeyklee commented 6 minutes ago

✎ ✕

Hi Z, I'm Joey and I'm really keen to help out. I'm a native english speaker and will give it a good look!

Assignee



zee-moz



zee-moz commented 3 minutes ago

Owner

Great! Thanks Joey 🙌

Let me know if you have any questions-- I'll keep an eye out for comments on this issue.



zee-moz self-assigned this a minute ago

Notifications

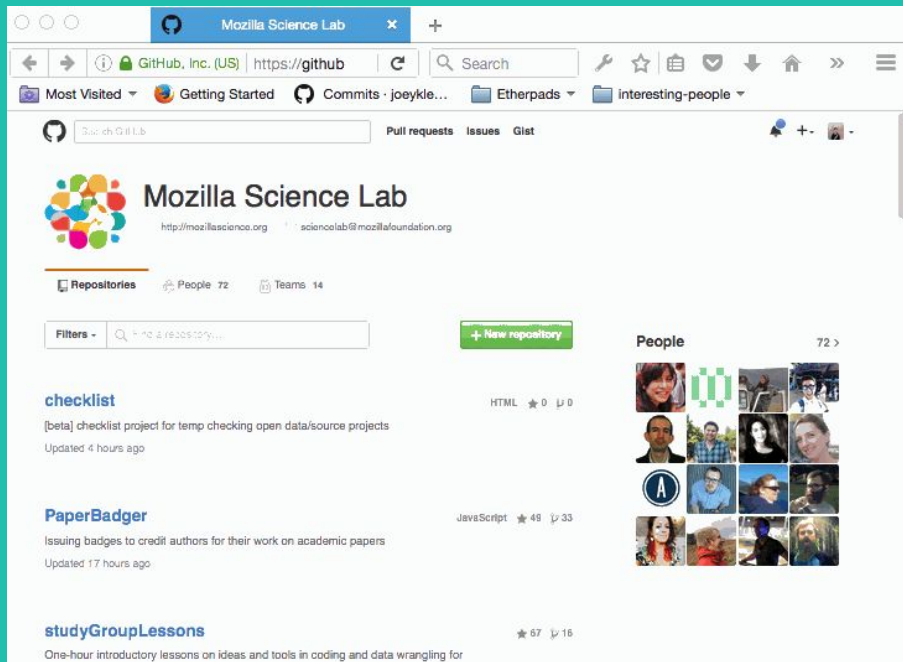
Unsubscribe

You're receiving notifications because you commented.

2 participants



# GitHub is... an ecosystem of version controlled repositories (projects)!



This screenshot shows the Mozilla Science Lab GitHub repository page. The page header includes the Mozilla Science Lab logo and name, along with links to the organization's website and email. Below the header, there are tabs for 'Repositories', 'People', and 'Teams'. The 'Repositories' tab is active, showing a list of repositories. The first repository listed is 'checklist', which is a [beta] checklist project for temporary checking of open data/source projects, updated 4 hours ago. The second repository is 'PaperBadger', which issues badges to credit authors for their work on academic papers, updated 17 hours ago. The third repository is 'studyGroupLessons', which provides one-hour introductory lessons on coding and data wrangling, updated 19 hours ago. The 'People' tab shows a grid of 72 people, and the 'Teams' tab shows 14 teams.

Mozilla Science Lab

Repositories People 72 Teams 14

checklist

[beta] checklist project for temp checking open data/source projects

Updated 4 hours ago

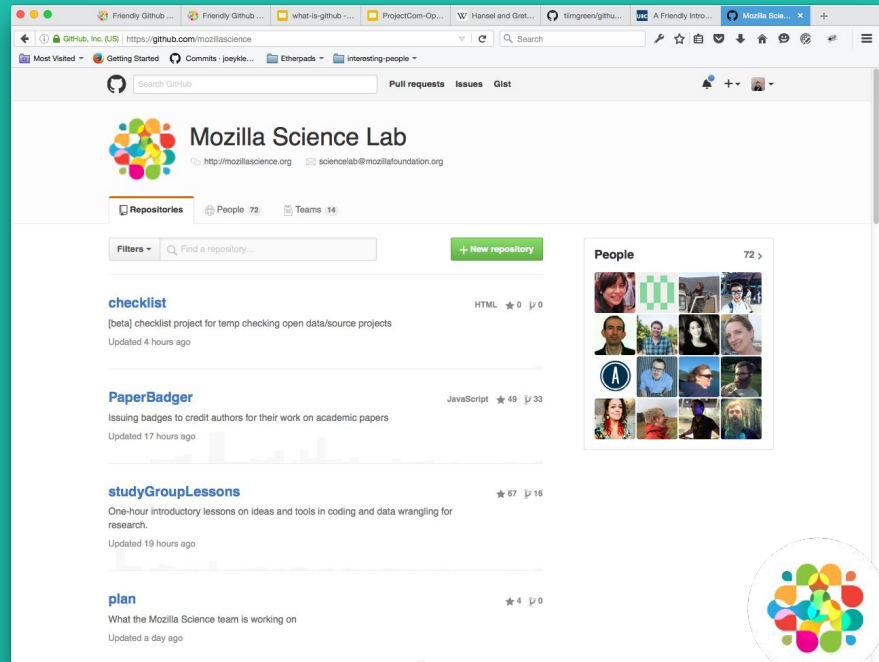
PaperBadger

Issuing badges to credit authors for their work on academic papers

Updated 17 hours ago

studyGroupLessons

One-hour introductory lessons on ideas and tools in coding and data wrangling for



This screenshot shows the Mozilla Science Lab GitHub repository page from a different perspective. The page header includes the Mozilla Science Lab logo and name, along with links to the organization's website and email. Below the header, there are tabs for 'Repositories', 'People', and 'Teams'. The 'Repositories' tab is active, showing a list of repositories. The first repository listed is 'checklist', which is a [beta] checklist project for temporary checking of open data/source projects, updated 4 hours ago. The second repository is 'PaperBadger', which issues badges to credit authors for their work on academic papers, updated 17 hours ago. The third repository is 'studyGroupLessons', which provides one-hour introductory lessons on coding and data wrangling, updated 19 hours ago. The 'People' tab shows a grid of 72 people, and the 'Teams' tab shows 14 teams.

Mozilla Science Lab

Repositories People 72 Teams 14

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[beta] checklist project for temp checking open data/source projects

Updated 4 hours ago

PaperBadger

Issuing badges to credit authors for their work on academic papers

Updated 17 hours ago

studyGroupLessons

One-hour introductory lessons on ideas and tools in coding and data wrangling for



Git vs. Github? Version controlled?  
Repositories? Whuuuut??



# Git/GitHub Terms





# Git & Github: How are they related?

- Git is the command line software handles version control on your repository.
- When you use GitHub, Git is always doing its thing behind the scenes.

- GitHub is a service that hosts your repository online and helps you work with contributors/collaborators.
- It's a web interface for version control
- Most often you will interface with Github (online) with the Github Desktop App or via the command line.

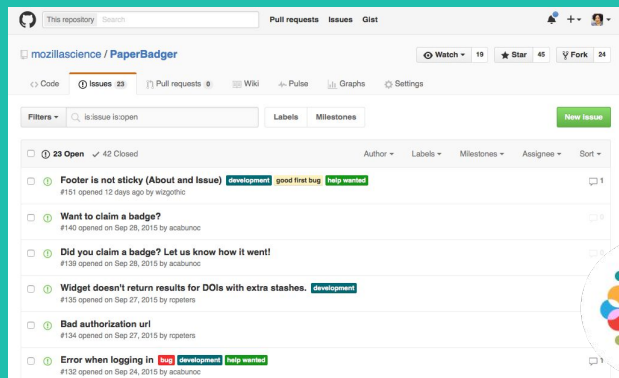
?



```
friendly-collab-party — bash — 80x15
Last login: Sat Mar  5 21:54:52 on ttys000
Josephs-MacBook-Pro-2:friendly-collab-party Jozo$ git status
On branch master
Your branch is up-to-date with 'origin/master'.
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   docs/playlist.md

no changes added to commit (use "git add" and/or "git commit -a")
Josephs-MacBook-Pro-2:friendly-collab-party Jozo$
```



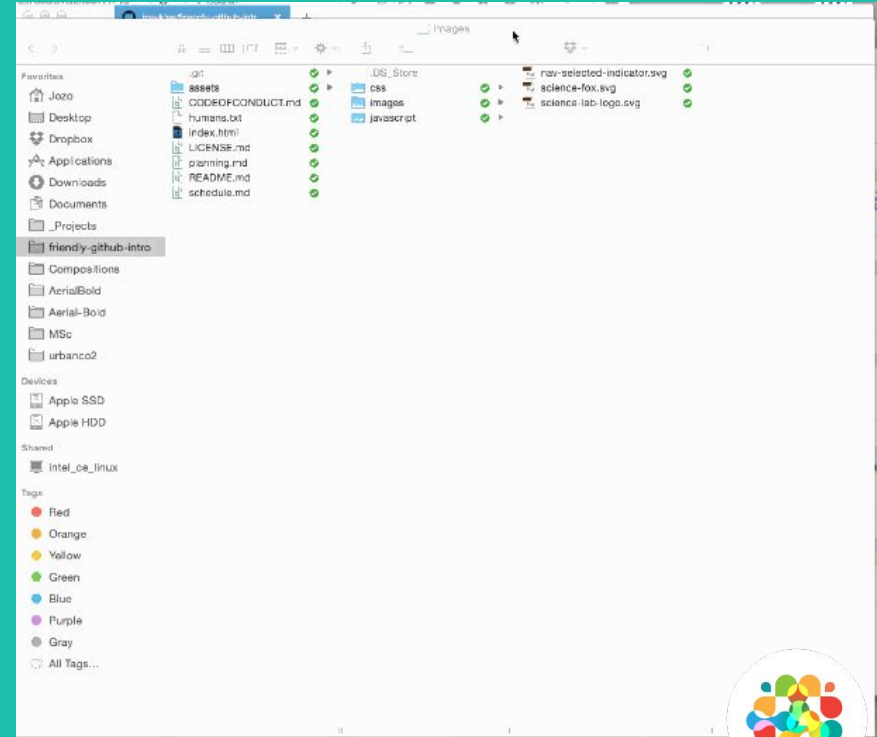
# We are going to focus on GitHub online and the GitHub Desktop App.

...but the command line offers full access to git. just fyi.



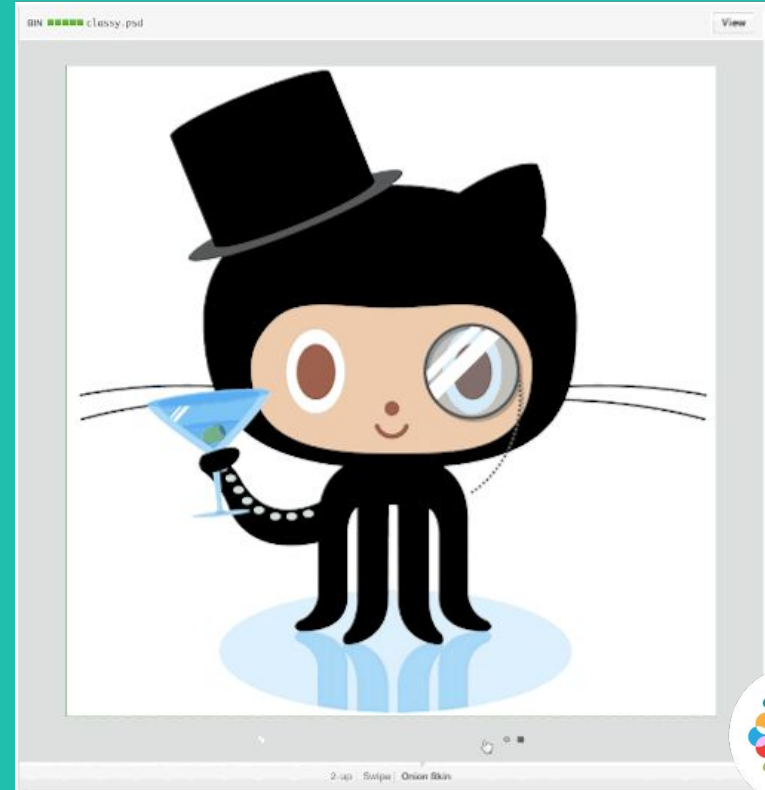
# Repository (Repo)

Your project - this is where all your files live. Each file in a Git/GitHub repo is version controlled. With Github your repo can live on your computer and on the web!



# Version Control

A system for tracking changes (or versions) of anything (document, file, image, etc). Version control allows you to go back to previous versions of a file or files.



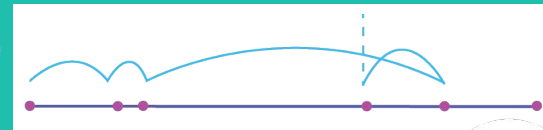
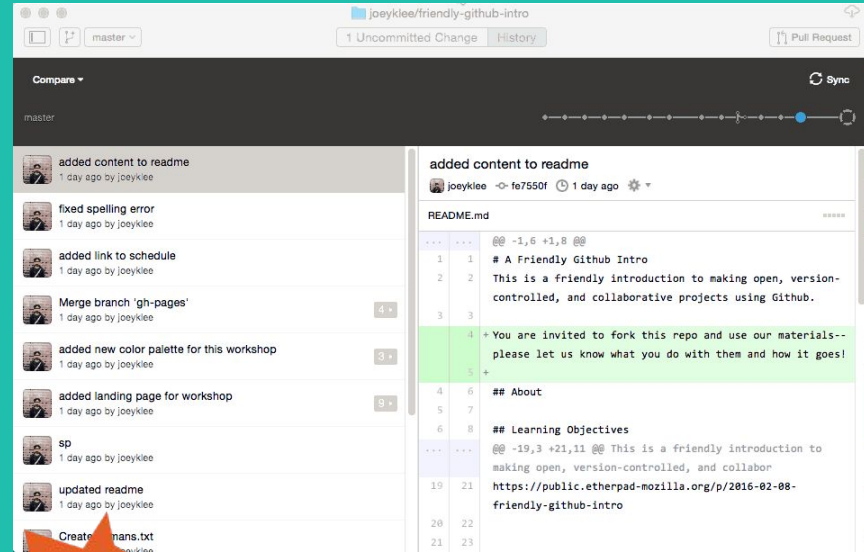
<https://github.com/tiimgreen/github-cheat-sheet>



# Commit

A “save” of a version of a file.

Every time you commit a file or files in Git/GitHub, you are leaving a “breadcrumb” of that file or those files to come back to.



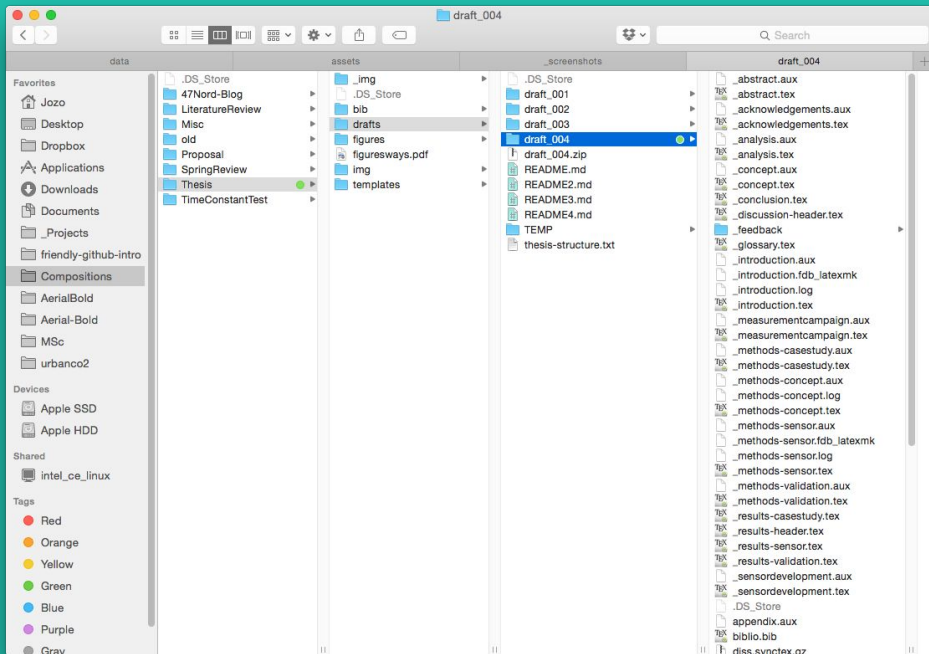
# Holy guacamole! You're saying with Github we can:

- sync our projects locally on our computers and online?
- and make “commits” which allow us to track our changes over time?

YES!!!



# Scenario 1: You want to try new things without messing up your project.



...

thesis-version1.doc

thesis-version1-ACcomments.doc

thesis-version2.doc

thesis-version2-JLComments-ACReview.doc

...

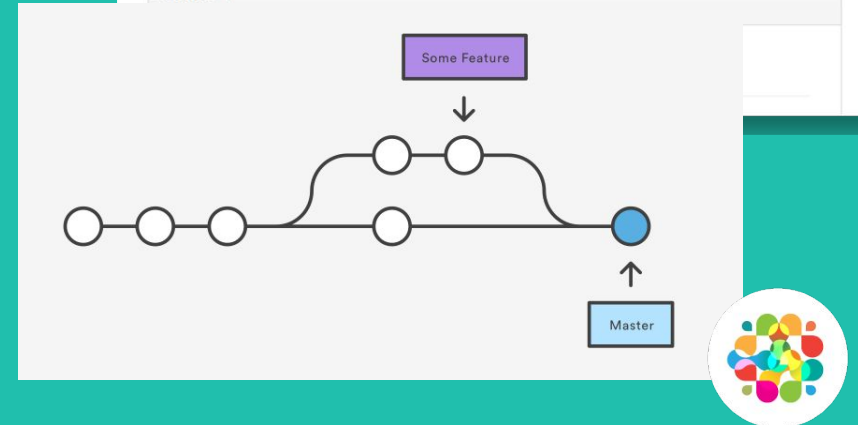
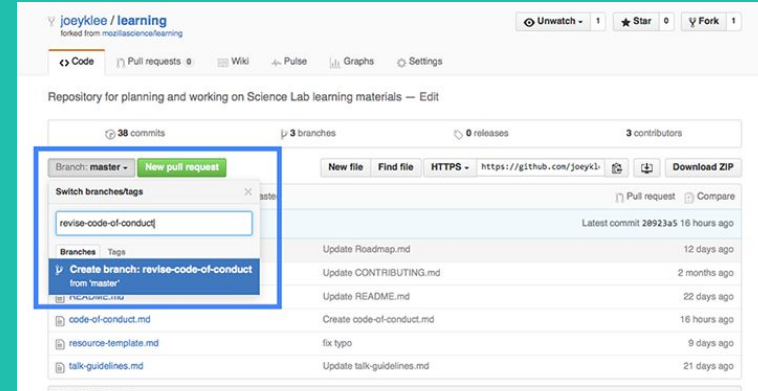
^^ It doesn't have to be like this - Prevent this tragedy!





# Branch / Merge

A copy of your project (repo) at a particular point in time that allows you to experiment with new features without affecting the working parts of your project. You can “merge” them into your project later if/when those new features are satisfactory.



Scenario 2: There are 20 tasks to do, 3 people working on the project, and no common to-do list / who is doing what.

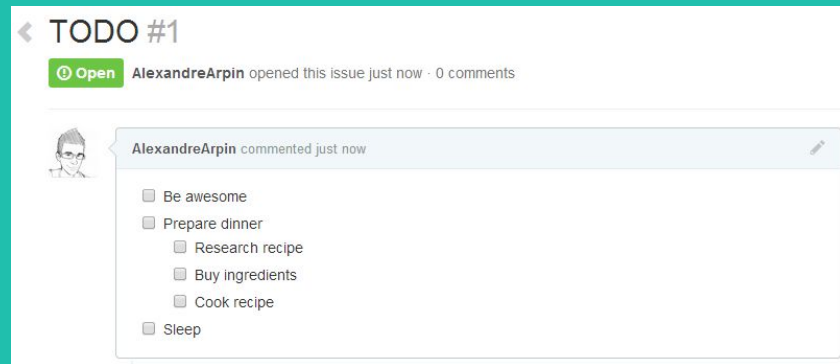
---



# Issues

Issues are your “to-do’s” - they are the tasks you need to perform, the bugs you need to fix, and things you want to accomplish.

You can “label” issues and “assign” them to collaborators (or yourself) to do.



<https://github.com/tiimgreen/github-cheat-sheet>



# Issue Tracking!

The screenshot shows a web browser window displaying the GitHub Issues page for the repository 'KirstieJane/STEMMRoleModels'. The browser's address bar shows the URL 'https://github.com/KirstieJane/STEMMRoleModels/issues'. The page has a navigation bar with tabs for 'Code', 'Issues' (selected), 'Pull requests', 'Wiki', 'Pulse', and 'Graphs'. Below the navigation bar, there are filters for 'Is:issue is:open', 'Labels', and 'Milestones', along with a 'New Issue' button. The main content area displays a list of 9 open issues, each with a title, a status label (e.g., 'question', 'no code', 'requests', 'roadmap'), and a comment count. The issues are sorted by 'Open' status. At the bottom of the page, there is a footer that reads 'ProTip! Updated in the last three days: updated->2016-03-01.'

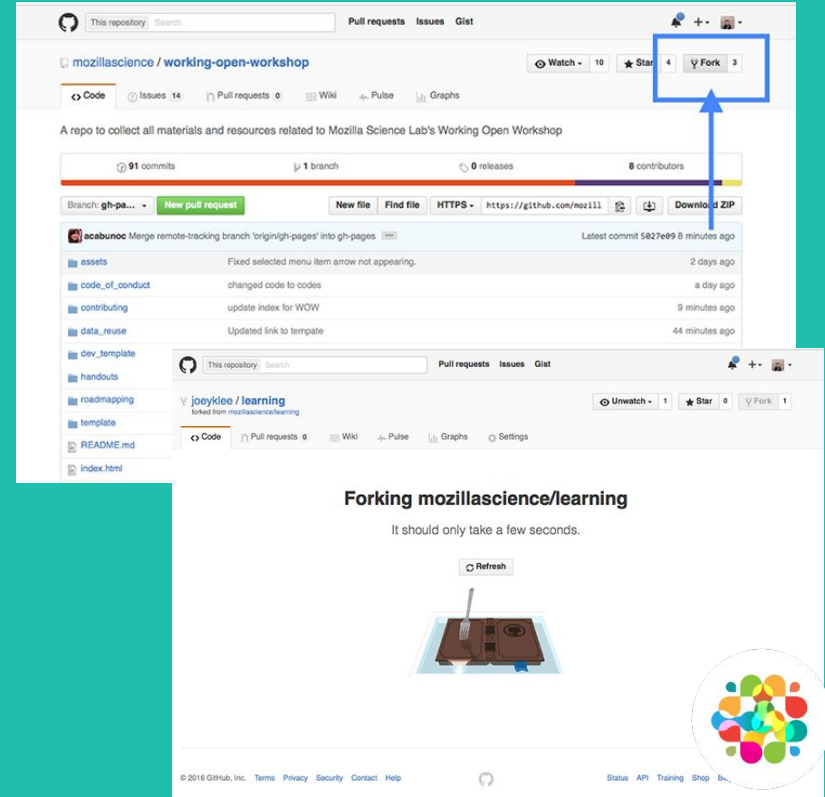
Issue #	Title	Status	Comments
14	How will a visitor to the webpage/app navigate through the site?	question	0
13	What should the website/app look like?	question	0
12	How should we finance development?	question	0
11	What features should be included in each member's profile?	no code question	0
10	How should we acknowledge our contributors?	question	1
8	Who else is running similar projects?	question	6
7	On what platform should we develop the app?	question	0
2	Get STEMM Role Models project added to MozSci Collaborate	requests	3
1	Roadmap	roadmap	0



# Fork

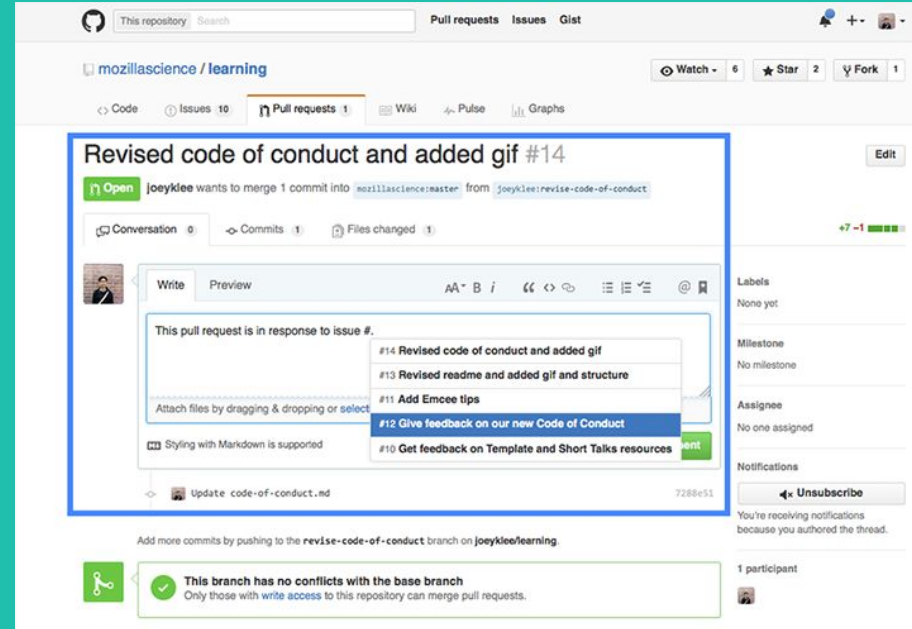
**VERB:** To fork a repo means you copy someone else's repo with the intention to build on it/improve it and contribute back changes using “pull requests” - you're not an official collaborator on the repo in this case.

**NOUN:** A copy of someone else's project to which you want to contribute new features. Not to be confused with “clone”.



# Pull Request

You make a pull request when you've made some awesome changes (commits) to a forked repo or a branch of your own repo and want those changes to be merged into the project either in the “master” branch or branch of interest. It is a “hey, pull these changes into the project”.



# Fork this thesis template & contribute!

The screenshot shows the GitHub repository page for 'briandealwis / ubcdiss'. The repository is described as 'A LaTeX template for dissertations at the University of British Columbia'. It has 45 commits, 1 branch, 0 releases, and 2 contributors. The page includes a list of files and their commit history:

File	Description	Commit Date
<code>.bzrignore</code>	Polished version.tex generation and added an export target	8 years ago
<code>FAQ</code>	"Faculty of Graduate Studies" -> "Graduate and Postdoctoral Studies"	2 years ago
<code>LICENSE</code>	Modified license to instead release the package and its contents to the	7 years ago
<code>Makefile</code>	Removed version.tex and references	2 years ago
<code>README</code>	Removed version.tex and references	2 years ago
<code>abstract.tex</code>	"Faculty of Graduate Studies" -> "Graduate and Postdoctoral Studies"	2 years ago
<code>ack.tex</code>	Big whack of changes: renamed template.tex -> diss.tex,	8 years ago
<code>appendix.tex</code>	Grad Studies no longer wants ethics certificates in appendices	2 years ago
<code>biblio.bib</code>	Fixed missing parentheses.	8 years ago
<code>diss.tex</code>	Small change to capitalization in University Of BC	a year ago
<code>doc.pdf</code>	Use hyperrefs 'albordercolors' instead	2 years ago
<code>glossary.tex</code>	"Faculty of Graduate Studies" -> "Graduate and Postdoctoral Studies"	2 years ago
<code>intro.tex</code>	"Faculty of Graduate Studies" -> "Graduate and Postdoctoral Studies"	2 years ago



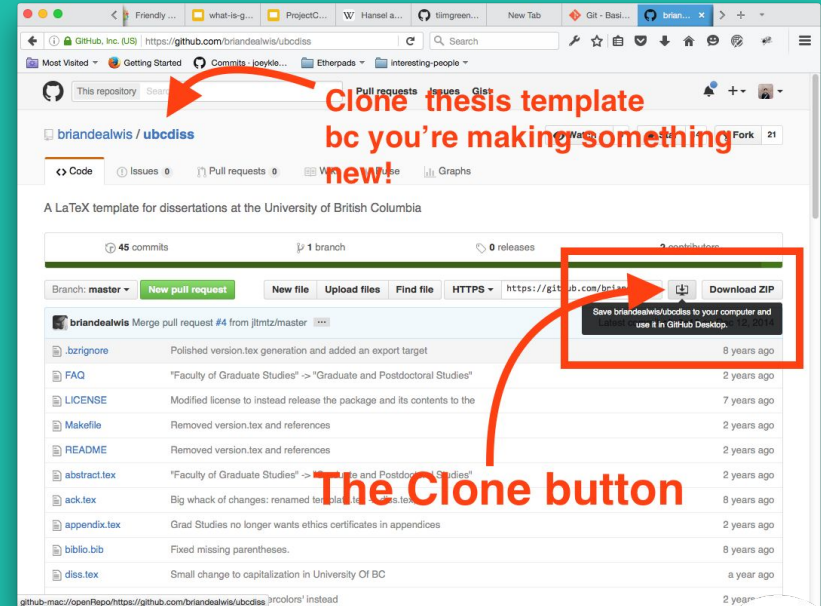


# Clone

You might “clone” a repo if:

1. you’ve been added as a “collaborator” to a project and want to “clone” or copy the project to your computer

2. you’re “cloning” a project you’ve just forked so that you can pull it from online to your local computer.



# Download Zip

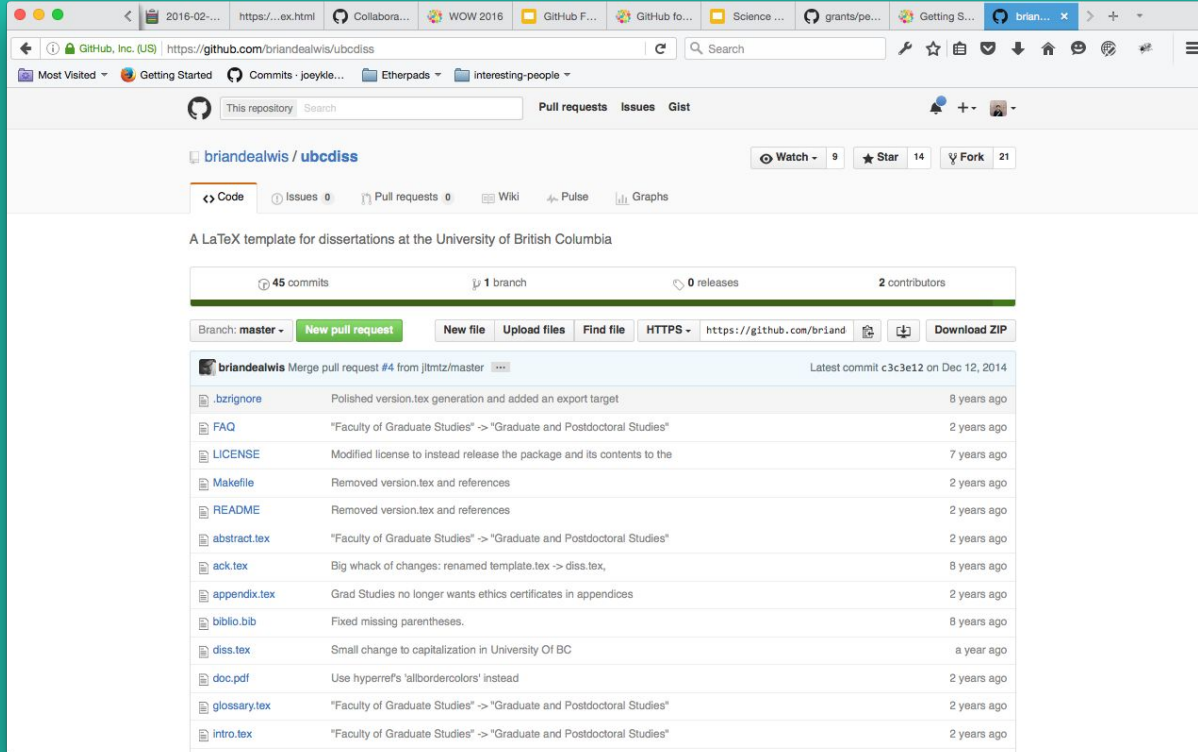
---

You might “download zip” if:

- You find a cool project online and want to add your own content and remix it into something else.
- it is of course important to attribute where you got your template!
- After downloading, you might upload your new project as a repo to GitHub with a new name/content etc.



# Download zip of template and remix!



GitHub repository page for **briandealwis / ubcdiss**. The repository is described as "A LaTeX template for dissertations at the University of British Columbia". It has 45 commits, 1 branch, 0 releases, and 2 contributors.

Buttons: Watch (9), Star (14), Fork (21), Code, Issues (0), Pull requests (0), Wiki, Pulse, Graphs.

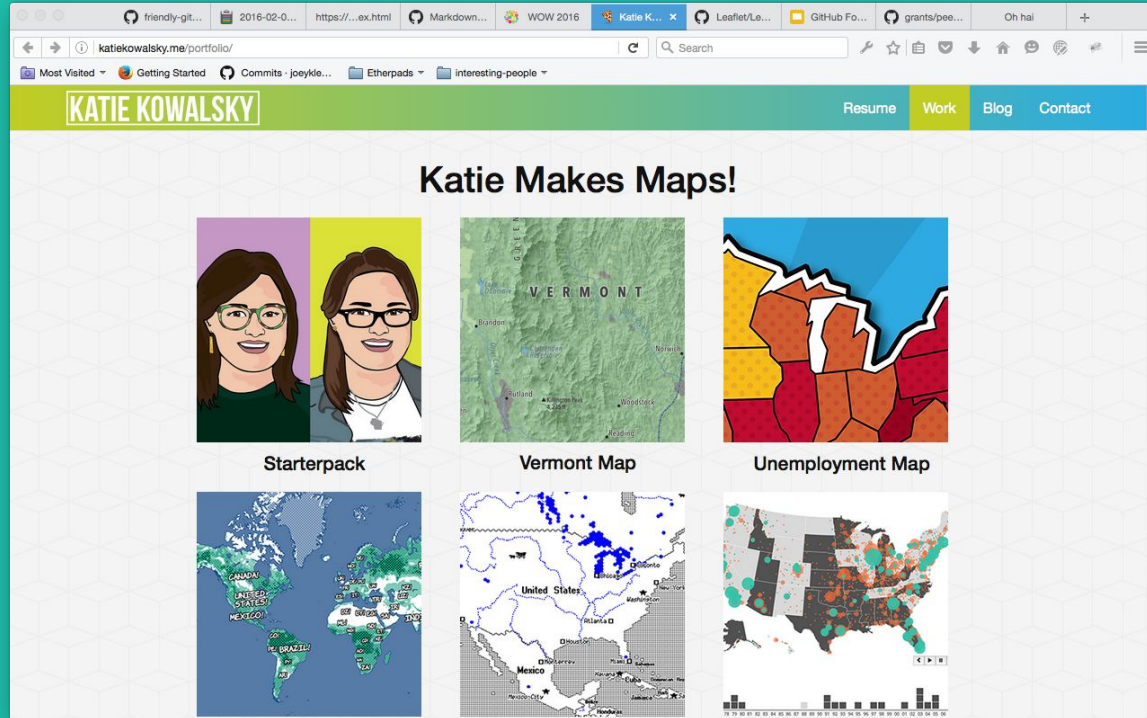
Branch: master - New pull request, New file, Upload files, Find file, HTTPS - <https://github.com/briandealwis/ubcdiss>, Download ZIP

Latest commit: c3c3e12 on Dec 12, 2014

File	Description	Commit Date
<a href="#">.bzignore</a>	Polished version.tex generation and added an export target	8 years ago
<a href="#">FAQ</a>	"Faculty of Graduate Studies" -> "Graduate and Postdoctoral Studies"	2 years ago
<a href="#">LICENSE</a>	Modified license to instead release the package and its contents to the	7 years ago
<a href="#">Makefile</a>	Removed version.tex and references	2 years ago
<a href="#">README</a>	Removed version.tex and references	2 years ago
<a href="#">abstract.tex</a>	"Faculty of Graduate Studies" -> "Graduate and Postdoctoral Studies"	2 years ago
<a href="#">ack.tex</a>	Big whack of changes: renamed template.tex -> diss.tex,	8 years ago
<a href="#">appendix.tex</a>	Grad Studies no longer wants ethics certificates in appendices	2 years ago
<a href="#">biblio.bib</a>	Fixed missing parentheses.	8 years ago
<a href="#">diss.tex</a>	Small change to capitalization in University Of BC	a year ago
<a href="#">doc.pdf</a>	Use hyperrefs 'allbordercolors' instead	2 years ago
<a href="#">glossary.tex</a>	"Faculty of Graduate Studies" -> "Graduate and Postdoctoral Studies"	2 years ago
<a href="#">intro.tex</a>	"Faculty of Graduate Studies" -> "Graduate and Postdoctoral Studies"	2 years ago



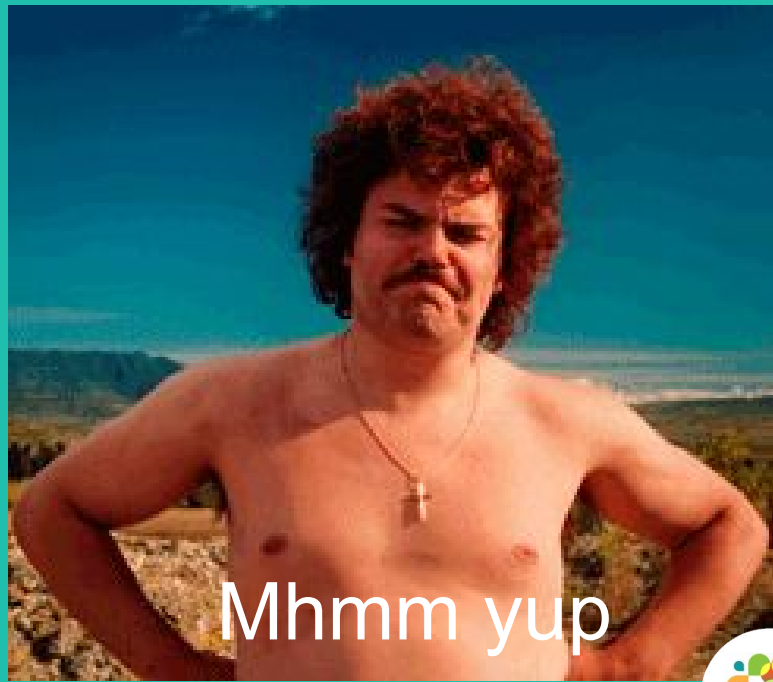
# Download zip of portfolio and remix!



<http://katiekowalsky.me/portfolio/>

# Hold the phone! This means that we can:

- experiment on projects without breaking them. - branching
- make to-do lists and keep track of who is doing them - issues
- we can contribute to projects by forking them, cloning, and making pull requests
- build on existing projects by ourselves or with collaborators by cloning
- download the zip, remixing, and pushing a new repo to GitHub.



Don't worry if you haven't gotten all the terms yet - we'll give you time to play later and clarify any questions.



Let's go through together and set up a project on GitHub to get started!





# Thanks!

creds: collab foxes - Z.Marsh @ Mozilla Science Lab.



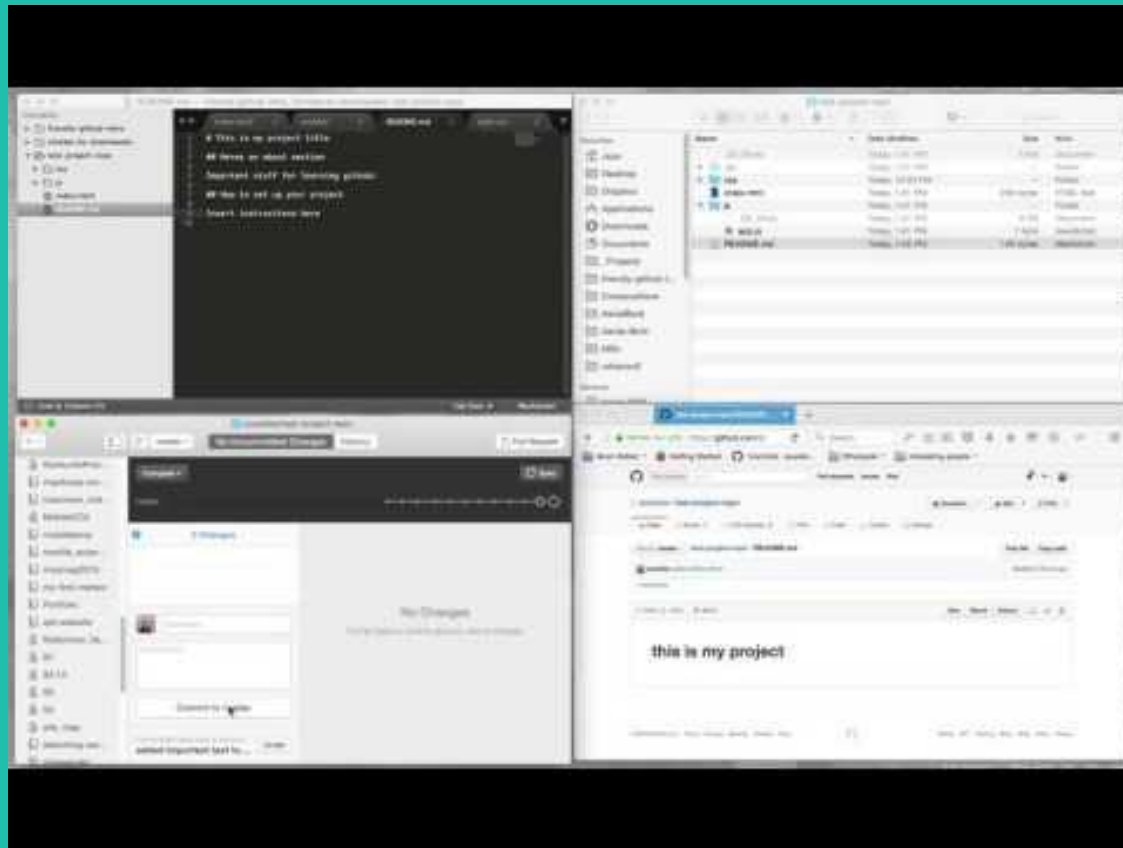


# Scenario 3: You accidentally delete one of your files and need to get it back.

---



# Git/Github Solution: Go back to a commit



friendly-git...

2016-02-0...

https://...ex.html

Markdown...

WOW 2016

Katie Kow...

Leaflet/Le...

Github Fo...

grants/pee...

Leaflet for ...

←

→

🔍

https://rstudio.github.io/leaflet/basemaps.html

📖

🔄

🔍 Search

🔧

☆

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☰

Most Visited

Getting Started

Commits · joeykle...

Etherpads

interesting-people

Leaflet for R

Introduction

The Map Widget

Basemaps

Markers

Popups

Lines and Shapes

JSON

Raster Images

Shiny Integration

Colors

Legends

Show/Hide Layers


## Using Basemaps

Leaflet supports basemaps using [map tiles](#), popularized by Google Maps and now used by nearly all interactive web maps.

### Default (OpenStreetMap) Tiles

The easiest way to add tiles is by calling `addTiles()` with no arguments; by default, [OpenStreetMap](#) tiles are used.

```
m <- leaflet() %>% setView(lng = -71.0589, lat = 42.3601, zoom = 12)
m %>% addTiles()
```



Leaflet | © OpenStreetMap contributors, CC-BY-SA

### Third-Party Tiles

Alternatively, many popular free third-party basemaps can be added using the `addProviderTiles(providerName)` function, which is implemented using the `leaflet-providers` plugin. See [here](#).

Fork me on GitHub

<https://rstudio.github.io/leaflet/basemaps.html>

There's a lot of history we're going to skip over.

Instead we're going to try to give you an overview of the most important bits.

Let's go!

