Git Going With Git

GitHub Overview

GitHub overview for Data Fridays

https://gitgoingwithgit.com/

- Data Friday
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What is GitHub?

GitHub is a hosted version of git that can be used to collaborate with others. It is usually used as a *centralized* git repository.

Besides git, GitHub also has other features commonly used when collaborating in projects:

- issue management

- discussions

- project management

- wiki

Why is GitHub useful?

GitHub is the leading platform for *open source projects*, as it facilitates working in projects with a team.

- code (or any files, really) lives in the cloud, so you can access your files from anywhere

- central place to manage project

- easy to share work with others

- integrations to other commonly used platforms

- **FREE** (...mostly free)

Terminology

- public repository / private repository

- issue / pull request

- markdown / `README.md`

- organizations

- GitHub pages

- actions / continuous deployment

- author / contributor / owner

- clone / fork

Git Remotes

Git remotes are basically "hosted git" external to one's own computer. They facilitate collaborating with others.

Some popular ones include:

- GitHub

- GitLab

- BitBucket

Note: Using *markdown* together with git is common and encouraged.

A Short Demo

🖱 Overview of the GitHub user interface

Examples

- 🖱 deepfakes/faceswap repository

GitHub Is Not Magic. Collaboration Is Still (kinda) Hard

- Using GitHub well requires good project management practices and constant maintenance

- Non-git features are rudimentary

- User interface is busy and may be intimidating

- Learning curve (as with git) may be large

GitHub Configuration

🖱 Your local git installation should be configured to authenticate to a remote such as GitHub to be able to `clone` or `pull` from a GitHub repository. In GitHub, go to *settings* and

1. choose *Developer settings*

2. choose *Personal access tokens*

3. *Generate new token* and choose name (ie *Laptop*)

4. choose an *expiration*

5. copy the generated token. It will **not** be available again.

Connect git to GitHub

The first time `clone` ing a project from GitHub, you will be prompted for a *username* and a *password*. This is misleading as GitHub now requires the personal access token to be used as the password.

🖱 Clone this presentation's repository with

```
git clone https://github.com/Git-Going-With-Git/Data-Fridays-Presentation
```

and enter your *personal access token* when prompted for password.

GitHub Features

- organizations, permissions

- GitHub pages

- issues, pull requests

- wiki

- project management

- actions

- packages

Issues and Pull Requests

When working collaboratively, it becomes very important to have a place to discuss issues (bugs, questions, other problems) that is *close to* where the actual problems live.

GitHub has the concepts of issues, pull requests, discussions, and projects to help with this.

🖱 **DEMO**

GitHub Pages

Simple static websites can be hosted on GitHub itself. To host a website on GitHub, the special `gh-page` branch is used. Examples of websites that may be hosted on GitHub pages include:

- documentation

- simple personal website/blog

- R Markdown

- Jupyter Notebooks

🖱 **DEMO** https://datafriday.gitgoingwithgit.com/

Git Clients

- 🖱 Command line
- 🖱 GitKraken

Integration With IDEs

Many popular IDEs (integrated development environments) have native git integration.

- 🖱 RStudio - [Example R Studio Repository](#)

- 🖱 VS Code - [Presentation Example](#)

- JetBrains' IDEs

Integration With 3rd Party Apps

There are many third party applications that integrate very well with GitHub. Here's a short list of such applications:

- 🖱 Overleaf - [Overleaf Example](#), [Repository Example](#)
- 🖱 Replit - [replit example](#)
- 🖱 Diagrams Net - [ExampleDiagram.drawio Example](#)
- CoCalc - has GitHub integration but requires paid subscription
- Jira, Monday, ClickUp
- Slack, Teams - useful for notifications

Resources

Interactive Learning

- Learn Git Branching
- Git Kata
- GitHub Learning

Books

- Pro Git

Cheat Sheets

- Interactive Cheat Sheet
- GitHub Markdown Cheatsheet.
- GitHub Git Cheat Sheet

General

- GitLab Training
- Official Documentation
- Command list