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 hostd version of git that can be used to collaborate with others. It is usually used as the *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
- `README.md` / markdown
- 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 management
- 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

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 integrate very well with GitHub. Here's a short list of such applications:

- Overleaf 🖱️ - Overleaf Example, Repository Example
- Replit 🖱️ - replit example
- Diagrams dot 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