Web Security Shorts

Securing your GitHub code repository

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Today’s topics

- `git`, GitHub, and UW GitHub enterprise
- why secure repositories?
- managing access in GitHub

Future topics

- repository security policies
- code scanning
- secret scanning
- dependency management

`git`, GitHub and UW GitHub

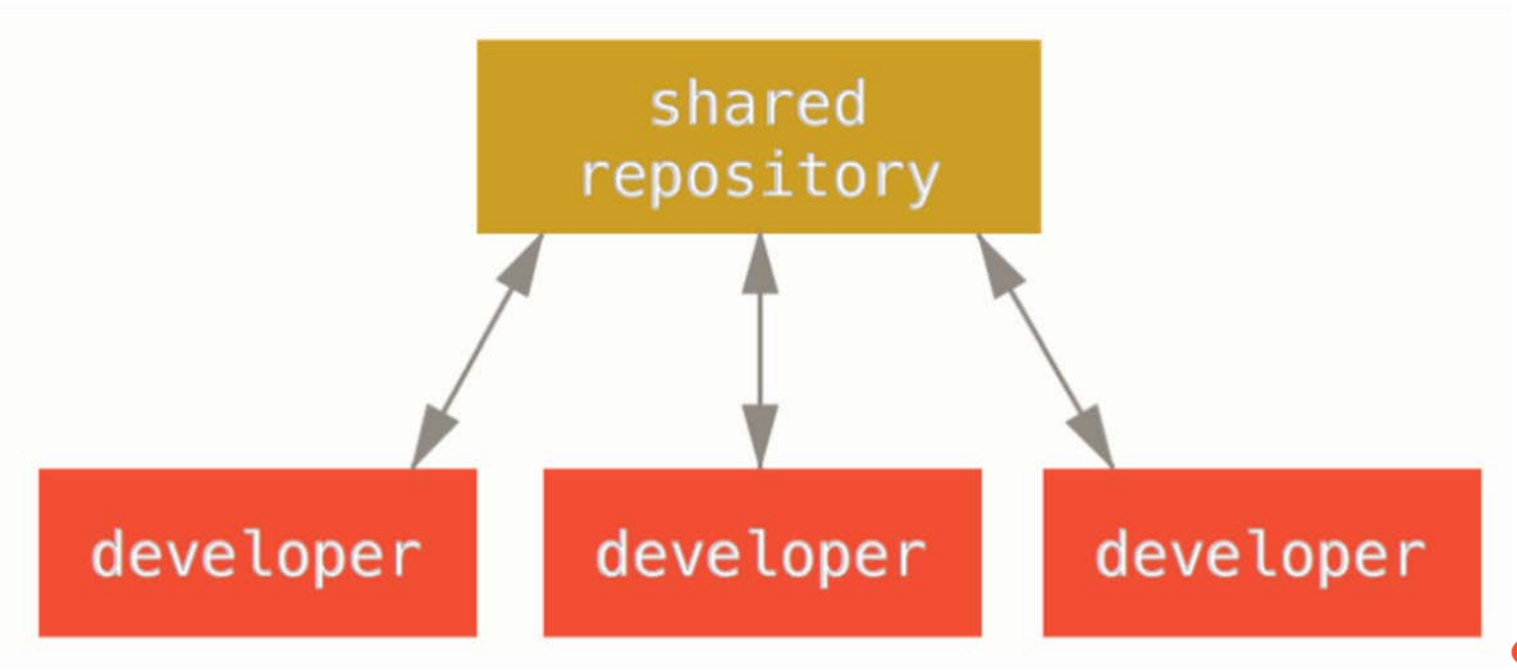
git

- version control system
  - tracks content and history of changes
  - mostly used for source code, but also for other content like books
- allows for coordination and collaboration between contributors working on the same code base

Local and distributed

- every computer used for the project has a full-fledged instance of the repository with a complete history and version tracking
- almost all operations are local, most commonly via the command line
- provides a variety of workflows that give developers flexibility on how they work with each other

Centralized workflow


shared repository

developer

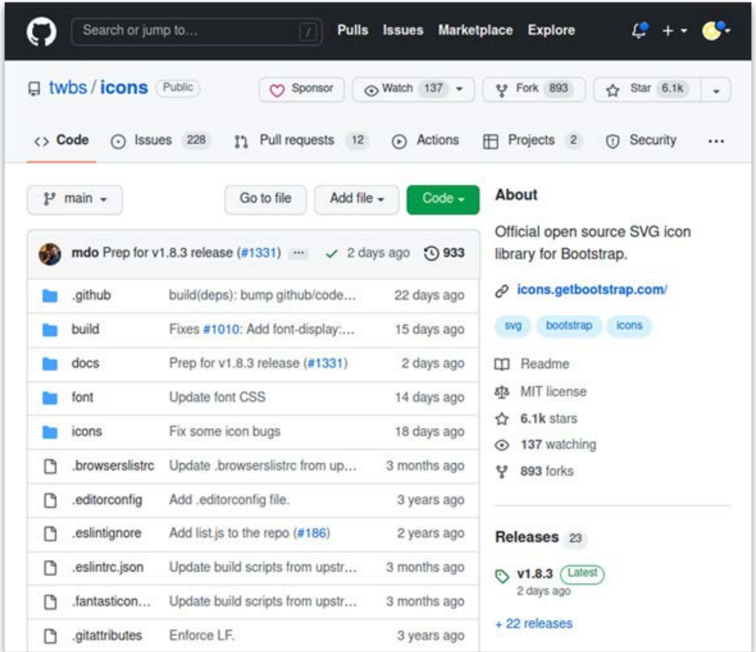
developer

developer

Base diagram from Git - Distributed Workflows

GitHub

- cloud-based app that hosts shared `git` repositories
  - other `git` hosts exist, like BitBucket
- provides a web-based user interface



twbs / icons Public

mdo Prep for v1.8.3 release (#1331) ··· ✓ 2 days ago 933

.github	build(deps): bump github/code...	22 days ago
build	Fixes #1010: Add font-display:...	15 days ago
docs	Prep for v1.8.3 release (#1331)	2 days ago
font	Update font CSS	14 days ago
icons	Fix some icon bugs	18 days ago
.browserslistrc	Update .browserslistrc from up...	3 months ago
.editorconfig	Add .editorconfig file.	3 years ago
.eslintignore	Add list.js to the repo (#186)	2 years ago
.eslintrc.json	Update build scripts from upstr...	3 months ago
.fantasticon...	Update build scripts from upstr...	3 months ago
.gitattributes	Enforce LF.	3 years ago

About

Official open source SVG icon library for Bootstrap.

icons.getbootstrap.com/

svg bootstrap icons

Readme

MIT license

6.1k stars

137 watching

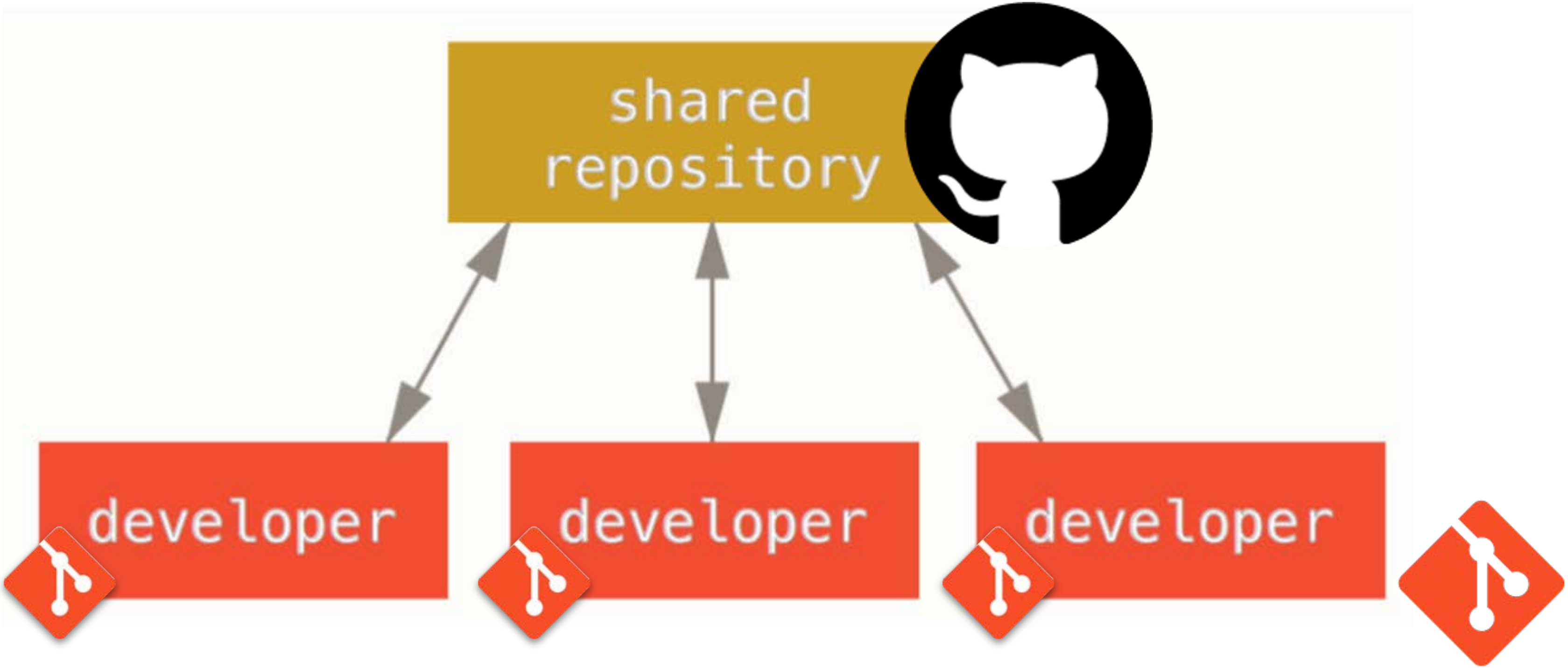
893 forks

Releases 23

v1.8.3 Latest
2 days ago

+ 22 releases

Centralized workflow with GitHub



Base diagram from Git - Distributed Workflows

UW GitHub Enterprise service

University departments or entities can:

- obtain fully-featured GitHub organization accounts
- with unlimited private repositories
- that are free of charge

also includes features of GitHub Classroom capability

UW IT Service Catalog

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UW GitHub and GitHub accounts

- users of the service create or reuse their own **personal** GitHub accounts
- the service does NOT provision GitHub accounts
- your NetID will be linked to your GitHub account when you join an organization in UW’s enterprise
- the service is provided through github.com
  - but support provided via help@uw.edu

UW IT Service Catalog

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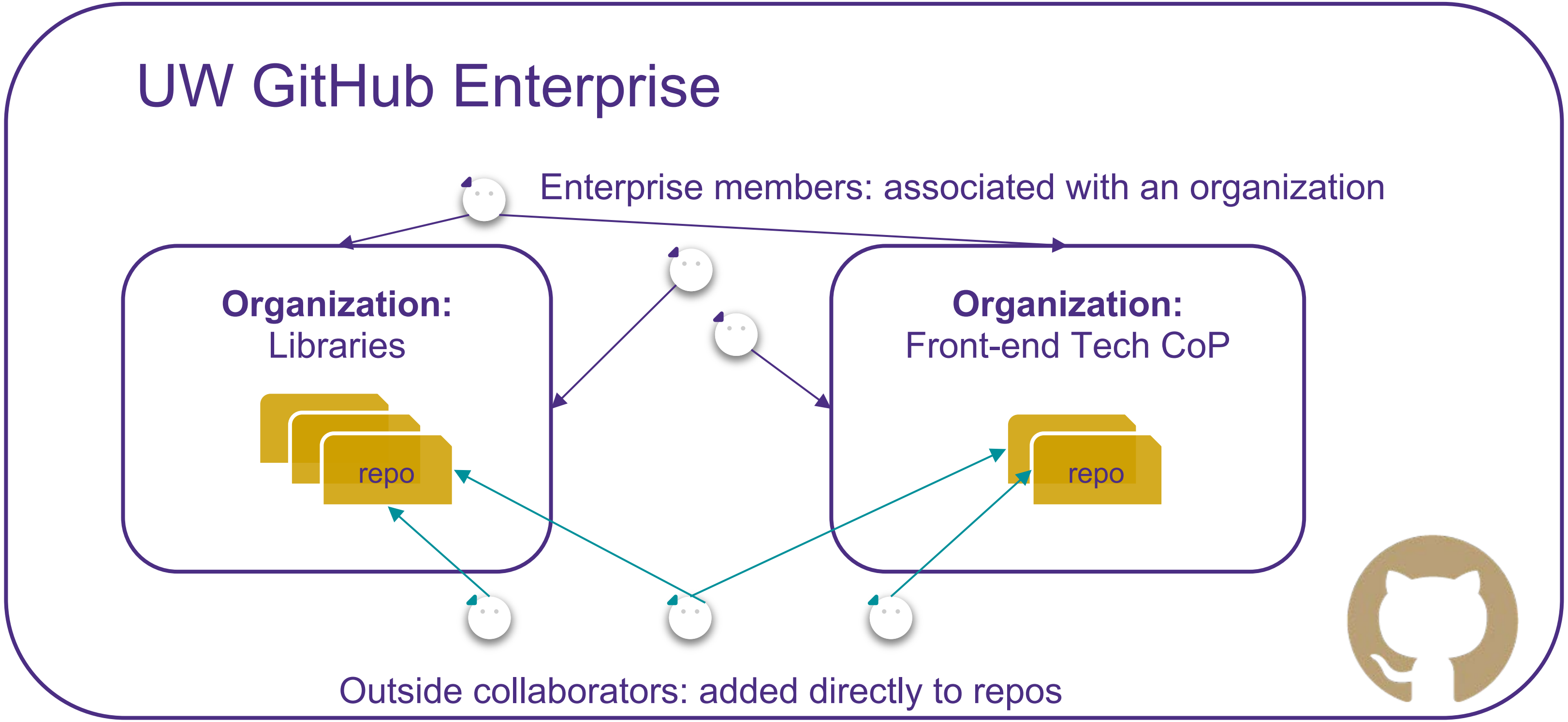
UW GitHub structure



UW GitHub Enterprise
Enterprise members: associated with an organization
Organization:
Libraries
repo
Organization:
Front-end Tech CoP
repo
Outside collaborators: added directly to repos

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UW GitHub access

- the UW enterprise
  - access to the enterprise is allowed for current faculty, staff and students
  - shared and sponsored NetIDs can be permitted on request, email help@uw.edu
- organizations within the enterprise
  - can be requested by faculty and staff
  - training required for org administrators

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Why secure your code repository?

Why?

- secure management of `git` repositories can lower the risk of exposing vulnerable code and secrets
- modern `git` hosts are providing more and more tools to help you harden your code, e.g.
  - dependency management
  - code scanning
  - secret scanning and management

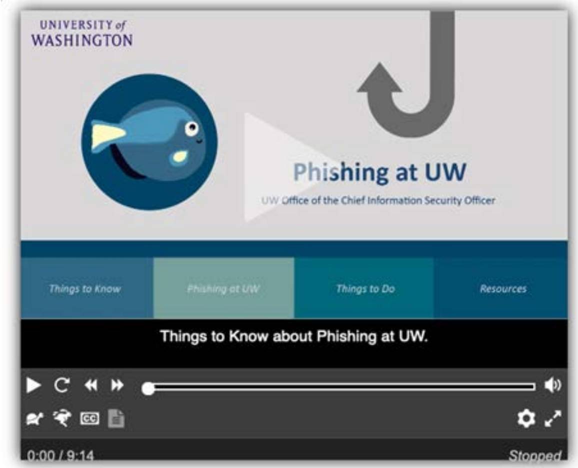
Managing access

Visibility of your repository

- public
  - everyone on the internet has access
- internal
  - anyone in your enterprise has access
- private
  - only those that you choose share access

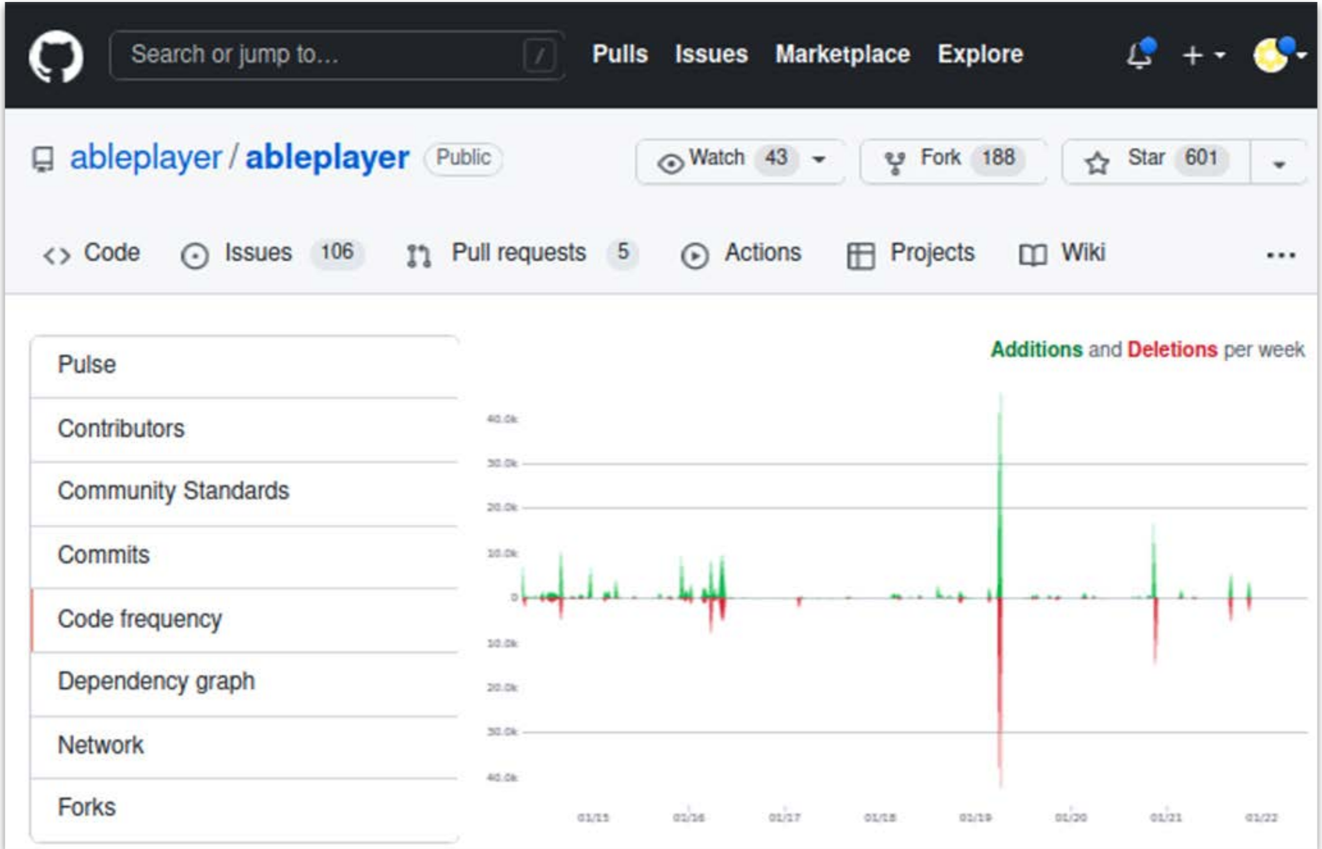
Visibility: public

- accessible to everyone on the internet
- good for open-source projects
- example: AblePlayer, a fully accessible media player



Things to Know about Phishing at UW.

AblePlayer

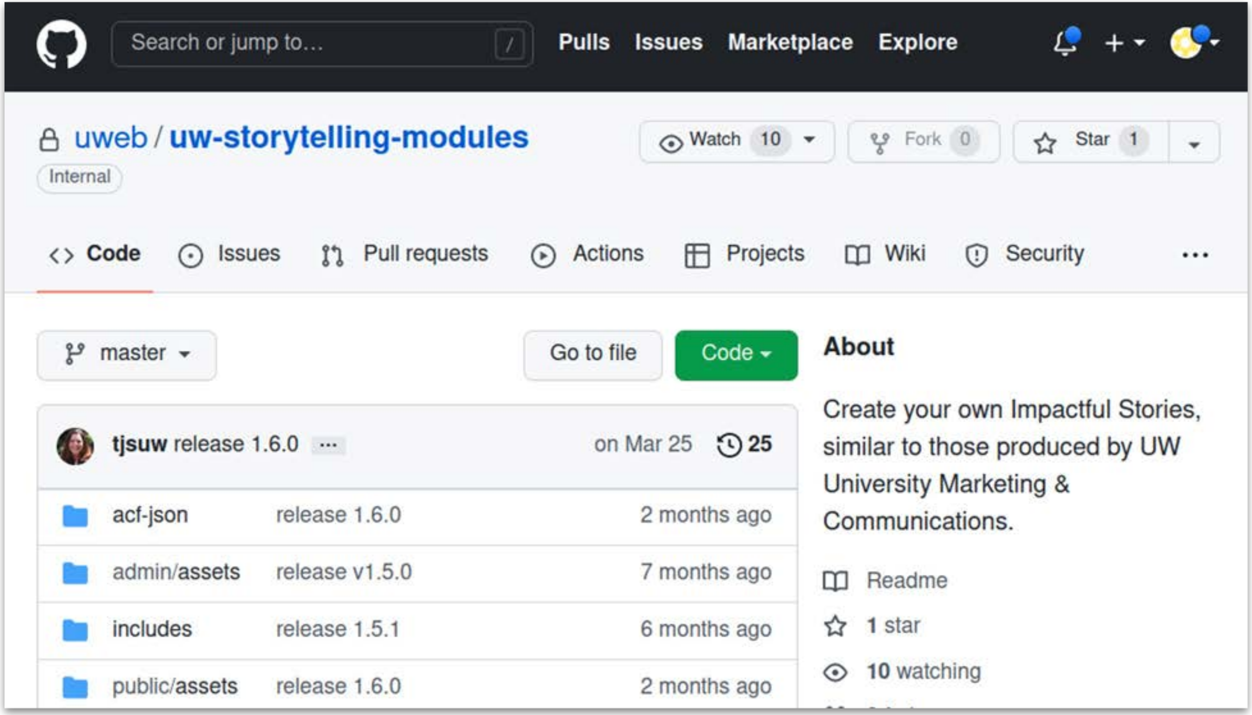


https://github.com/ableplayer/ableplayer/graphs/code-frequency

Visibility: internal

- based on the concept of “Inner Source”
    - open source within the confines of an enterprise
- only available for GitHub enterprise organizations
- anyone belonging to an organization within the UW enterprise can see any internal repository
- example: UW Storytelling Modules

UW storytelling modules



tjsuw release 1.6.0 …	on Mar 25	25
acf-json	release 1.6.0	2 months ago
admin/assets	release v1.5.0	7 months ago
includes	release 1.5.1	6 months ago
public/assets	release 1.6.0	2 months ago

About

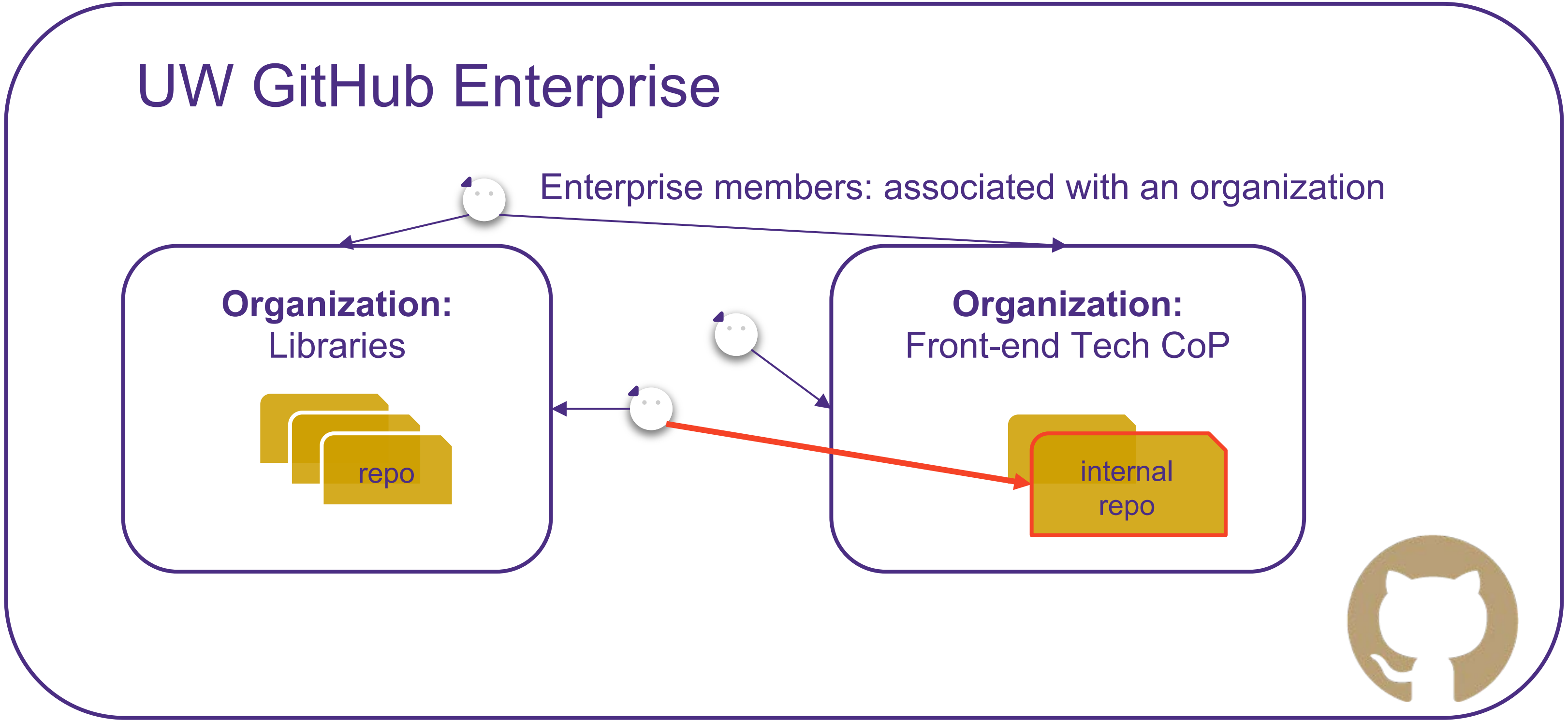
Create your own Impactful Stories, similar to those produced by UW University Marketing & Communications.

Readme

1 star

10 watching

Internal – who’s looking



UW GitHub Enterprise

Enterprise members: associated with an organization

Organization:
Libraries

repo

Organization:
Front-end Tech CoP

internal repo

Visibility: private (1 of 2)

- for proprietary and/or code repositories not meant to be public or internal
- unlimited private repositories available with the UW GitHub and the GitHub free version

Visibility: private (2 of 2)

- in UW GitHub, private repositories can only be accessed by members of your organization or specifically invited outside collaborators
- if you are an owner of an org you can set newly created repos to be private by default

Teams and individuals

- in UW GitHub you can fine-grain access to repos within an organization to teams, particular org members, or outside contributors
- when selecting a team or individuals verify you have selected the correct one
    - remember users use their own personal GitHub accounts so may not be easily identifiable

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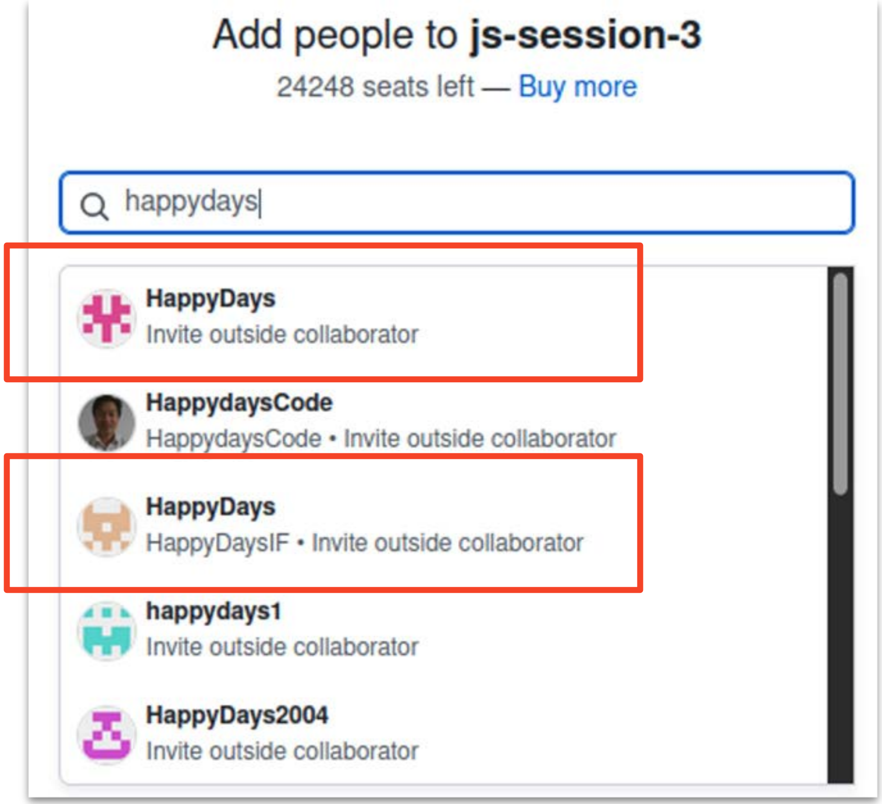
Adding users to repos



Add people to **js-session-3**

24248 seats left — Buy more

happydays

HappyDays
Invite outside collaborator

HappydaysCode
HappydaysCode • Invite outside collaborator

HappyDays
HappyDaysIF • Invite outside collaborator

happydays1
Invite outside collaborator

HappyDays2004
Invite outside collaborator

Takeaways for managing access

- review your repository visibility settings
  - set visibility as private unless there is a compelling reason to be public or internal
- regularly review teams and individuals assigned to your repos and organizations

More reading

- Securing your repository

Thank you! Questions?

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