

Introduction to GIT

Ricardo Delfin Garcia

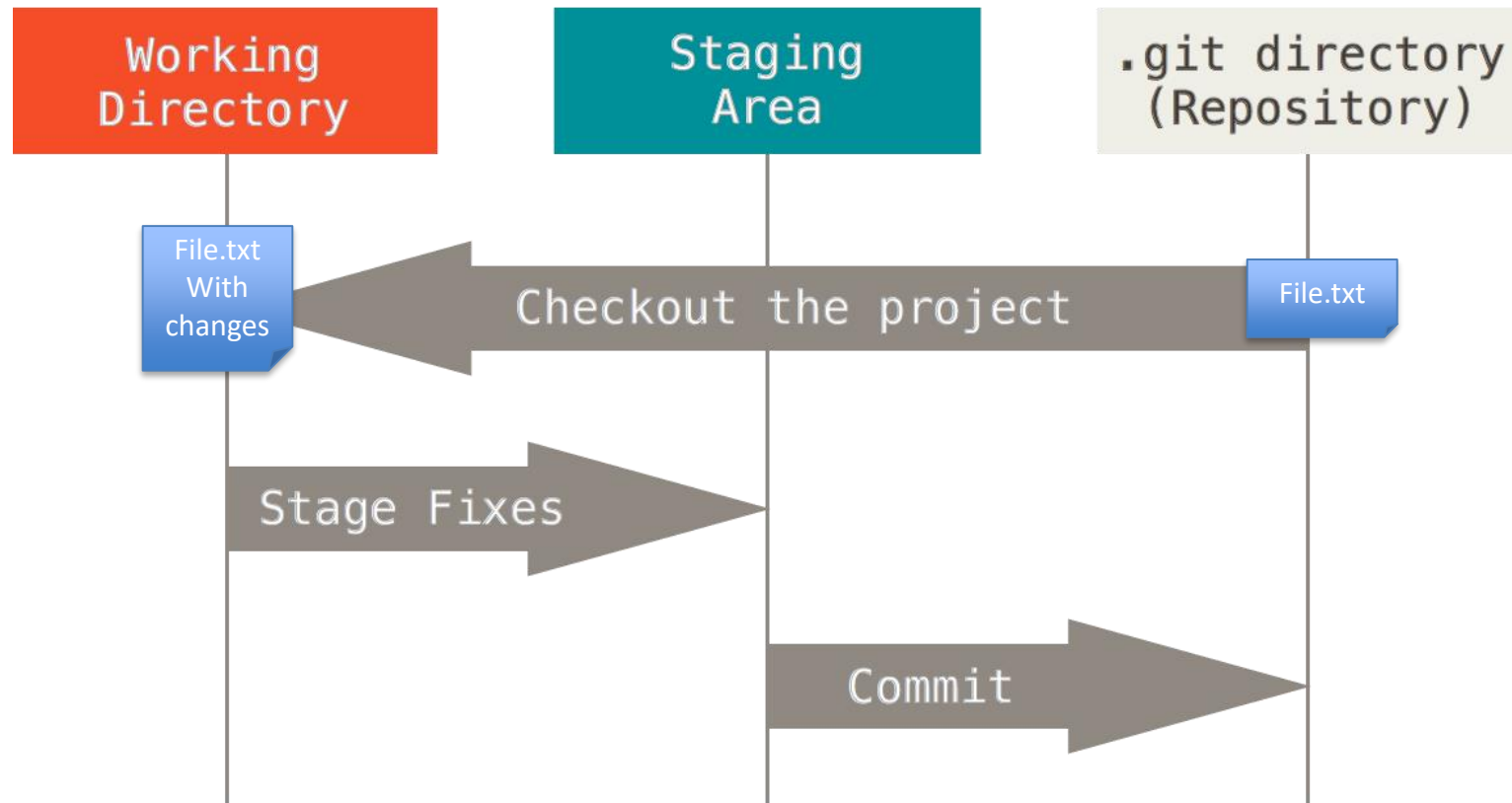
CS 309: Autonomous Intelligent Robotics

What is git?

- Version Control System (VCS)
- Manages files, versions, distributed copies, etc.
- Collaboration
- **Makes life easier**
- git != GitHub

Terms

- **Repository:** A git project
- **Commit:** A set of changes you can revert back
- **Branch:** A pointer to a commit



Git Workflow

Download a fresh copy of Homework 2

EXERCISE

Starting a Repository

1. Create a folder or find your code
 - Questions to ask yourself
 - Where should I create it?
2. Run:
`git init`
3. To check everything:
`git status`

Making Changes

- Change a file
- **Stage** your changes with:
`git add .`
OR
`git add <FILE_NAME>`
- **Commit** your changes:
`git commit -m "<COMMIT MESSAGE>"`
- Questions to ask yourself
 - What do I want to stage?
 - Generally “everything”
 - What is my commit message?
 - Make it clear and concise

Note on first commit

- You might get an error where git asks who you are
- Follow the instructions given

```
rdelfin@DESKTOP-KJDJ6VO:/mnt/c/Users/ricar/Source/cs309-names$ git commit -m "Added names.py and a sample name file"

*** Please tell me who you are.

Run

  git config --global user.email "you@example.com"
  git config --global user.name "Your Name"

to set your account's default identity.
Omit --global to set the identity only in this repository.

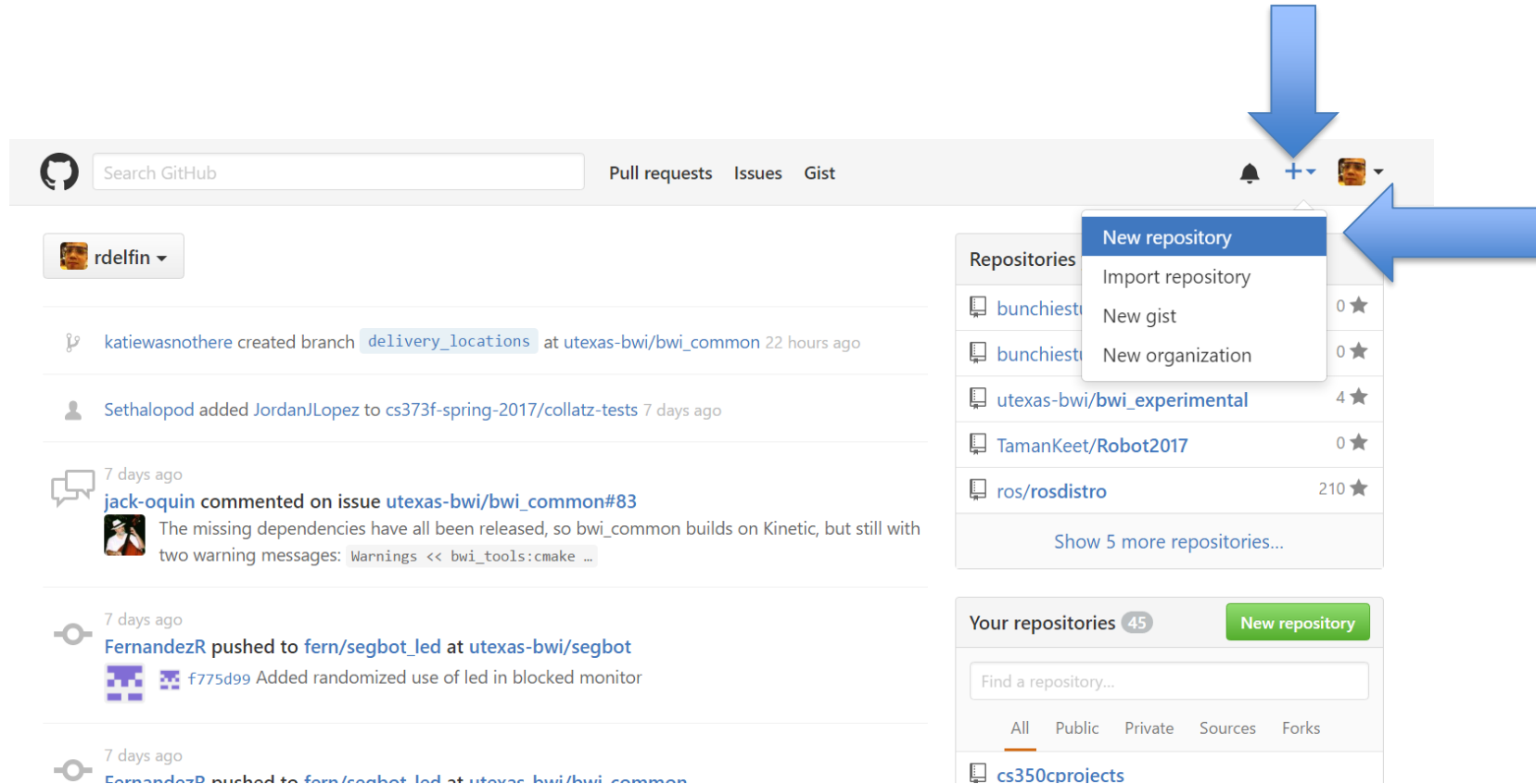
fatal: unable to auto-detect email address (got 'rdelfin@DESKTOP-KJDJ6VO.(none)')
rdelfin@DESKTOP-KJDJ6VO:/mnt/c/Users/ricar/Source/cs309-names$ git config --global user.email "ricardo.delfin.garcia@gmail.com"
rdelfin@DESKTOP-KJDJ6VO:/mnt/c/Users/ricar/Source/cs309-names$ git config --global user.name "Ricardo Delfin Garcia"
```


Remotes

- Remote: Another copy of the repository
- Generally on a separate computer/server
- Service: GitHub

Adding Remote

- Create a new repo in GitHub
- Name it “cs309_hw2_<EID>”
- `git remote add origin https://github.com/<USERNAME>/cs309_hw2_<EID>`
- Then “connect” master branch to the “origin” remote and push changes:
 - `git pull -u master origin/master`
 - `git push`



Search GitHub Pull requests Issues Gist

rdelfin ▾

katiewasnothere created branch `delivery_locations` at `utexas-bwi/bwi_common` 22 hours ago

Sethalopod added `JordanJLopez` to `cs373f-spring-2017/collatz-tests` 7 days ago

7 days ago
jack-oquin commented on issue `utexas-bwi/bwi_common#83`
The missing dependencies have all been released, so `bwi_common` builds on Kinetic, but still with two warning messages: `Warnings << bwi_tools:cmake ...`

7 days ago
FernandezR pushed to `fern/segbot_led` at `utexas-bwi/segbot`
`f775d99` Added randomized use of led in blocked monitor

7 days ago
FernandezR pushed to `fern/segbot_led` at `utexas-bwi/bwi_common`

Repositories

- `bunchiest` 0 ★
- `bunchiest` 0 ★
- `utexas-bwi/bwi_experimental` 4 ★
- `TamanKeet/Robot2017` 0 ★
- `ros/rosdistro` 210 ★

Show 5 more repositories...

Your repositories 45 New repository

Find a repository...

All Public Private Sources Forks

`cs350cprojects`

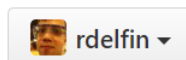
Select New Repository...

[Pull requests](#) [Issues](#) [Gist](#)

Create a new repository

A repository contains all the files for your project, including the revision history.

Owner



rdelfin

Repository name



cs309_hw2_rd27333



Great repository names are short and memorable. Need inspiration? How about **ideal-winner**.

Description (optional)



Public

Anyone can see this repository. You choose who can commit.



Private

You choose who can see and commit to this repository.



Initialize this repository with a README

This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: None

Add a license: None

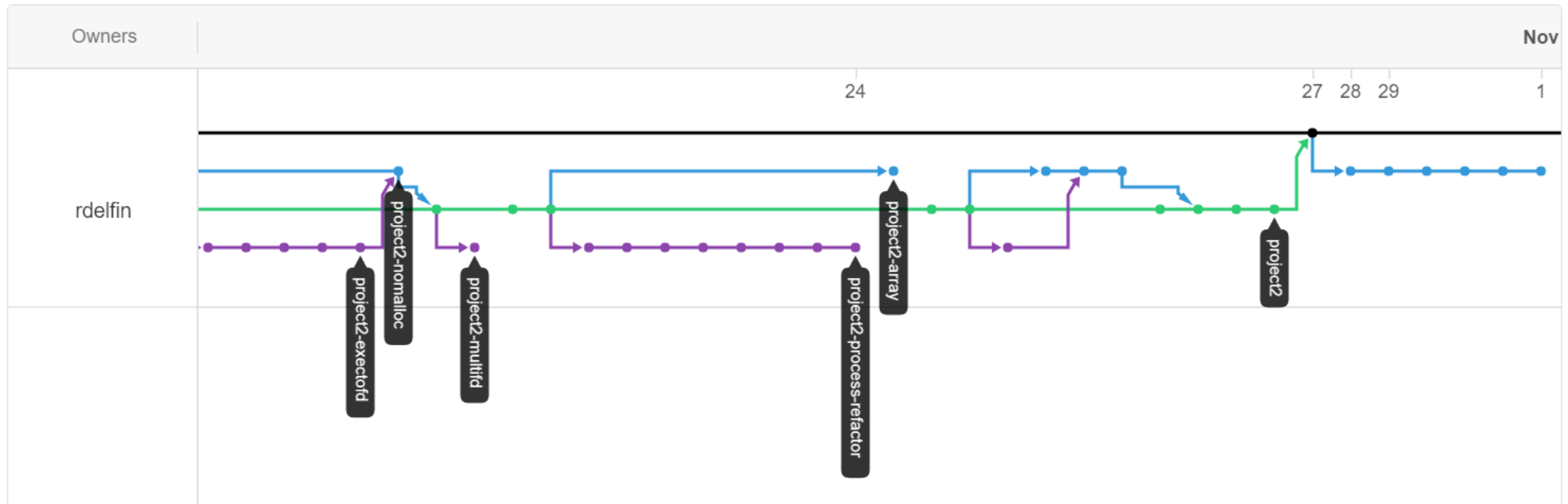


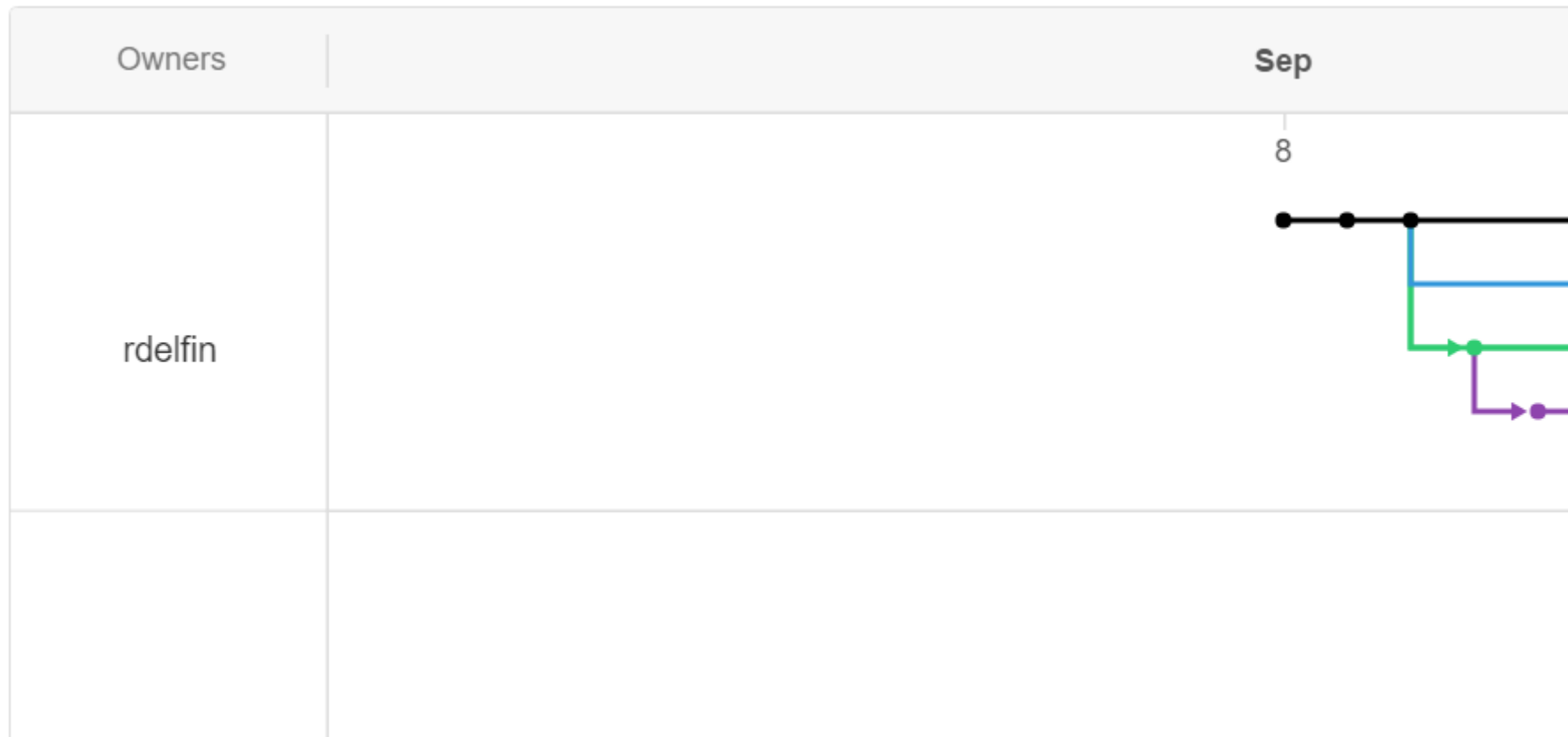
Create repository

Branches

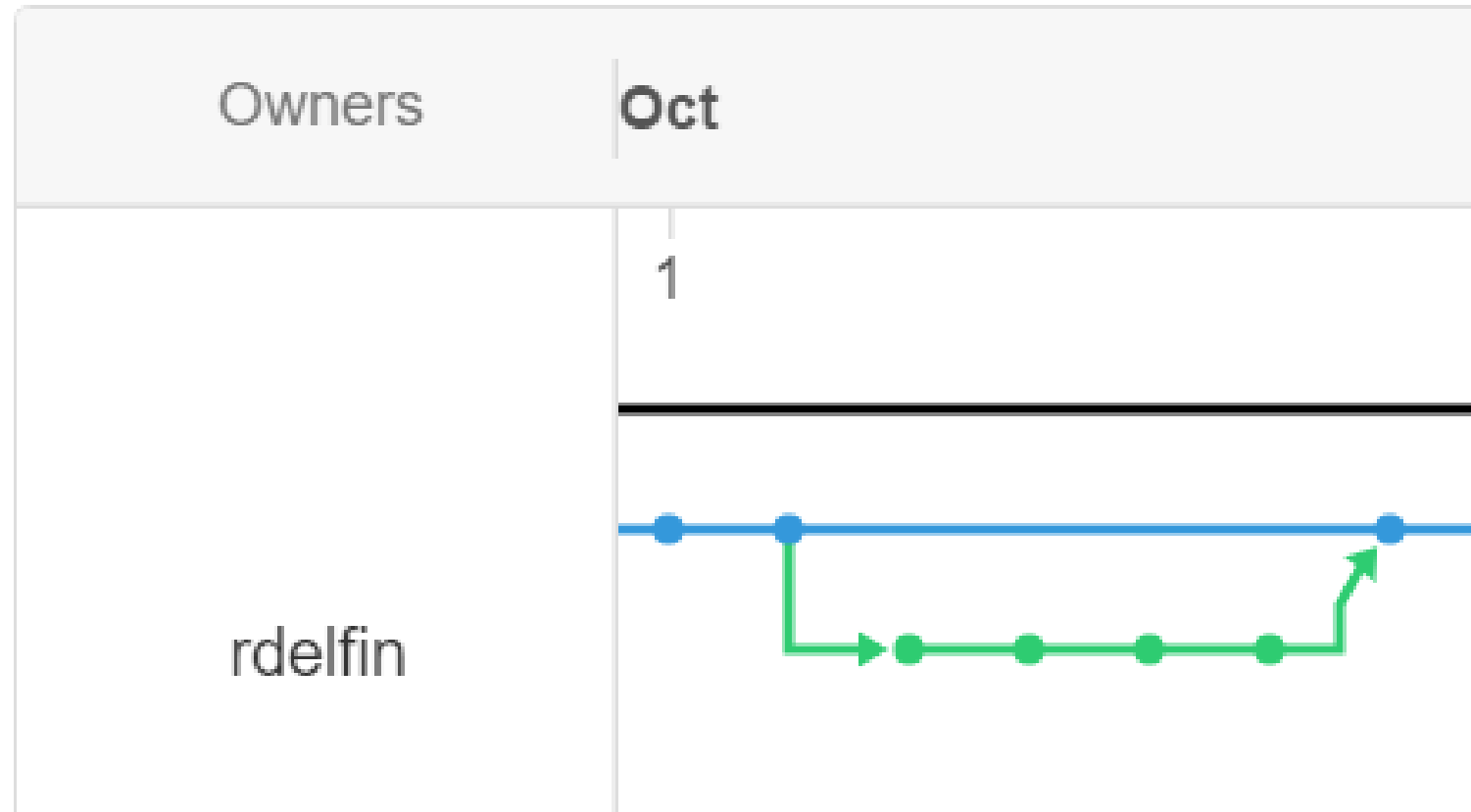
- Provide an easy way to separate new changes
- Switch between branches quickly
- Only “merge” when changes are ready

Sample Git Tree





Creating a branch



Merging Back

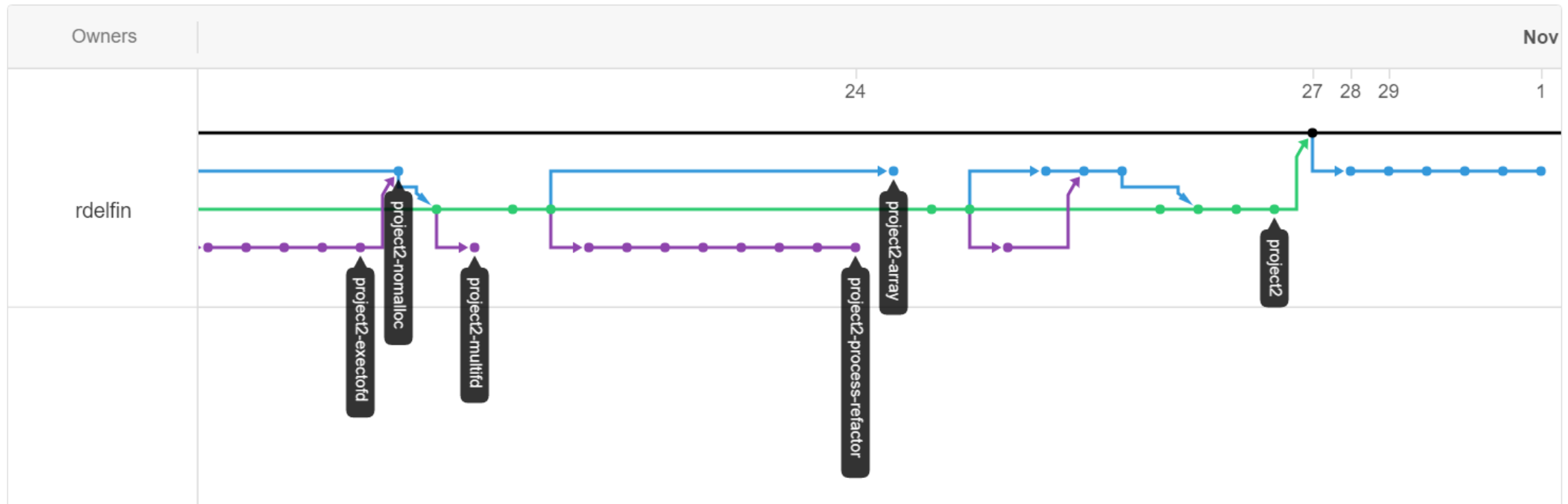
Creating a Branch

- Create the branch: `git checkout -b <BR_NAME>`
- Make changes and commit
- To switch to a different (existing) branch:
`git checkout <BR_NAME>`
- Previous command also works with remote branches

Merging into Master

- Checkout (switch to) the master branch
- Merge second branch into master:
`git merge <BR_NAME>`
- Read output! There might be merge conflicts

Sample Git Tree



Solving Merge Conflicts

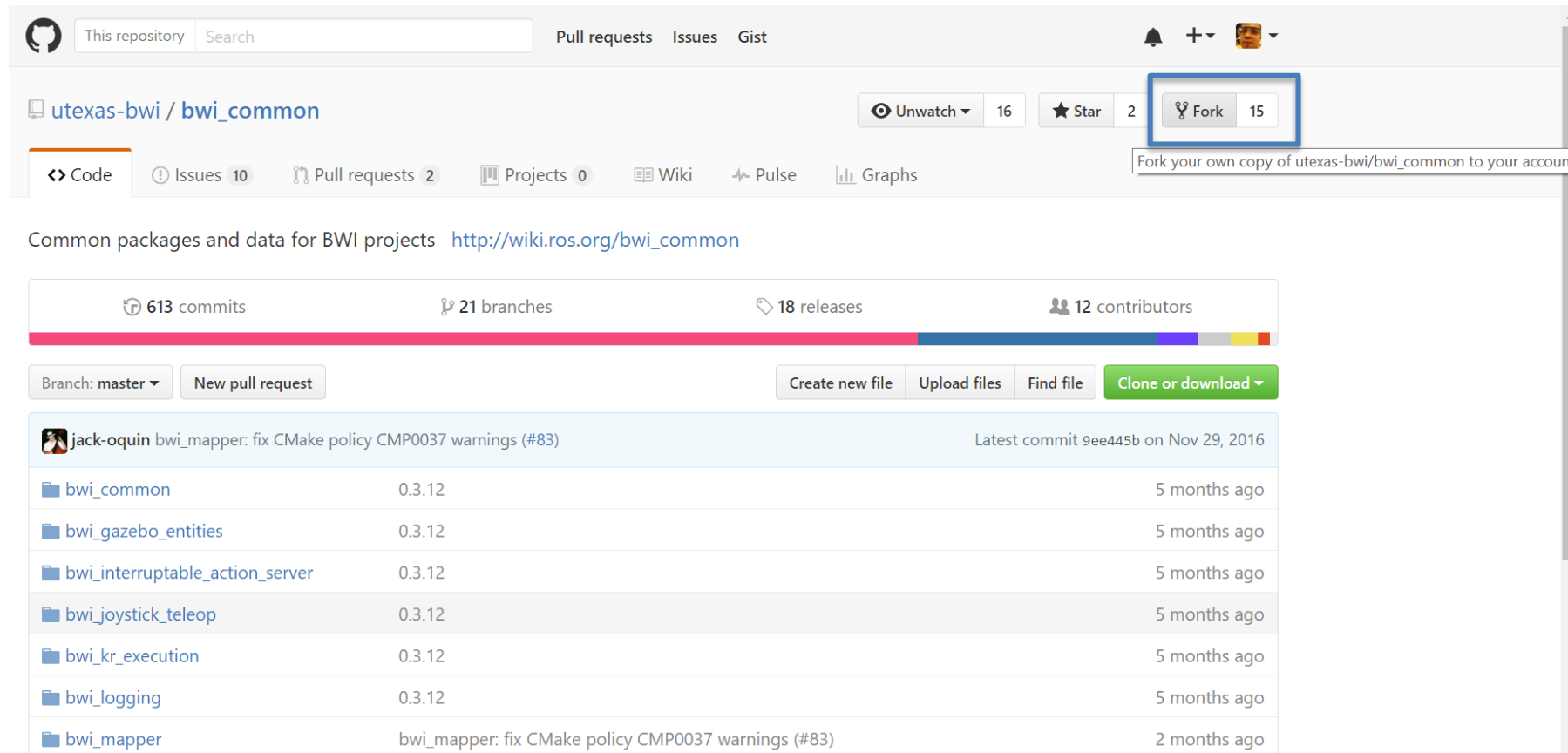
- Check what files had conflict
`git status`
- Open the files and fix conflicts
- Commit changes
 - Say you fixed merge conflict in commit message

Pull Requests

- Request the owner of a repo to merge your branch
- It's a GitHub term, not git
- Ensures people check your code before merge

Pull Request

- Get a copy of the code (fork & clone)
- Create a new branch
- Make changes on the branch
- Push all your changes:
`git push -u origin <BR_NAME>`
- Create a pull request on the website



utexas-bwi / bwi_common

Unwatch 16 Star 2 Fork 15

Fork your own copy of utexas-bwi/bwi_common to your account

Code Issues 10 Pull requests 2 Projects 0 Wiki Pulse Graphs

Common packages and data for BWI projects http://wiki.ros.org/bwi_common


613 commits 21 branches 18 releases 12 contributors

Branch: master New pull request Create new file Upload files Find file Clone or download




jack-oquin bwi_mapper: fix CMake policy CMP0037 warnings (#83) Latest commit 9ee445b on Nov 29, 2016

bwi_common	0.3.12	5 months ago
bwi_gazebo_entities	0.3.12	5 months ago
bwi_interruptable_action_server	0.3.12	5 months ago
bwi_joystick_teleop	0.3.12	5 months ago
bwi_kr_execution	0.3.12	5 months ago
bwi_logging	0.3.12	5 months ago
bwi_mapper	bwi_mapper: fix CMake policy CMP0037 warnings (#83)	2 months ago

Fork the Repository

 This repository

Pull requests Issues Gist


rdelfin / bwi_common
forked from utexas-bwi/bwi_common

Unwatch 1 Star 0 Fork 16

[Code](#) [Pull requests 0](#) [Projects 0](#) [Wiki](#) [Pulse](#) [Graphs](#) [Settings](#)

Filters Labels Milestones

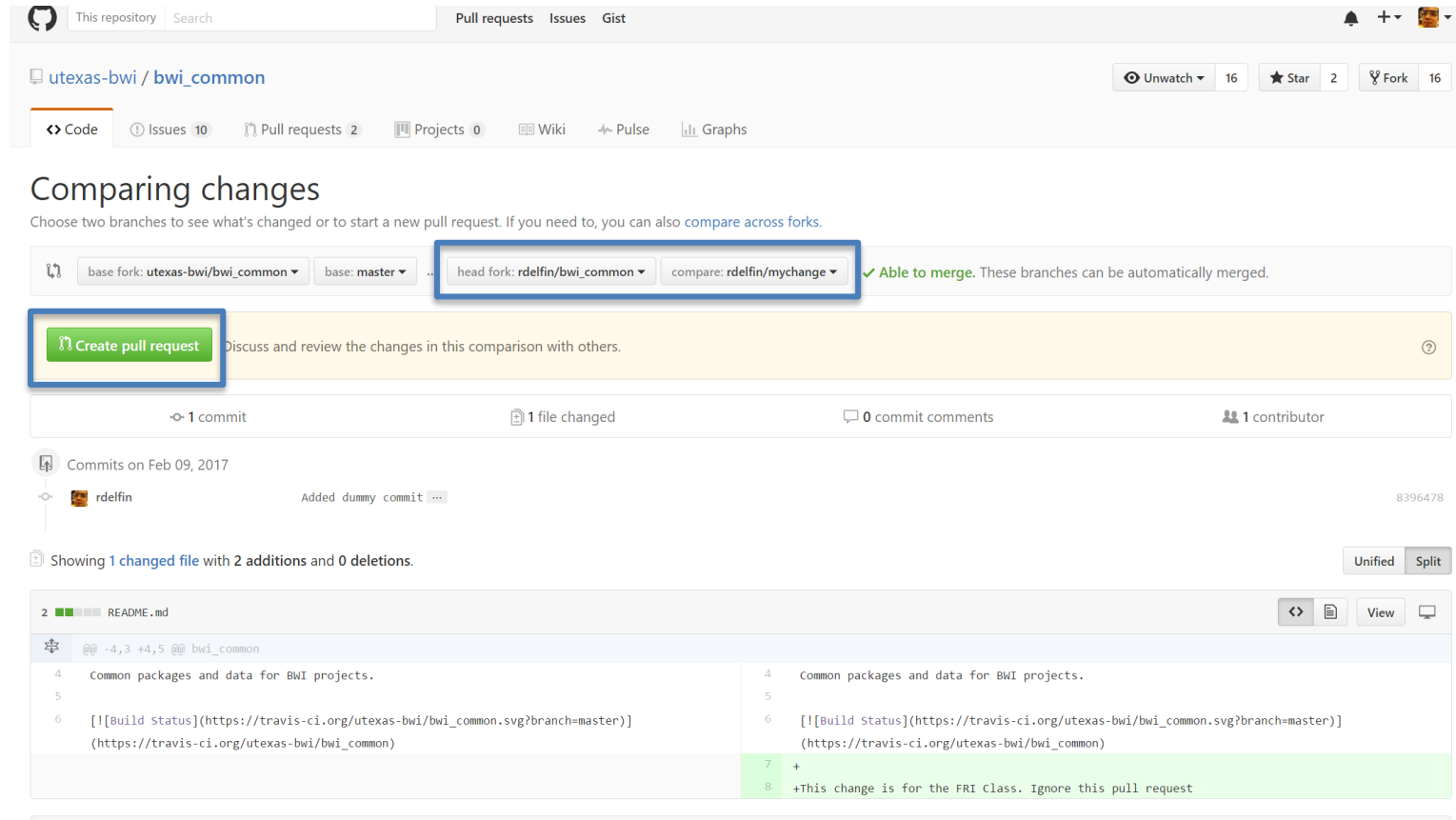
New pull request



Welcome to Pull Requests!

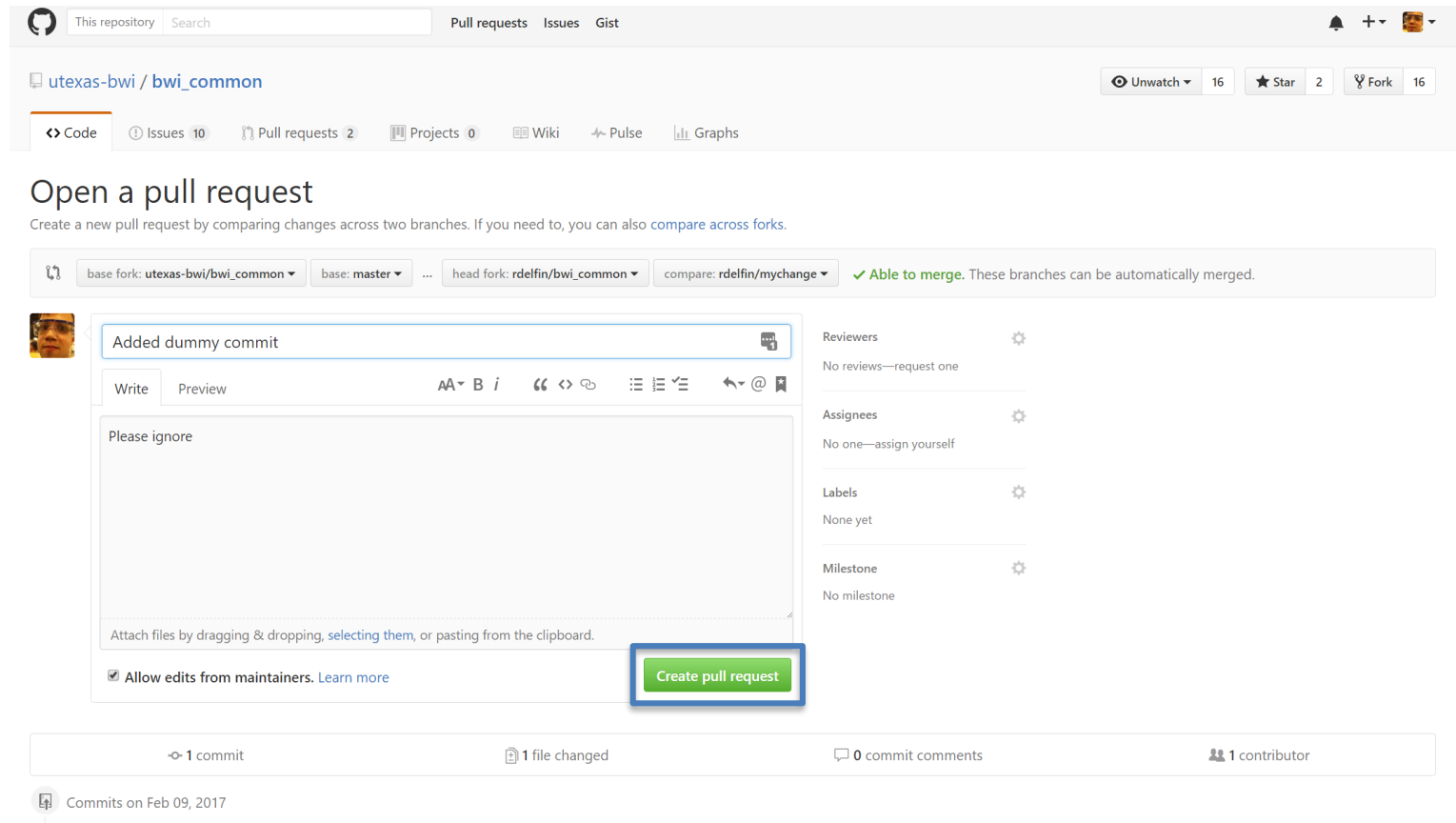
Pull requests help you collaborate on code with other people. As pull requests are created, they'll appear here in a searchable and filterable list. To get started, you should [create a pull request](#).

Create Pull Request



The screenshot shows a GitHub pull request interface. At the top, the repository name is 'utexas-bwi / bwi_common'. Below it, there are tabs for 'Code', 'Issues 10', 'Pull requests 2', 'Projects 0', 'Wiki', 'Pulse', and 'Graphs'. The main heading is 'Comparing changes', with a subtext: 'Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#).' Below this, there are two dropdown menus: 'base fork: utexas-bwi/bwi_common' and 'base: master'. To the right, there are two more dropdowns: 'head fork: rdelfin/bwi_common' and 'compare: rdelfin/mychange'. A green checkmark and the text 'Able to merge. These branches can be automatically merged.' are displayed. A green button labeled 'Create pull request' is highlighted with a blue box. Below the button, it says 'Discuss and review the changes in this comparison with others.' Further down, it shows '1 commit', '1 file changed', '0 commit comments', and '1 contributor'. A section titled 'Commits on Feb 09, 2017' shows a commit by 'rdelfin' with the message 'Added dummy commit'. Below this, it says 'Showing 1 changed file with 2 additions and 0 deletions.' The file 'README.md' is shown with a diff view. The diff shows changes to the README.md file, with a new line added: '+This change is for the FRI Class. Ignore this pull request'.

Setting Base and Head Fork



The screenshot shows the GitHub interface for creating a pull request. At the top, the repository name 'utexas-bwi / bwi_common' is displayed, along with statistics: 16 Unwatch, 2 Stars, and 16 Forks. Below this, the 'Open a pull request' section is active, showing the base branch 'master' and the head branch 'rdelfin/mychange'. A green status bar indicates 'Able to merge'. The main content area is a text editor with the title 'Added dummy commit' and a body containing 'Please ignore'. A green 'Create pull request' button is highlighted with a blue box. To the right, there are settings for Reviewers, Assignees, Labels, and Milestones. At the bottom, a summary bar shows '1 commit', '1 file changed', '0 commit comments', and '1 contributor'.

This repository Search

Pull requests Issues Gist

utexas-bwi / bwi_common

Unwatch 16 Star 2 Fork 16

Code Issues 10 Pull requests 2 Projects 0 Wiki Pulse Graphs

Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also [compare across forks](#).

base fork: utexas-bwi/bwi_common base: master ... head fork: rdelfin/bwi_common compare: rdelfin/mychange ✓ Able to merge. These branches can be automatically merged.

Added dummy commit

Write Preview

Please ignore

Attach files by dragging & dropping, [selecting them](#), or pasting from the clipboard.

☒ Allow edits from maintainers. [Learn more](#)

Create pull request

Reviewers

No reviews—request one

Assignees

No one—assign yourself

Labels

None yet

Milestone

No milestone

1 commit 1 file changed 0 commit comments 1 contributor

Commits on Feb 09, 2017

Confirm Creation

A Useful File: .gitignore

- List of files/file types that should not be added to repo
- Binaries, output, IDE files, etc.
- Goes in repo root directory

Final Exercise

- Fork the repository
- `git clone https://github.com/<USERNAME>/cs309-names`
- Create a new branch called "<EID>"
- Add a file in folder "names" called <EID>.txt and put your name plus a new line
- Commit and push
- Create pull request