

# The Alan Turing Institute

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## Collaborative Coding

Federico Nanni

Rosie Wood

Ed Chalstrey

Kaspar Beelen



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# Presentation Overview

- Slides and hands-on exercises

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- Slides and hands-on exercises

Slido (anonymous):

- [www.slido.com](https://www.slido.com)
- #4869941



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# Presentation Overview

- Slides and hands-on exercises
- Git basics:
  - Commits
  - Branches

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# Presentation Overview

- Slides and hands-on exercises
- Git basics:
  - Commits
  - Branches
- GitHub basics:
  - Forks
  - Issues and project boards
  - Pull Requests

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# Presentation Overview

- Slides and hands-on exercises
- Git basics:
  - Commits
  - Branches
- GitHub basics:
  - Forks
  - Issues and project boards
  - Pull Requests
- **The Git flow model**

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# Presentation Overview

- Slides and hands-on exercises
- Git basics:
  - Commits
  - Branches
- GitHub basics:
  - Forks
  - Issues and project boards
  - Pull Requests
- **The Git flow model**

We will not cover:

- Coding and programming examples. Only markdown files.
- Git version control locally on your machine

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- #4869941



# Part 1: Git and GitHub



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# Git Version Control – the basics

- **Version control**, or source control, involves tracking and managing changes to code.

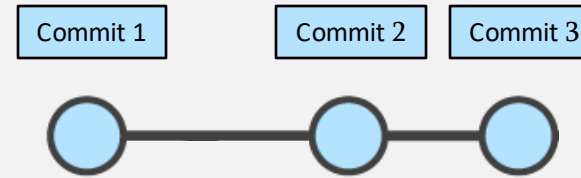
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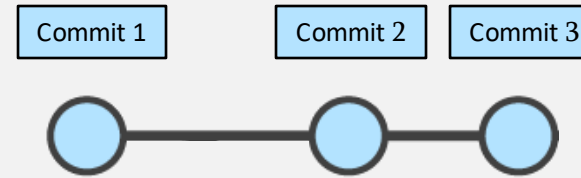
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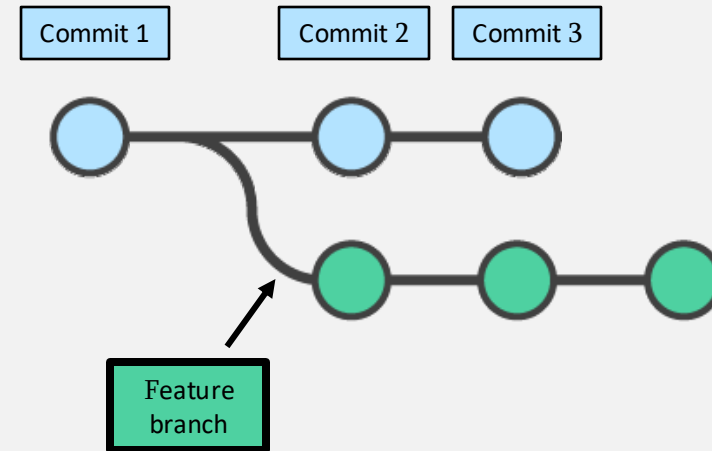
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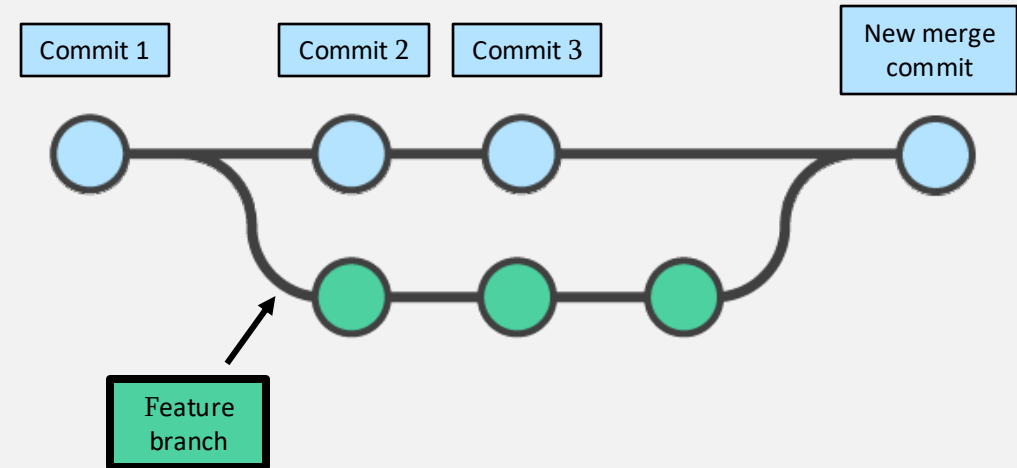
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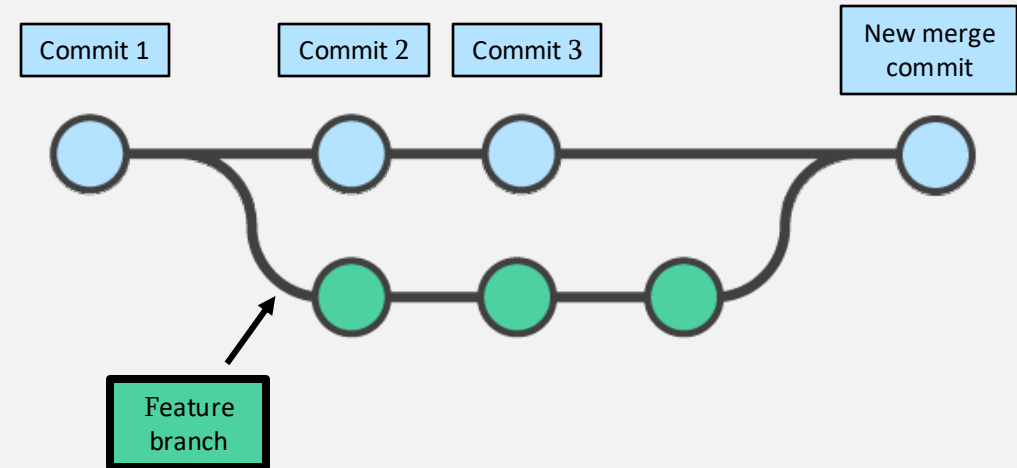
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# Git Version Control – the basics

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- **Commits**: Every change is recorded as a "commit" and given an identifier (a hash code).
- **Branches**: parallel versions of code.
- **Merging branches**: fusing of code from two different branches, usually done via a "pull request" (also known as a "merge request")



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# GitHub – [a simple example](#) repo



# GitHub – a simple example repo

The screenshot shows a web browser displaying the GitHub repository page for 'github-example' by 'alan-turing-institute'. The browser's address bar shows the URL 'github.com/alan-turing-institute/github-example'. The repository is public and has 51 forks, 5 watchers, and 0 stars. The main branch is 'main', and there are 2 branches and 2 tags. The repository contains a file named 'Pennines.md' with the commit message 'Add Whernside' and a commit hash of '3494fdd' on May 30, 2023. Other files listed are 'Wales.md', 'lakeland.md', and 'test.md'. The right sidebar shows the repository's activity, including 0 stars, 5 watchers, and 51 forks. The 'About' section states 'No description or website provided.' The 'Releases' section shows 2 tags. The 'Packages' section shows 'No packages published.' The 'Contributors' section shows 7 contributors.

github.com/alan-turing-institute/github-example

alan-turing-institute / github-example

Code Issues Pull requests Actions Projects Security Insights

github-example Public

Watch 5 Fork 51 Star 0

main 2 branches 2 tags

Go to file Add file Code

**Turing Developer Add Whernside** 3494fdd on May 30 9 commits

Pennines.md	Add Whernside	2 months ago
Wales.md	Add wales	2 months ago
lakeland.md	Add Helvellyn	2 months ago
test.md	Include lakes in the scope	2 months ago

**About**

No description or website provided.

hut23

Activity

0 stars

5 watching

51 forks

Report repository

**Releases**

2 tags

**Packages**

No packages published

**Contributors** 7

# GitHub – a simple example repo

The screenshot shows the GitHub interface for the repository 'github-example' by 'alan-turing-institute'. The repository is public and has 5 watches, 51 forks, and 0 stars. The 'main' branch is selected, with 2 other branches and 2 tags available. A 'Switch branches/tags' modal is open, showing a list of branches: 'main' (selected), 'experiment', and 'View all branches'. The modal also includes a search bar for filtering branches/tags. The repository's commit history is visible, showing a commit on May 30 with 9 commits. The right sidebar contains sections for 'About' (No description or website provided), 'Activity' (hut23), 'Releases' (2 tags), 'Packages' (No packages published), and 'Contributors' (7).

github.com/alan-turing-institute/github-example

alan-turing-institute / github-example

Type to search

<> Code Issues Pull requests Actions Projects Security Insights

github-example Public

Watch 5 Fork 51 Star 0

main 2 branches 2 tags

Go to file Add file <> Code

About

No description or website provided.

hut23

Activity

0 stars

5 watching

51 forks

Report repository

Releases

2 tags

Packages

No packages published

Contributors 7

Switch branches/tags

Filter branches/tags

Branches Tags

✓ main default

experiment

View all branches

3494fdd on May 30 9 commits

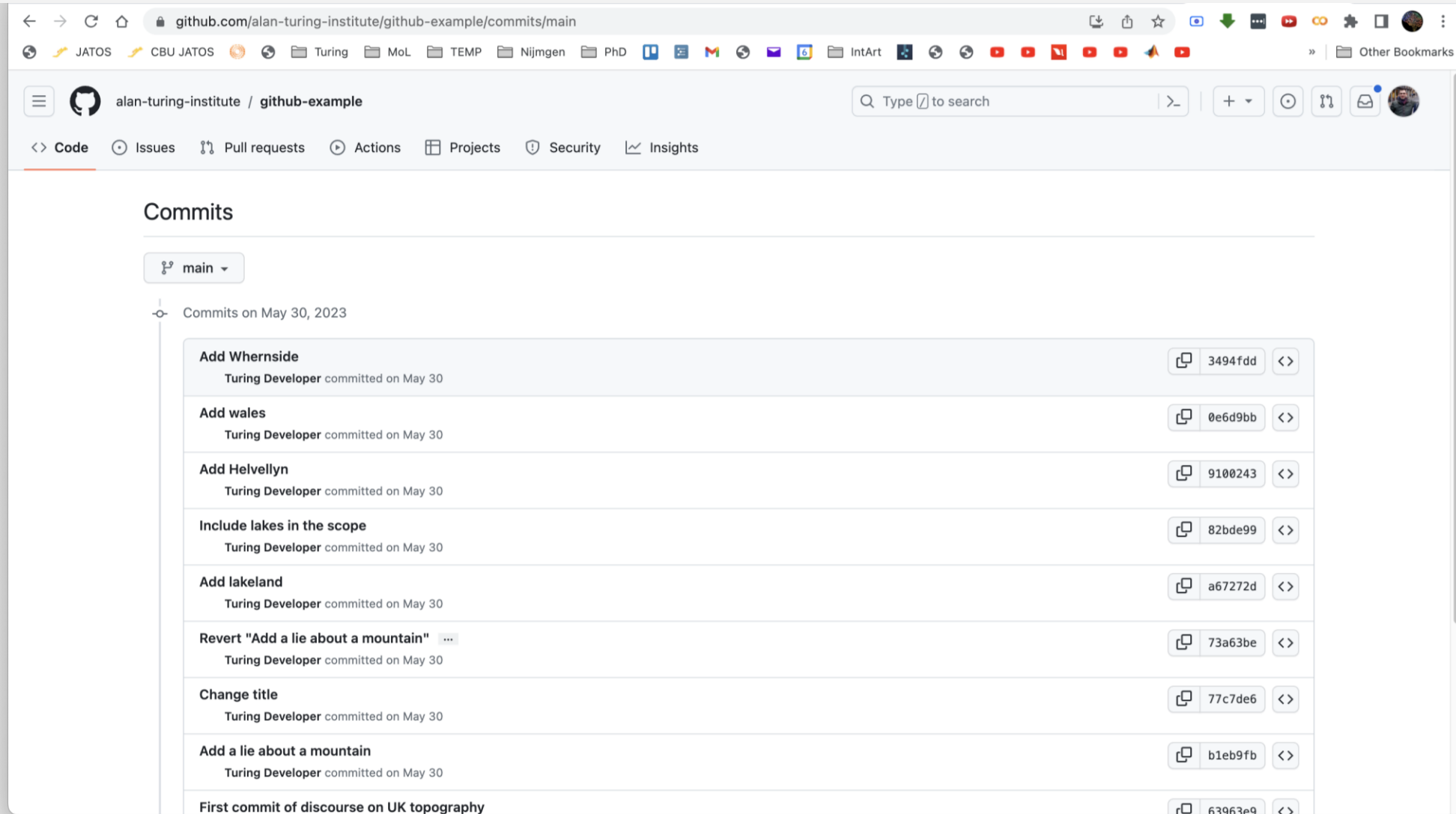
Add Whernside 2 months ago

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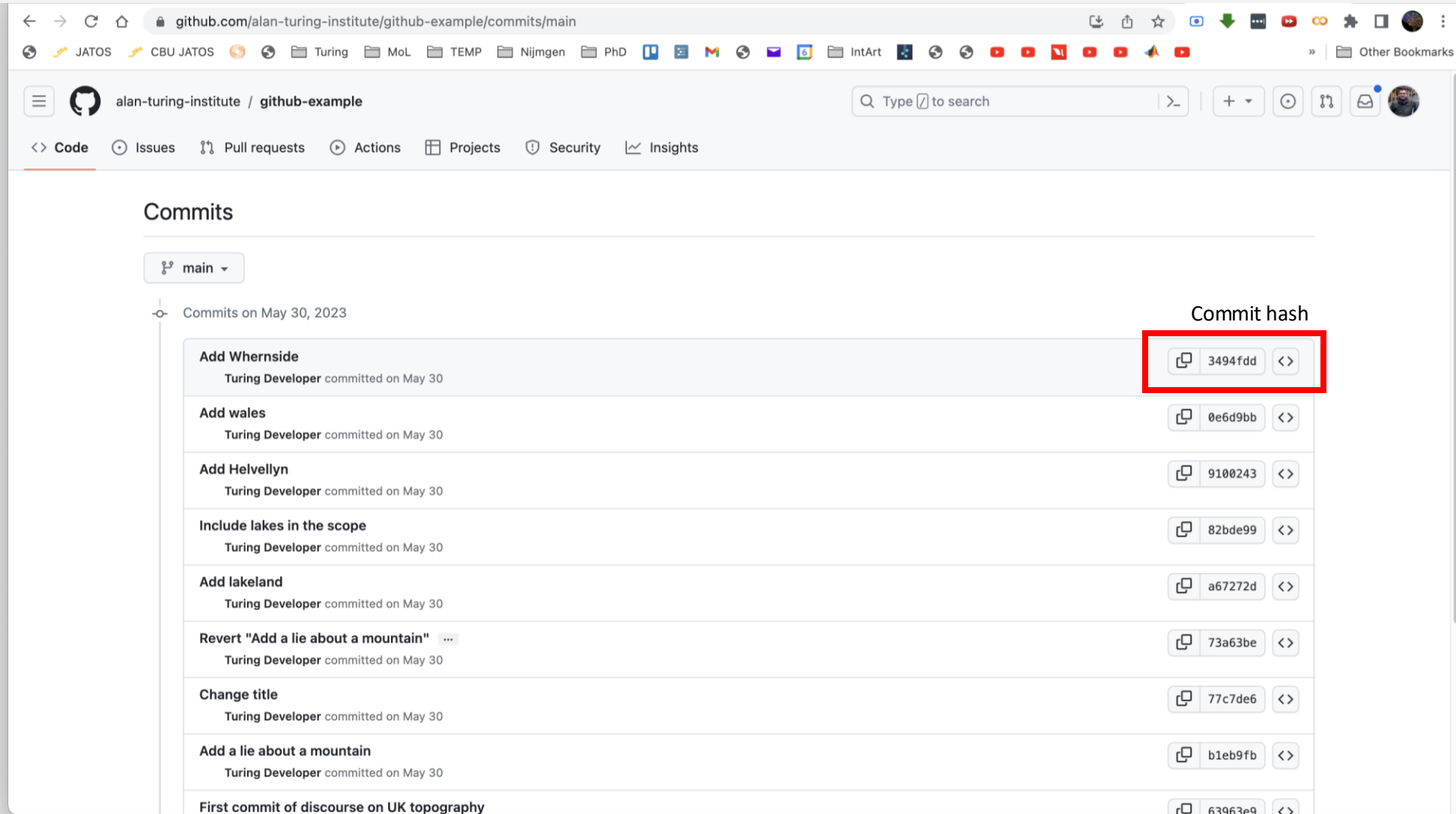
# GitHub – a simple example repo



The screenshot shows a web browser displaying the GitHub repository page for 'alan-turing-institute / github-example'. The URL in the address bar is 'github.com/alan-turing-institute/github-example/commits/main'. The page header includes the repository name, a search bar, and navigation links for Code, Issues, Pull requests, Actions, Projects, Security, and Insights. The main content area is titled 'Commits' and shows a list of commits on the 'main' branch, filtered for 'Commits on May 30, 2023'. The commits are listed in descending order of time, with the most recent at the top. Each commit entry includes the commit message, the author 'Turing Developer', the commit date 'May 30', and a button to view the commit details. The commit hashes are also displayed next to each commit.

Commit Message	Author	Date	Commit Hash
Add Whernside	Turing Developer	May 30	3494fdd
Add wales	Turing Developer	May 30	0e6d9bb
Add Helvellyn	Turing Developer	May 30	9100243
Include lakes in the scope	Turing Developer	May 30	82bde99
Add lakeland	Turing Developer	May 30	a67272d
Revert "Add a lie about a mountain"	Turing Developer	May 30	73a63be
Change title	Turing Developer	May 30	77c7de6
Add a lie about a mountain	Turing Developer	May 30	b1eb9fb
First commit of discourse on UK topography	Turing Developer	May 30	63963e9

# GitHub – a simple example repo



The screenshot shows the GitHub interface for the repository 'alan-turing-institute / github-example'. The 'Commits' tab is selected, and the 'main' branch is chosen. A filter for 'Commits on May 30, 2023' is applied. A list of commits is displayed, with the first commit, 'Add Whernside', highlighted. The commit hash '3494fdd' is highlighted with a red box, and a label 'Commit hash' points to it.

Commit Message	Author	Commit Hash
Add Whernside	Turing Developer	3494fdd
Add wales	Turing Developer	0e6d9bb
Add Helvellyn	Turing Developer	9100243
Include lakes in the scope	Turing Developer	82bde99
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# Hands on part 1/2:

- Pairs of 2 people:
  - **Admin:** oversee the repo and review contributions.
  - **Collaborator:** address some specific issue.

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- Pairs of 2 people:
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  - Creating an Issue
  - Creating a Project board to track issues.

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# Hands on part 1/2:

- Pairs of 2 people:
  - **Admin:** oversee the repo and review contributions.
  - **Collaborator:** address some specific issue.
- Topics covered:
  - Forking a repo
  - Creating an Issue
  - Creating a Project board to track issues.
- [Link to the step-by-step instructions document](#)
  - Complete sections: Fork, Commit, Collaborate, Kanban board, Issues.

# Part 2: Git flow framework for collaboration



# GitHub - a more complex example:

← → ↺

github.com/Living-with-machines/MapReader

🔖 ⭐ 📁 | R Relaunch to update

📞 WhatsApp

🔔 Notifications

📋 Project Board

👤 Hut23

👤 Reginald

📁 LwM

📖 Read the Docs

📄 HackMD

📁 Utils

🟢 absentia\_2024\_hols

🏠 Home Page - Math...

📁 Admin

☰

🐙 Living-with-machines / MapReader

🔍 Type / to search

+ ▾

🕒

🔗

📧

👤

<> Code

🕒 Issues 84

🔗 Pull requests 5

💬 Discussions

🎬 Actions

📁 Projects 1

📖 Wiki

🛡 Security

📈 Insights

⚙ Settings

 MapReader

Public

📌 Edit Pins ▾

👁 Watch 6 ▾

🍴 Fork 8 ▾

⭐ Star 72 ▾

🔗 main ▾

🔗 9 Branches

🏷 22 Tags

🔍 Go to file

t

Add file ▾

<> Code ▾

 rwood-97

Add data/culture grant no. to paper ✓

cc73913 · last week

🕒 1,453 Commits

📁 .github	Update publish-to-test-pypi.yml	3 weeks ago
📁 assets/css	Add style	2 years ago
📁 conda	v. minor tidy-up of conda specification	last year
📁 docs	update test instructions	3 weeks ago
📁 figs	Add files via upload	last year
📁 mapreader	Merge pull request #434 from Living-with-machines/426-...	2 weeks ago
📁 paper	Add data/culture grant no. to paper	last week
📁 tests	update annotator to fix warnings	28 days ago
📁 worked_examples	update y-labels in metric plots	3 weeks ago
📄 .all-contributorsrc	Update .all-contributorsrc	5 months ago
📄 _all_contributors.rc	Create _all_contributors.rc	5 months ago

About

⚙

A computer vision pipeline for exploring and analyzing images at scale

[mapreader.readthedocs.io/en/latest/](#)

machine-learning

computer-vision

deep-learning

article

maps

pytorch

digital-humanities

spatial-data

hut23

hut23-96

📖 Readme

📄 View license

📄 Code of conduct

📄 Cite this repository ▾

📈 Activity

📄 Custom properties

⭐ 72 stars

👁 6 watching

🍴 8 forks

# GitHub - a more complex example:

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WhatsApp Notifications Project Board Hut23 Reginald LWM Read the Docs HackMD Utils absentia\_2024\_hols Home Page - Math... Admin

Living-with-machines / MapReader

Type to search

<> Code Issues 84 Pull requests 5 Discussions Actions **Projects 1** Wiki Security Insights Settings

**MapReader** Public

Edit Pins Watch 6 Fork 8 Star 72

main 9 Branches 22 Tags

Go to file Add file <> Code

**rwood-97** Add data/culture grant no. to paper ✓ cc73913 · last week 1,453 Commits

.github	Update publish-to-test-pypi.yml	3 weeks ago
assets/css	Add style	2 years ago
conda	v. minor tidy-up of conda specification	last year
docs	update test instructions	3 weeks ago
figs	Add files via upload	last year
mapreader	Merge pull request #434 from Living-with-machines/426-...	2 weeks ago
paper	Add data/culture grant no. to paper	last week
tests	update annotator to fix warnings	28 days ago
worked_examples	update y-labels in metric plots	3 weeks ago
.all-contributorsrc	Update .all-contributorsrc	5 months ago
_all_contributors_rc	Create _all_contributors_rc	5 months ago

**About**

A computer vision pipeline for exploring and analyzing images at scale

[mapreader.readthedocs.io/en/latest/](https://mapreader.readthedocs.io/en/latest/)

machine-learning computer-vision deep-learning article maps pytorch digital-humanities spatial-data hut23 hut23-96

Readme View license Code of conduct Cite this repository Activity Custom properties 72 stars 6 watching 8 forks

# GitHub – Kanban style project boards

The screenshot displays the 'MapReader Project Board' on GitHub, organized into five columns representing different stages of the project workflow:

- Backlog (34):** Tasks before end of the year 2024, ORDERED. Includes items like 'MapReader #295: Submit to Reviews in DH' (community, LwM-outputs), 'MapReader #344: Consider adding further filtering rules in context-based post processing' (enhancement, new feature, post-processing), 'MapReader #234: Commandline tool to (re)create worked\_examples dir somewhere user accessible' (enhancement, new feature), 'MapReader #135: synthesize workshop comments + make new discussion topics' (project management), 'MapReader #245: Deployment to test.pypi.org fails in some cases' (bug), and 'MapReader #162: Fix code for workflow'.
- Upcoming (28):** Issues to be worked on within 2 weeks, in order (pull from the top). Includes 'Draft: multimodal tasks with text on maps', 'MapReader #407: show metadata (e.g pixel values, geometry) in the annotator view' (enhancement, new feature), 'MapReader #360: outline MapReader LwM book chapter' (paper), 'MapReader #367: Create change log in docs' (documentation), 'MapReader #390: Work out method for training/evaluating models using gold standard recogito and/or MapKurator outputs', 'MapReader #294: Add documentation for reuse of mapreader' (documentation), and 'MapReader #292'.
- In progress (now) (5):** Includes 'MapReader #358: plan sprint for integrating text detection & recognition' (new feature, text on maps), 'MapReader #417: Update workshop materials based on feedback from April' (community, documentation, RAM, workshop, workshop2024), 'MapReader #404: Add duplicate detection to text spotting code' (enhancement, new feature), 'MapReader #405: Add method for dealing with cut-off at patch edges in text spotting work' (enhancement, new feature), and 'MapReader #393: Create a sample/examples folder with some highlighted maps/patches which are good for workshops' (workshop, workshop2024).
- Done (review) (6):** Done but needs review in a meeting. Includes 'MapReader #406: Update annotated\_images.show\_sample() example' (documentation), 'MapReader #408: Broken URL in the Workshop\_AprilMay2024\_part2.ipynb notebook' (bug), 'MapReader #409: Invalid syntax error on the calculate\_add\_metrics cell' (documentation), 'MapReader #411: Add the device argument for GPU support on the ClassifierContainer()' (documentation), 'MapReader #420: review notebooks and provide suggestions for how to frame "your turn" sections' (workshop, workshop2024), and 'MapReader #410: Displaying scores per class'.
- Done (177):** Includes 'MapReader #64: commandline script fails' (bug), 'MapReader #401: Annotation tool broken in python 3.12' (bug), 'MapReader #386: fix documentation and directory for worked examples' (paper), 'MapReader #385: Update tests - fix warnings and add docs for testing', 'MapReader #389: Fix typos in docs' (documentation), 'MapReader #394: Make notebook for April 2024 workshop', and 'data-culture-newspapers #36: Fill out AHRC data survey'.

At the top, there are options to 'View 1', '+ New view', 'Filter by keyword or by field', 'Add status update', 'Discard', and 'Save'.

# GitHub – Kanban style project boards

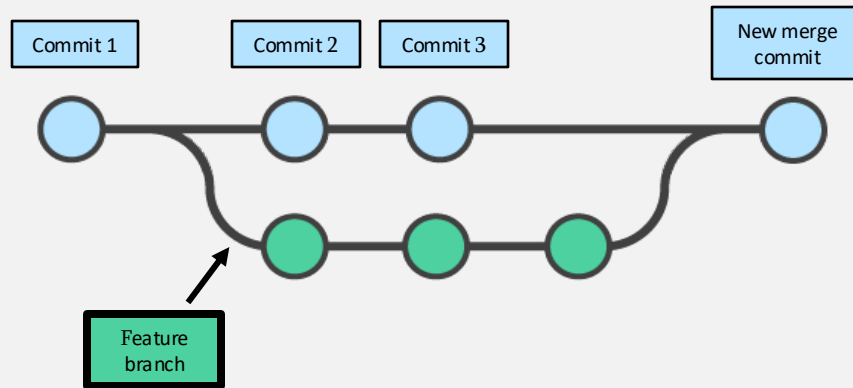
The screenshot displays the 'MapReader Project Board' on GitHub, organized in a Kanban style. The board is divided into five columns, each representing a stage in the project workflow. Red arrows indicate the flow from left to right between the columns.

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At the top right, there are buttons for 'Add status update', 'Discard', and 'Save'. At the bottom of each column, there is a '+ Add item' button.

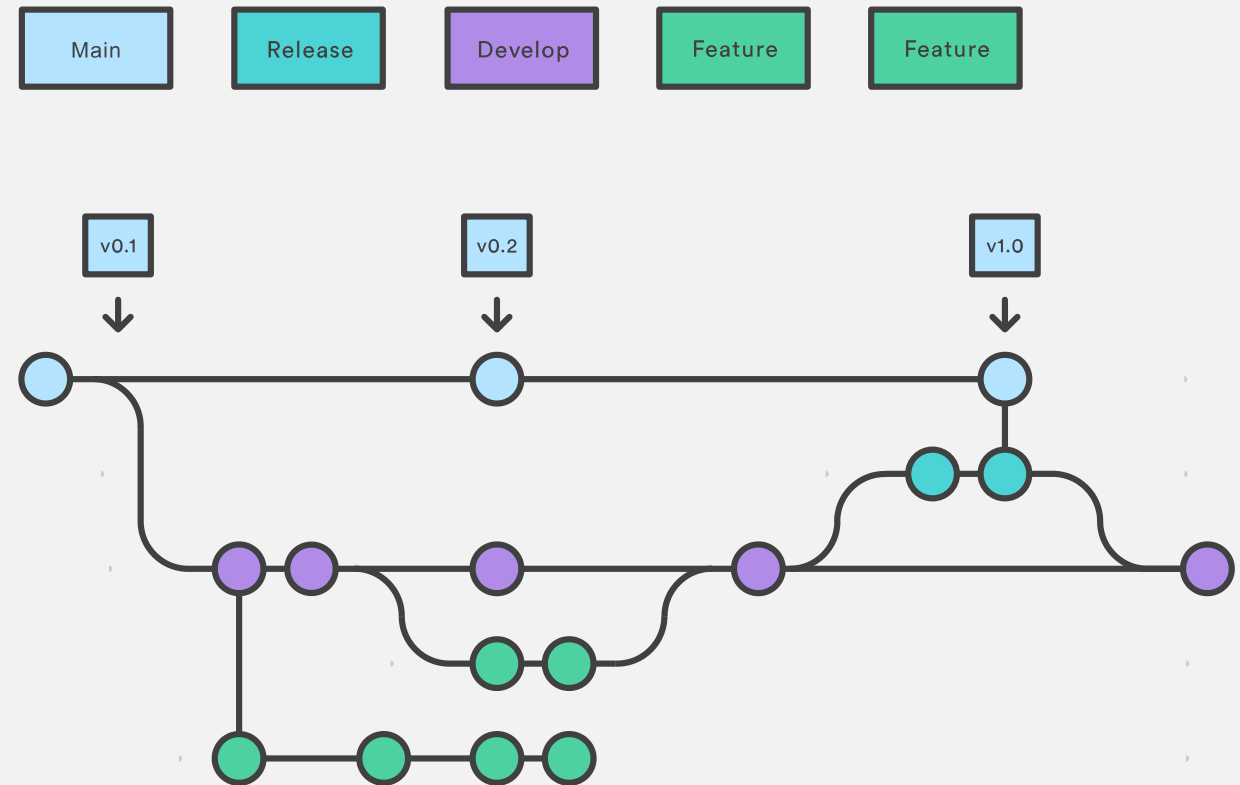
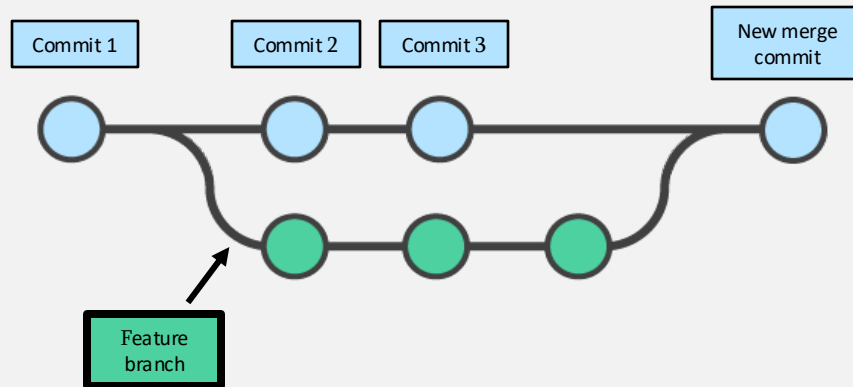
# Git flow for collaboration

- A Git workflow



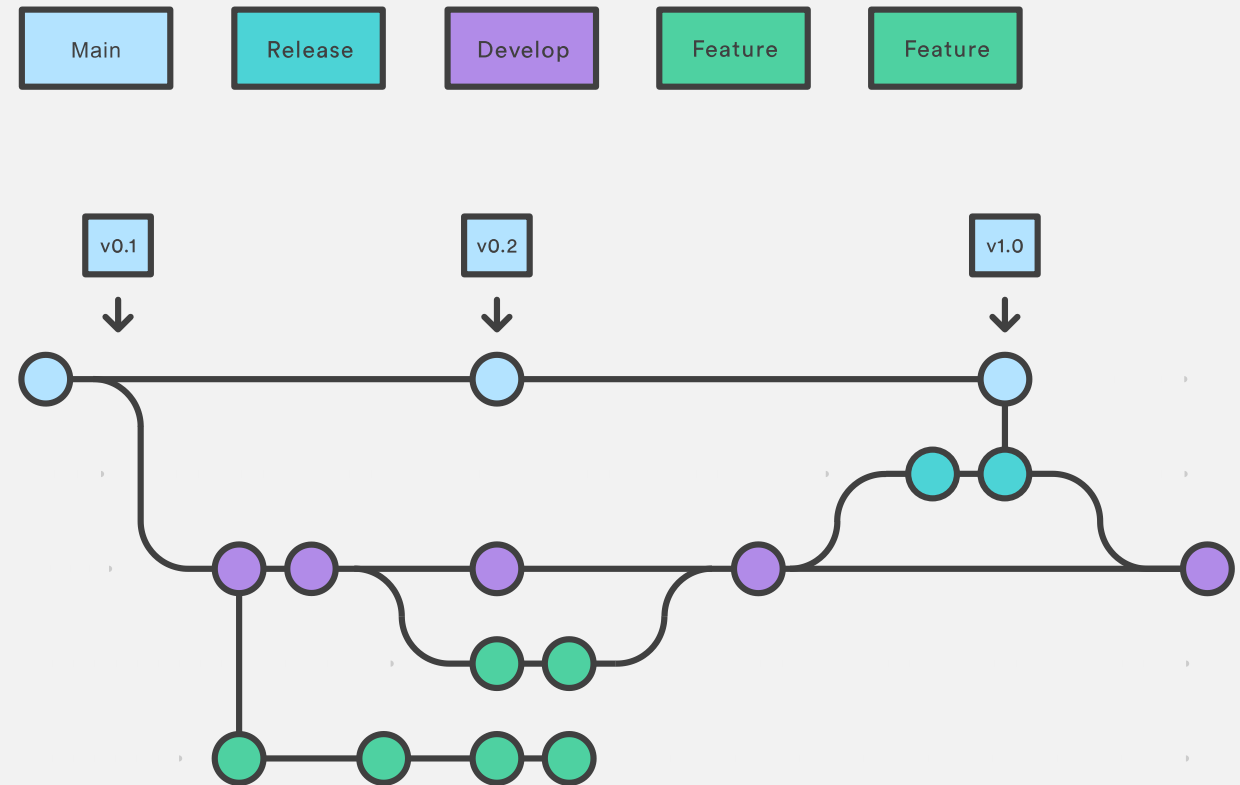
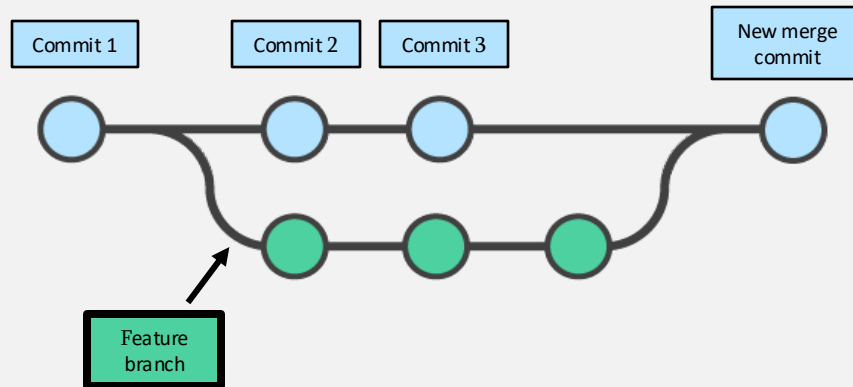
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- A Git workflow



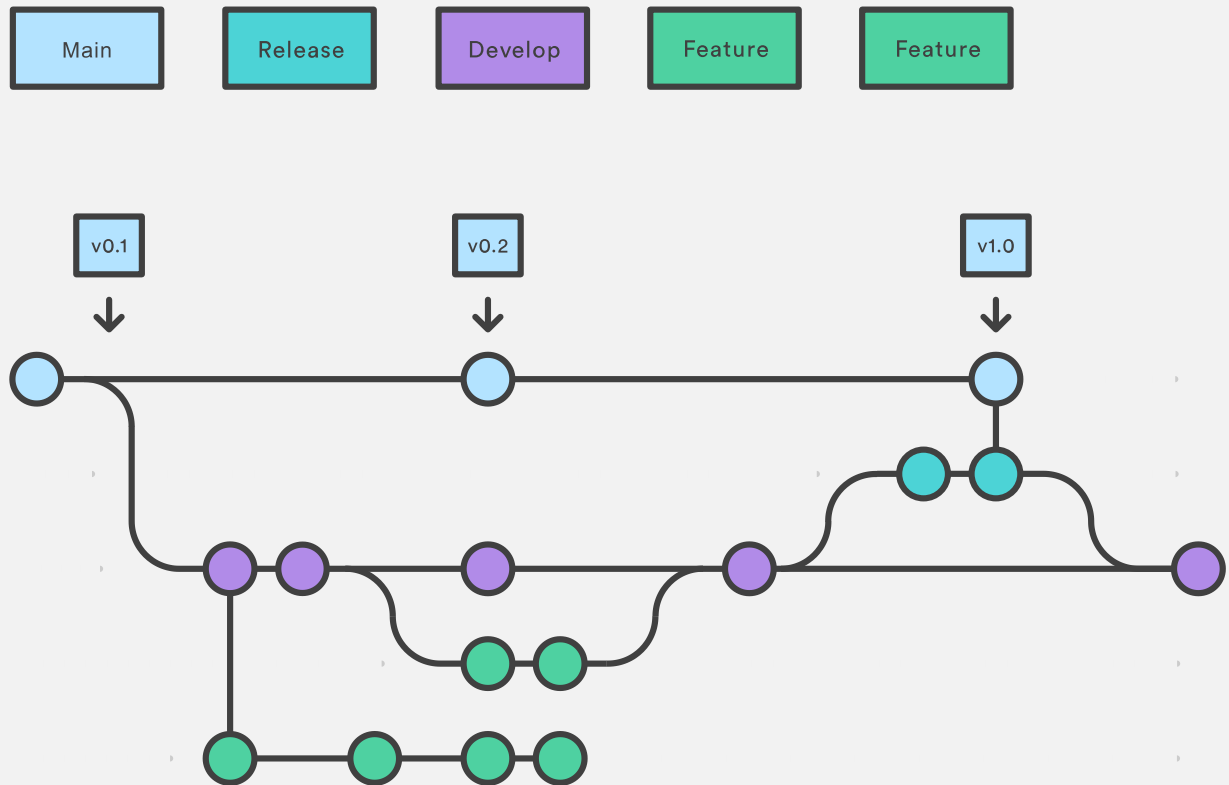
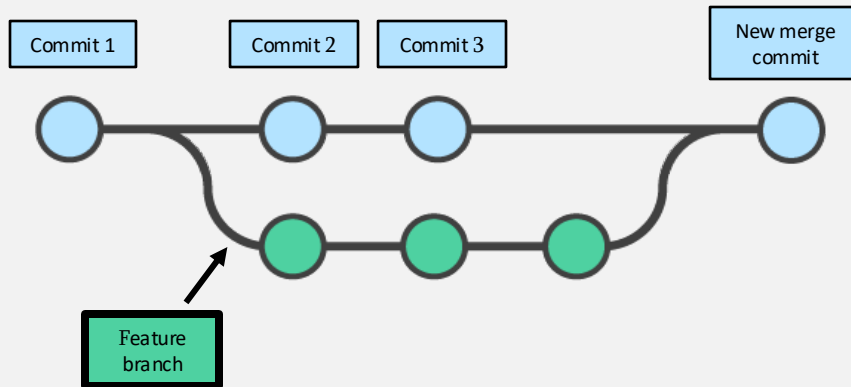
# Git flow for collaboration

- A Git workflow
  - A branching model designed around the project release.



# Git flow for collaboration

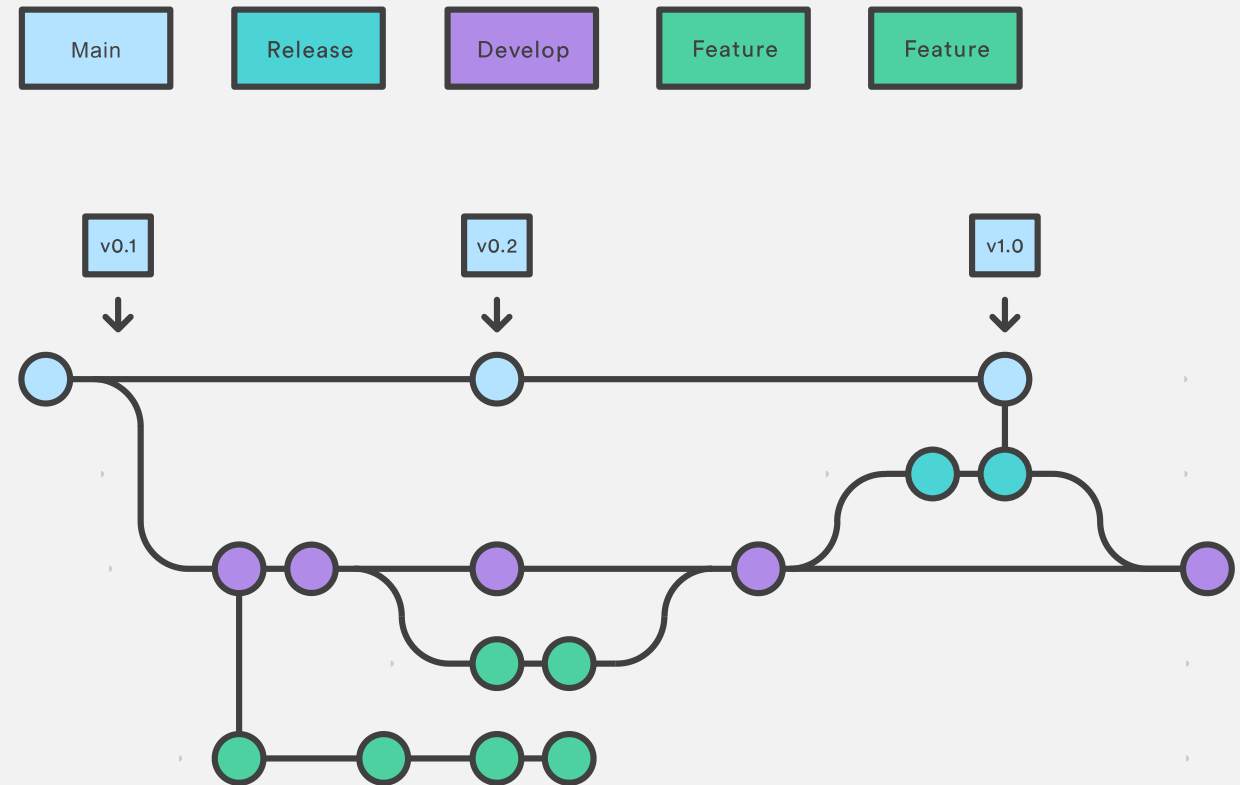
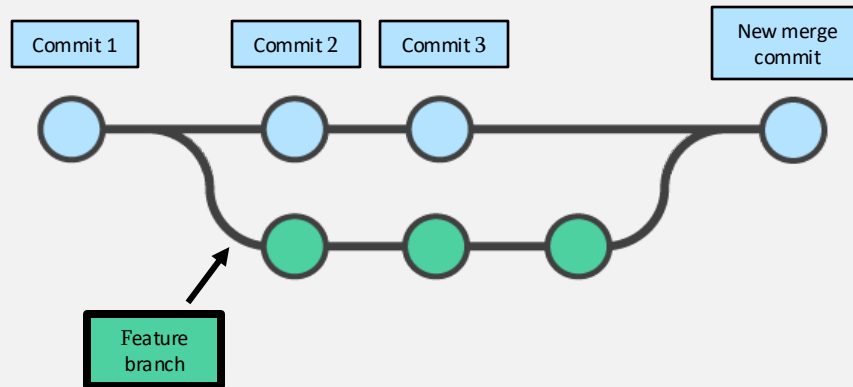
- A Git workflow
  - A branching model designed around the project release.
  - Specific roles to different branches





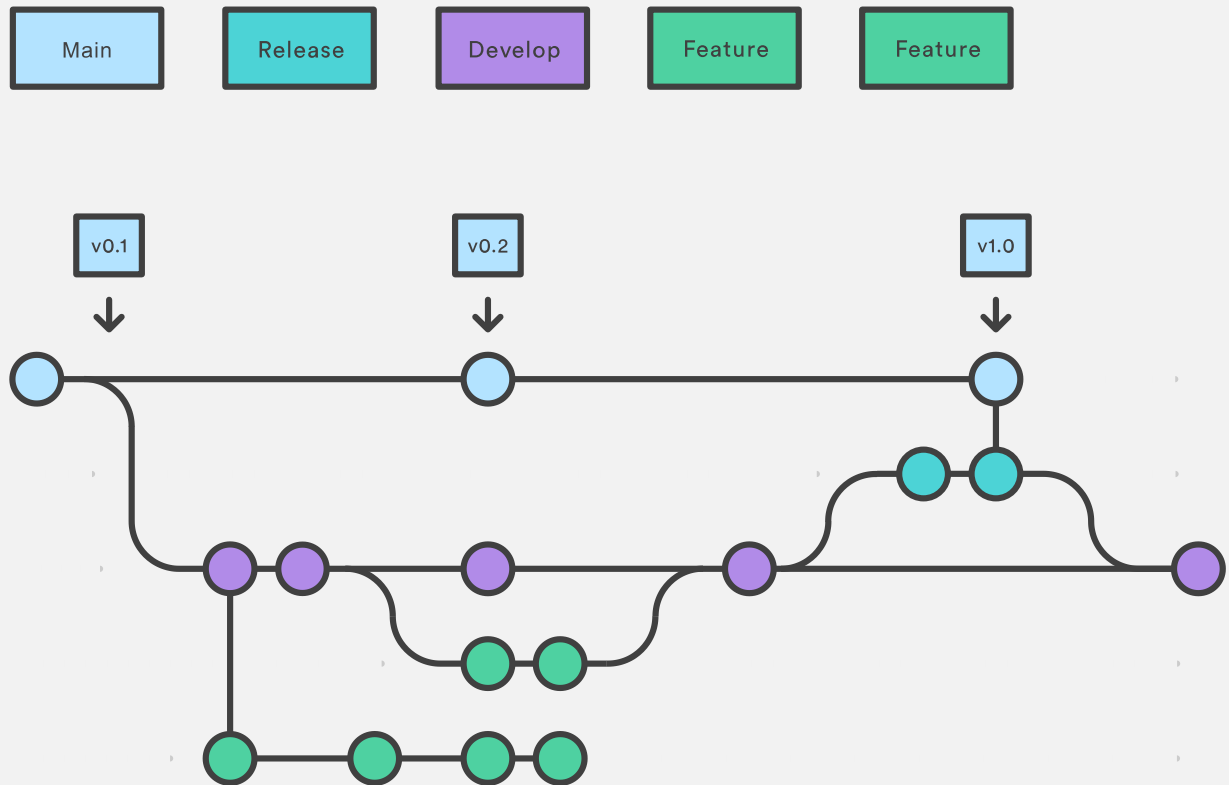
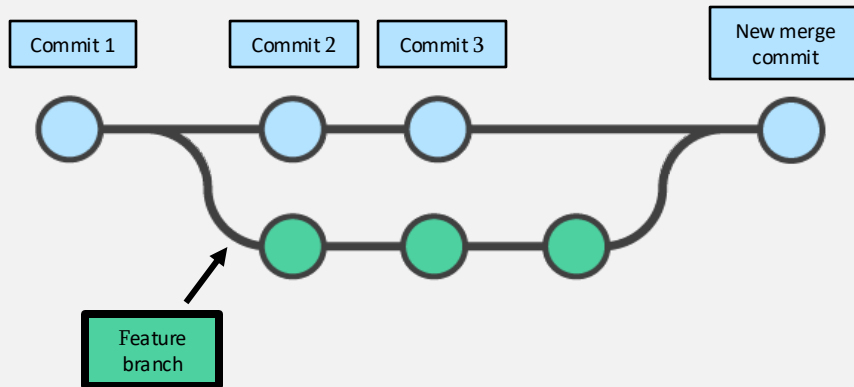
# Git flow for collaboration

- A Git workflow
  - A branching model designed around the project release.
  - Specific roles to different branches
  - How and when they should interact



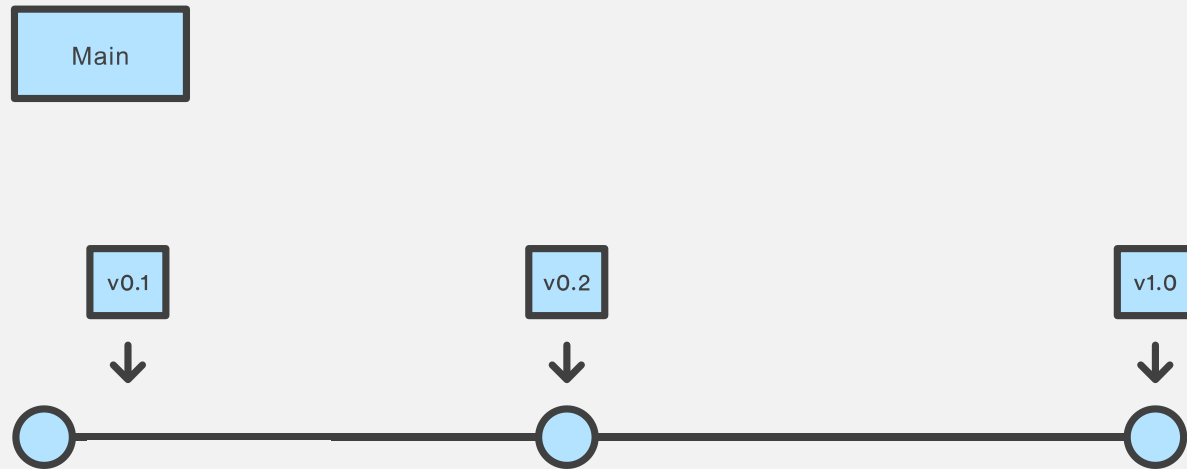
# Git flow for collaboration

- A Git workflow
  - A branching model designed around the project release.
  - Specific roles to different branches
  - How and when they should interact
- Not the only workflow
  - e.g. GitHub workflow for continuous delivery



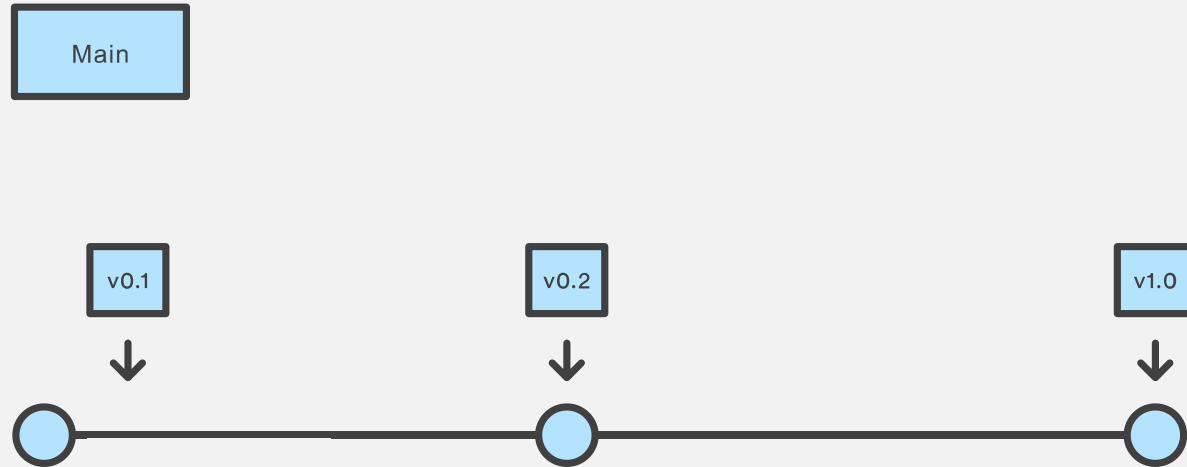
# Git flow for collaboration

- Two branches to record the history of the project (with an infinite lifetime)
  1. "Main" branch: release history.



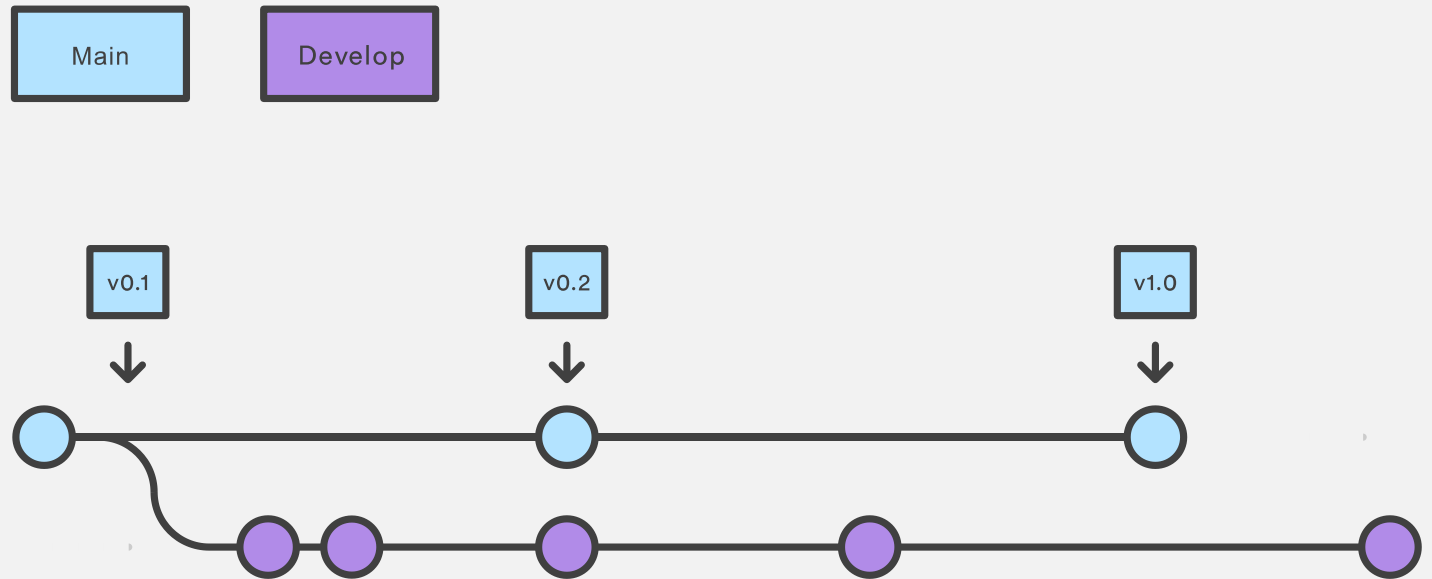
# Git flow for collaboration

- Two branches to record the history of the project (with an infinite lifetime)
  1. "Main" branch: release history.
  2. "Develop" branch: integration branch for features.



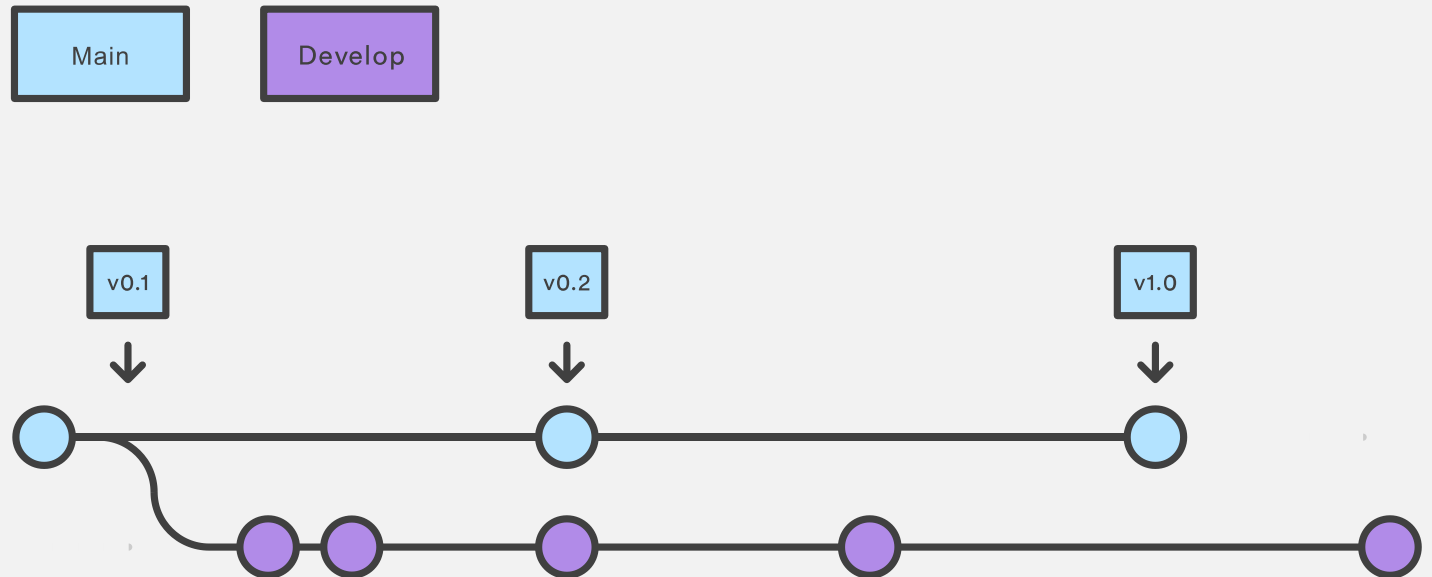
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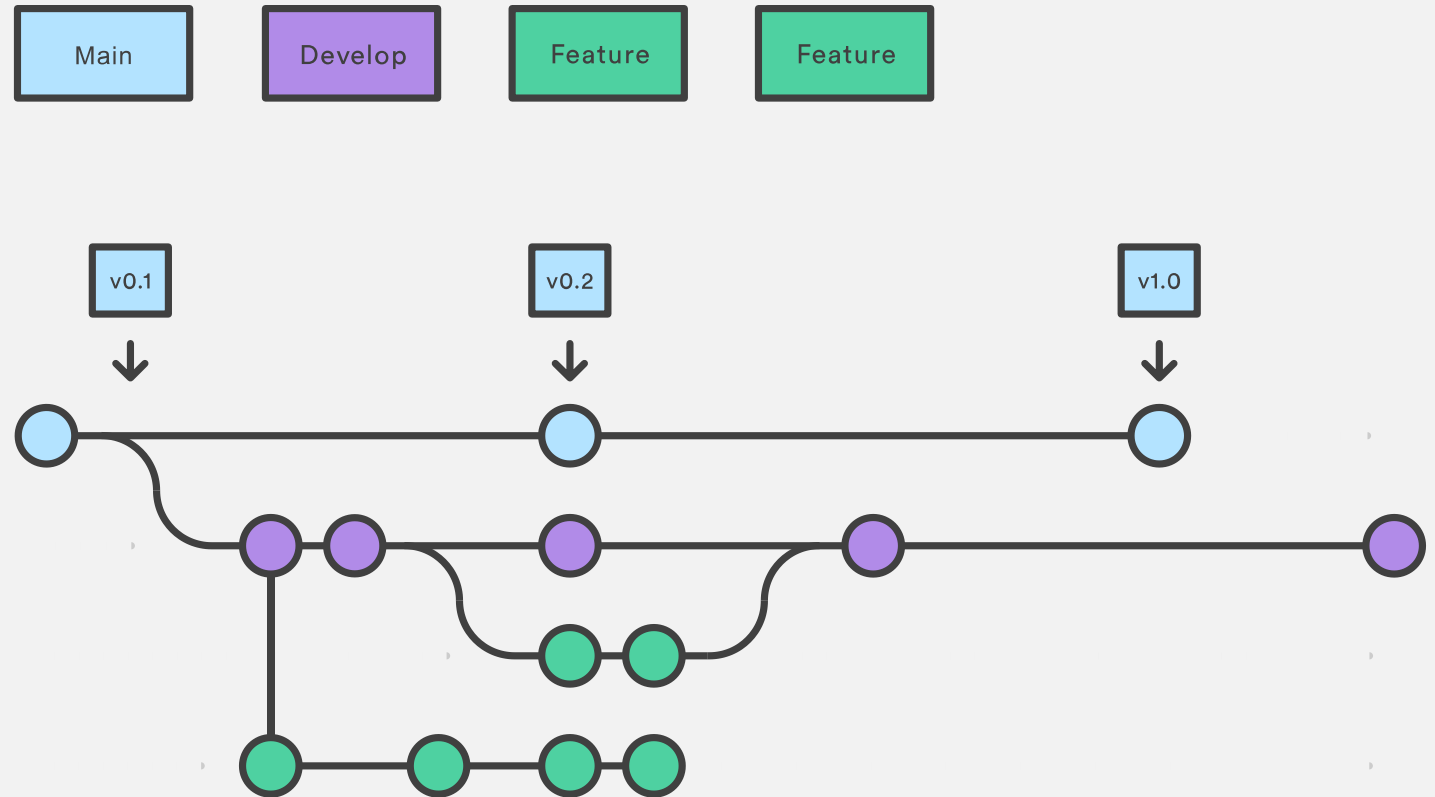
# Git flow for collaboration

- Two branches to record the history of the project (with an infinite lifetime)
  1. "Main" branch: release history.
  2. "Develop" branch: integration branch for features.
- Each new feature has its own branch
  - Branch off Develop.
  - Merge back into Develop.

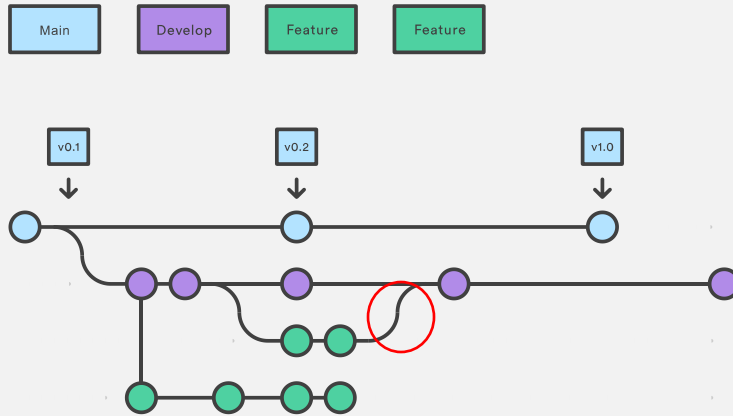


# Git flow for collaboration

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  2. "Develop" branch: integration branch for features.
- Each new feature has its own branch
  - Branch off Develop.
  - Merge back into Develop.

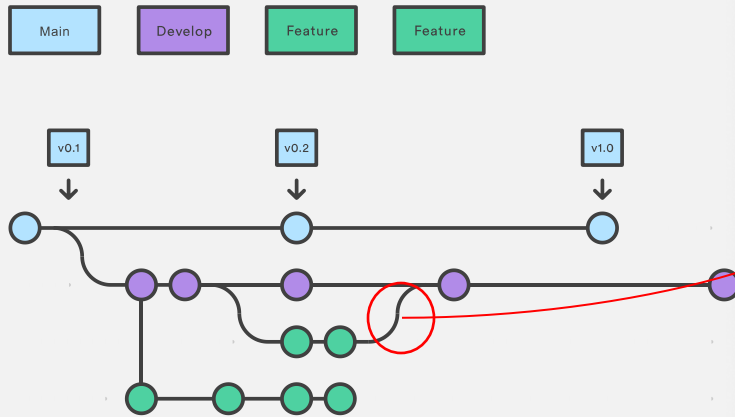


# Git flow for collaboration





# Git flow for collaboration



github.com/Living-with-machines/DeezyMatch/pull/121

merge 4/11

Living-with-machines / DeezyMatch

<> Code Issues 26 Pull requests Actions Projects 1 Security Insights

## Improve candidate ranking #121

Merged kasra-hosseini merged 5 commits into develop from feature/85-117-ranking-improvements on Apr 25, 2022

Conversation 22 Commits 5 Checks 2 Files changed 7 +248 -103

mcollardanuy commented on Feb 2, 2022 Collaborator

This PR addresses the following issues (all related to candidate ranking):

- Ranking without prediction #85
- Add post-processing filter to candidate ranking with maximum string length difference allowed #117
- Fix the hardcoded multiplier in candidateRanker #98
- Fix ranking metric documentation in candidateRanker #97

Skip pred in cand ranking ✓ dbc2dd6

mcollardanuy requested a review from kasra-hosseini 2 years ago

Fix no predict search size ✓ c1cc110

Reviewers: kasra-hosseini ✓

Assignees: No one assigned

Labels: None yet

Projects: None yet

Milestone: No milestone

Development

---

# Hands-on part 2/2:

- Topics covered:
  - Creating branches
  - Creating Pull Requests
  - Reviewing Pull Requests
  - Managing merge conflicts

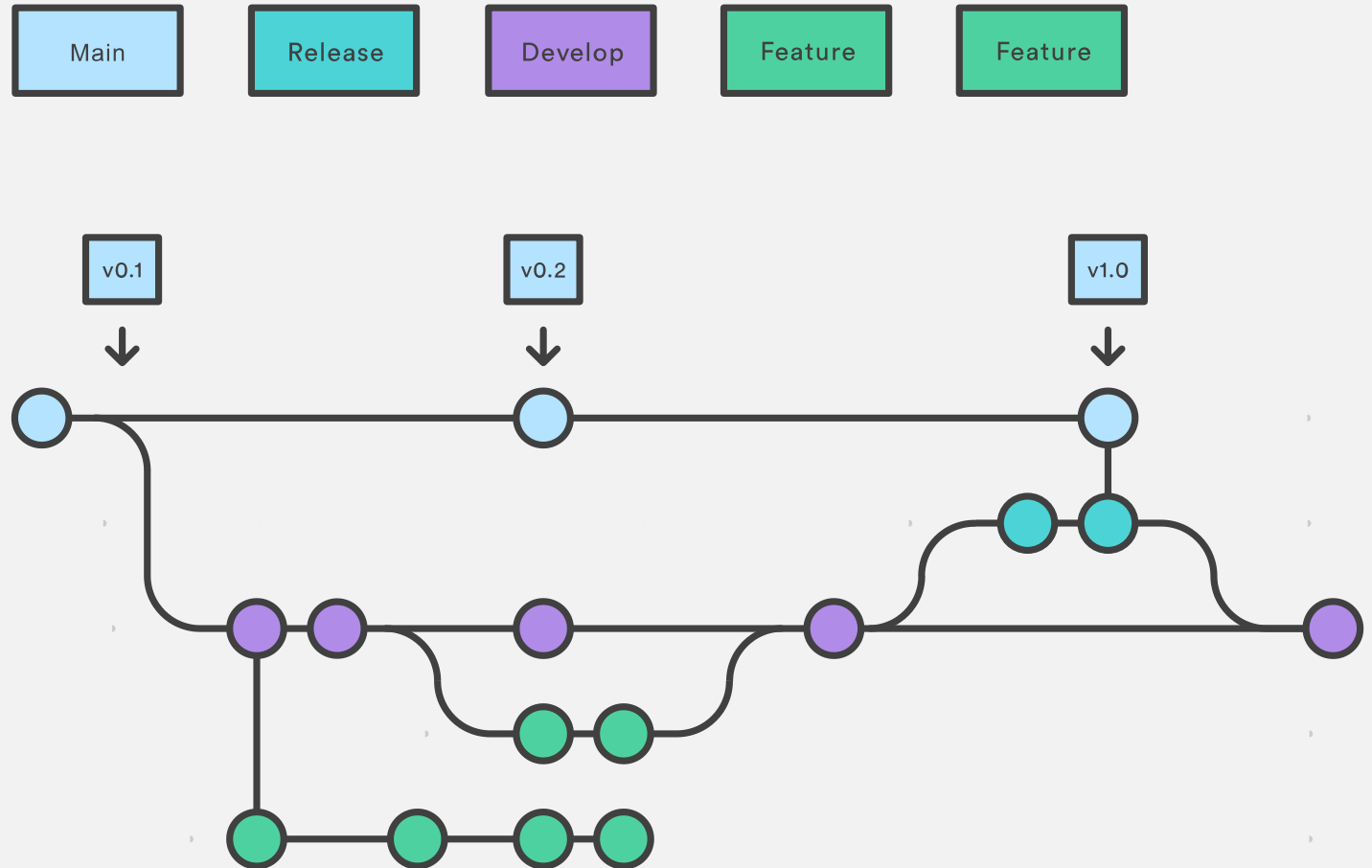
---

# Hands-on part 2/2:

- Topics covered:
  - Creating branches
  - Creating Pull Requests
  - Reviewing Pull Requests
  - Managing merge conflicts
- [Link to the step-by-step instructions document](#)
  - Complete sections: Branches, Pull Requests, Review Pull Requests, Merging.

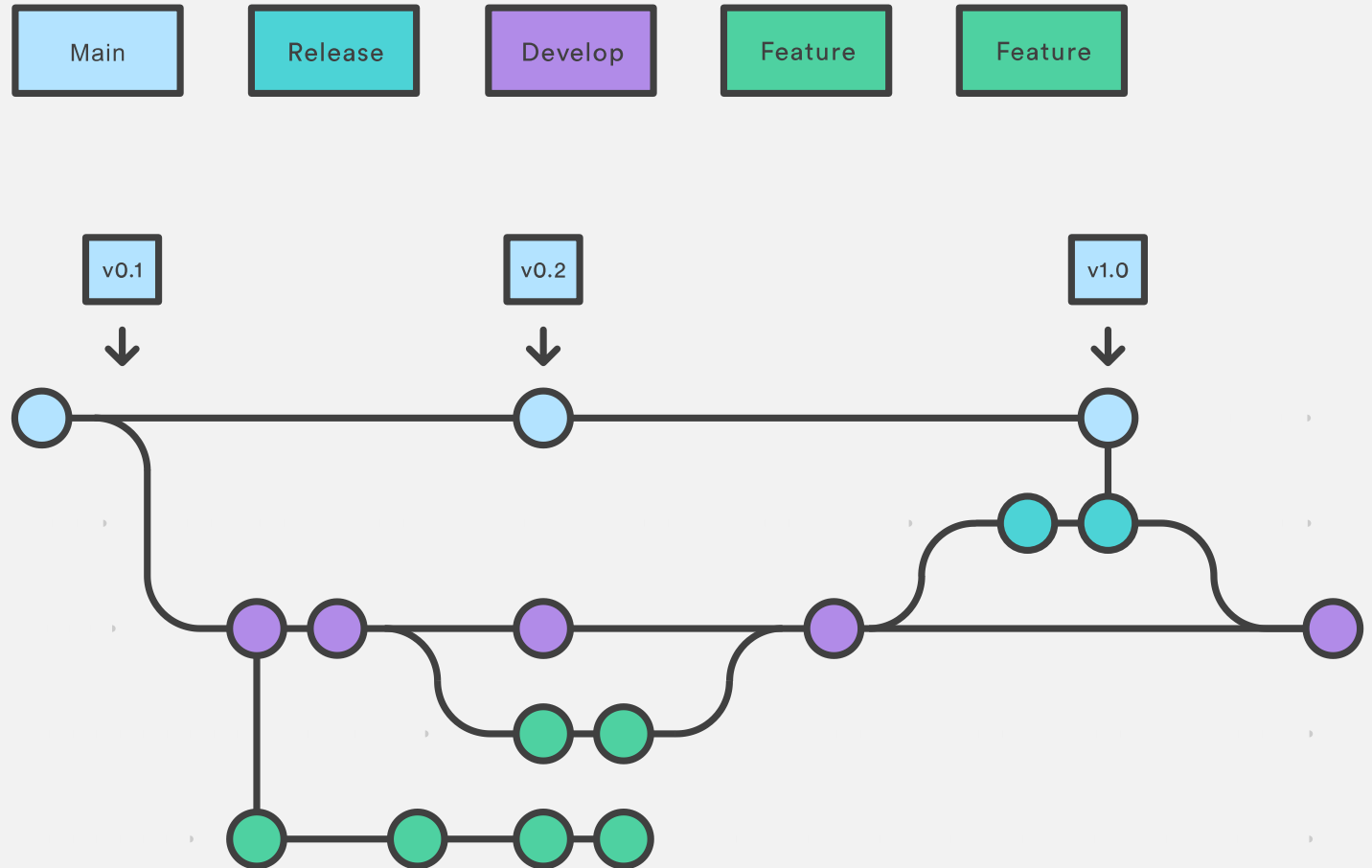
Git flow continued:  
Release and Hotfix branches

# Git flow: Release branches



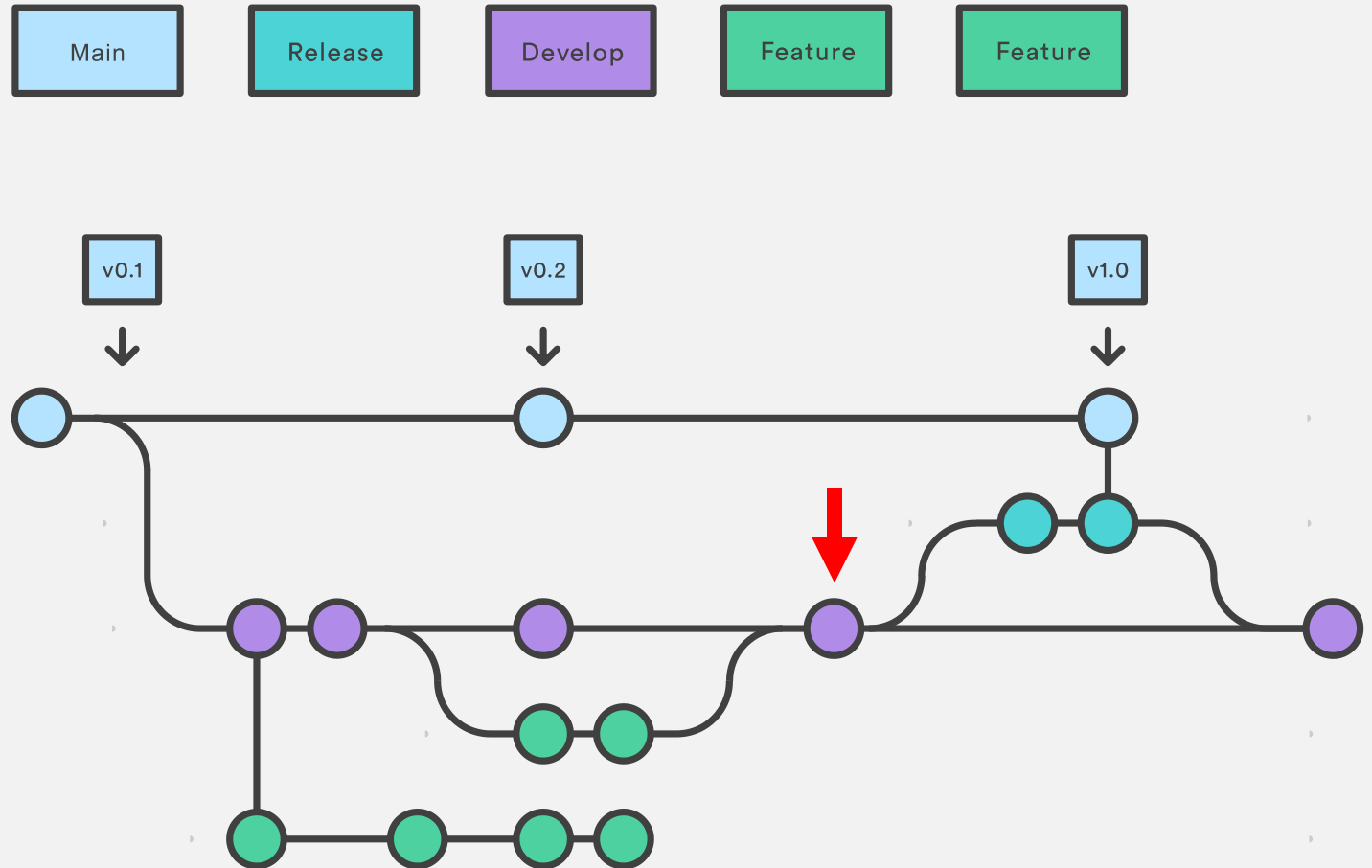
# Git flow: Release branches

- When ready for a new release, no new features.



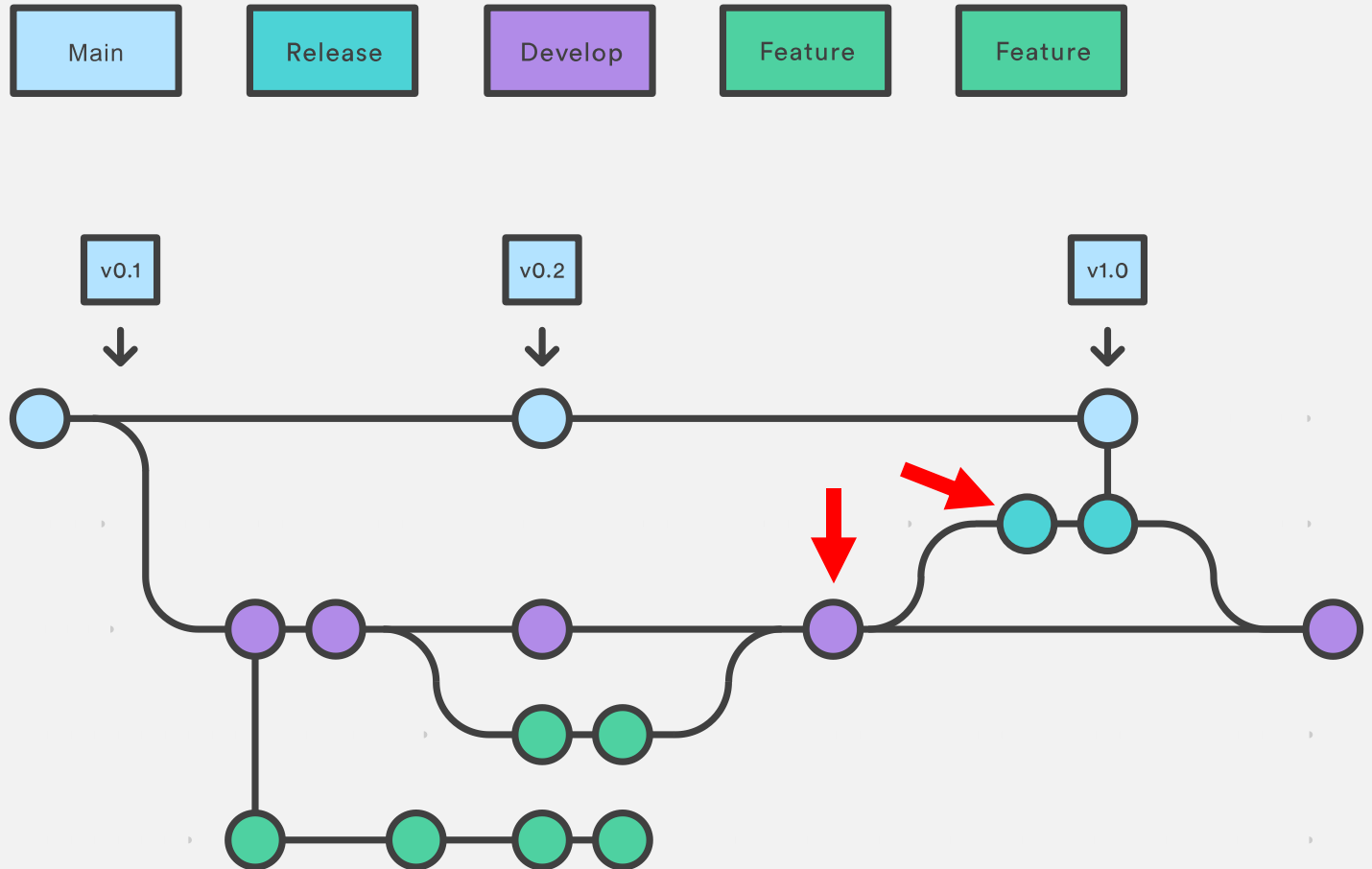
# Git flow: Release branches

- When ready for a new release, no new features.



# Git flow: Release branches

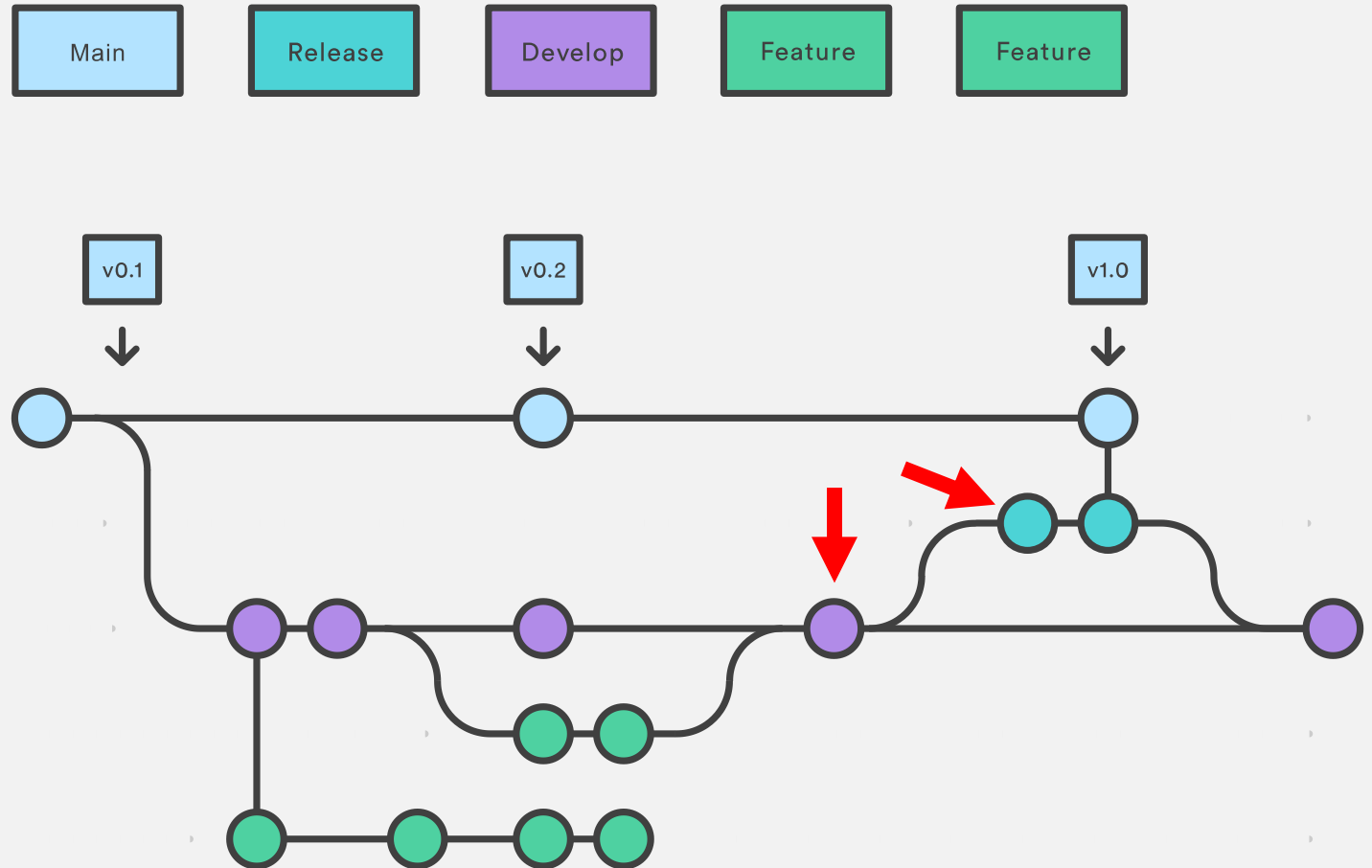
- When ready for a new release, no new features.
- Create a "release" branch.



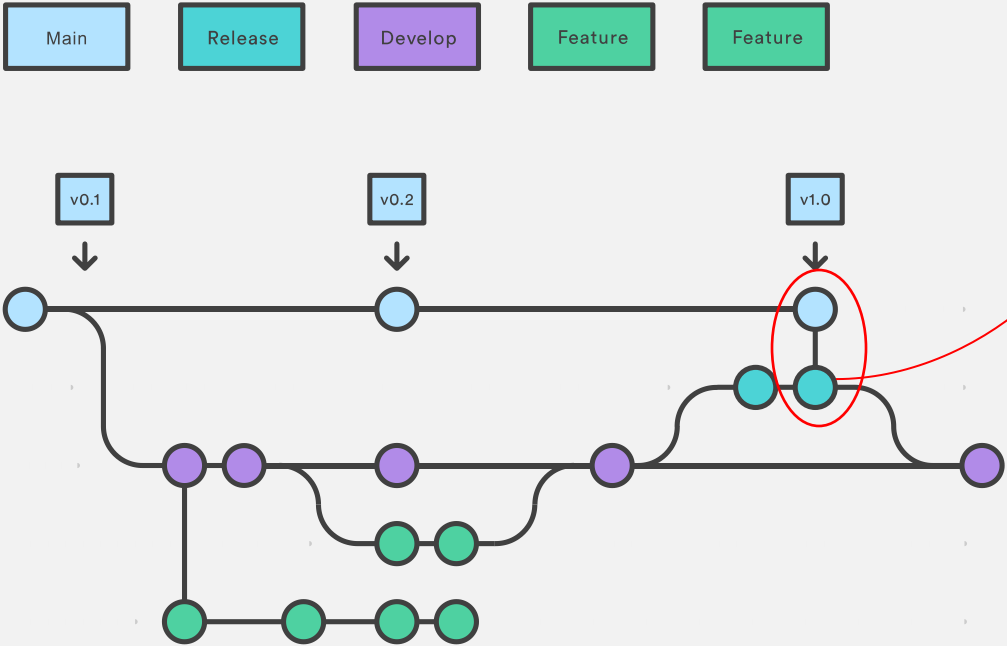


# Git flow: Release branches

- When ready for a new release, no new features.
- Create a "release" branch. Only:
  - Documentation
  - Minor bug fixes
  - Meta-data for release
  - etc.



# Git flow: Release branches



Review, discuss...



version 1.2.0 #75

Merged kasra-hosseini merged 11 commits into master from develop on Sep 15, 2020

Conversation 0 Commits 11 Checks 0 Files changed 6 +122 -58

kasra-hosseini commented on Sep 15, 2020

- early stopping
- EMNLP citation
- Fix the logo

kasra-hosseini added 11 commits 3 years ago

- Early stopping, two parameters: ...
- Remove early\_stopping\_delta for simplicity ...
- Update input\_dfm\_notebook\_001 accordingly
- DeezyMatch saves models for each epoch, i.e., checkpoints (unless `va...
- Update README
- Update input files
- Merge pull request #74 from Living-with-machines/feature/24-early-sto...
- Update README.md
- Update README.md
- Version 1.2.0
- Update README.md

kasra-hosseini merged commit 38d8142 into master on Sep 15, 2020

Write Preview H B I

Leave a comment

Attach files by dragging & dropping, selecting or pasting them.

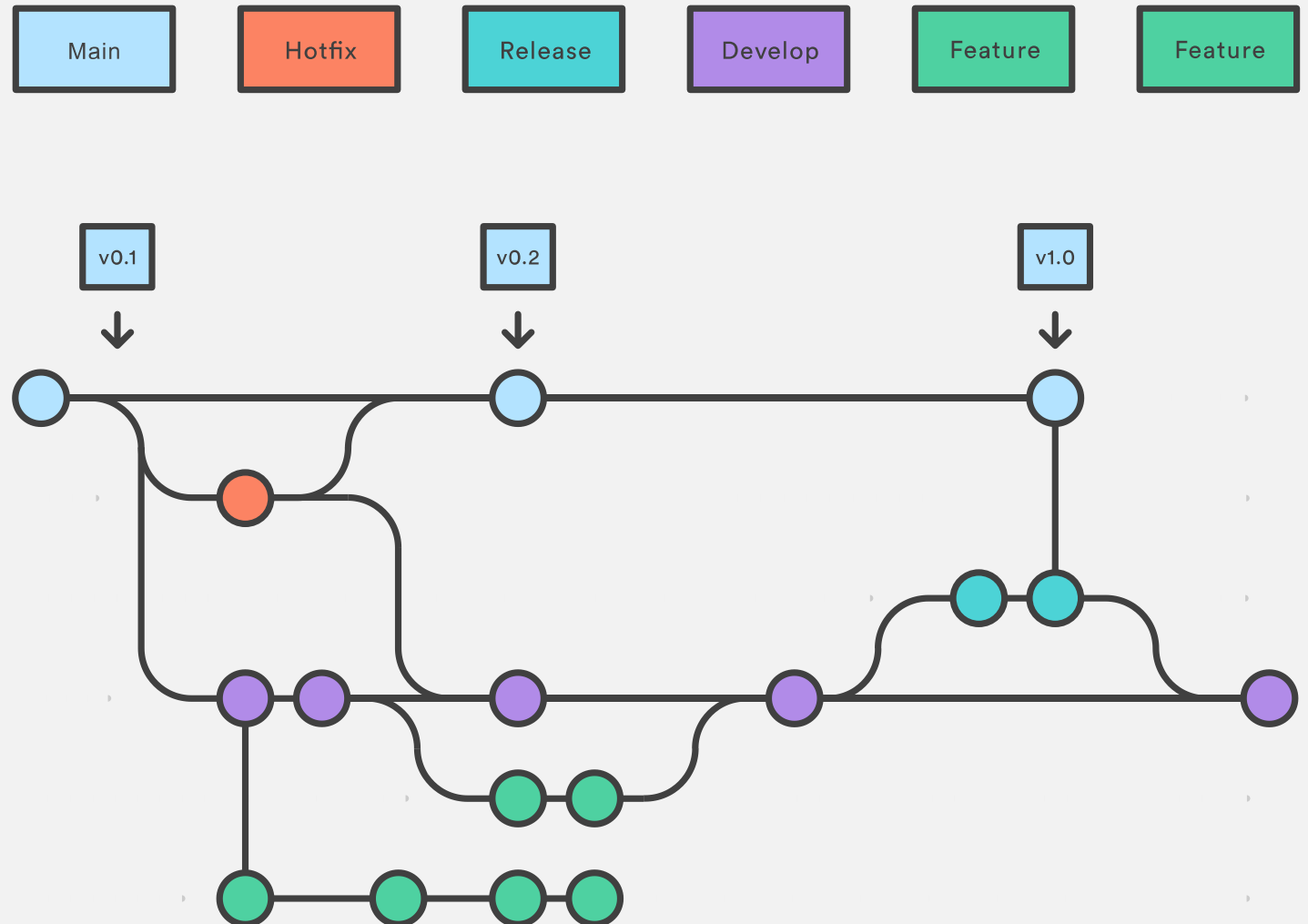
Comment

Remember, contributions to this repository should follow our GitHub Community Guidelines.

ProTip! Add .patch or .diff to the end of URLs for Git's plaintext views.

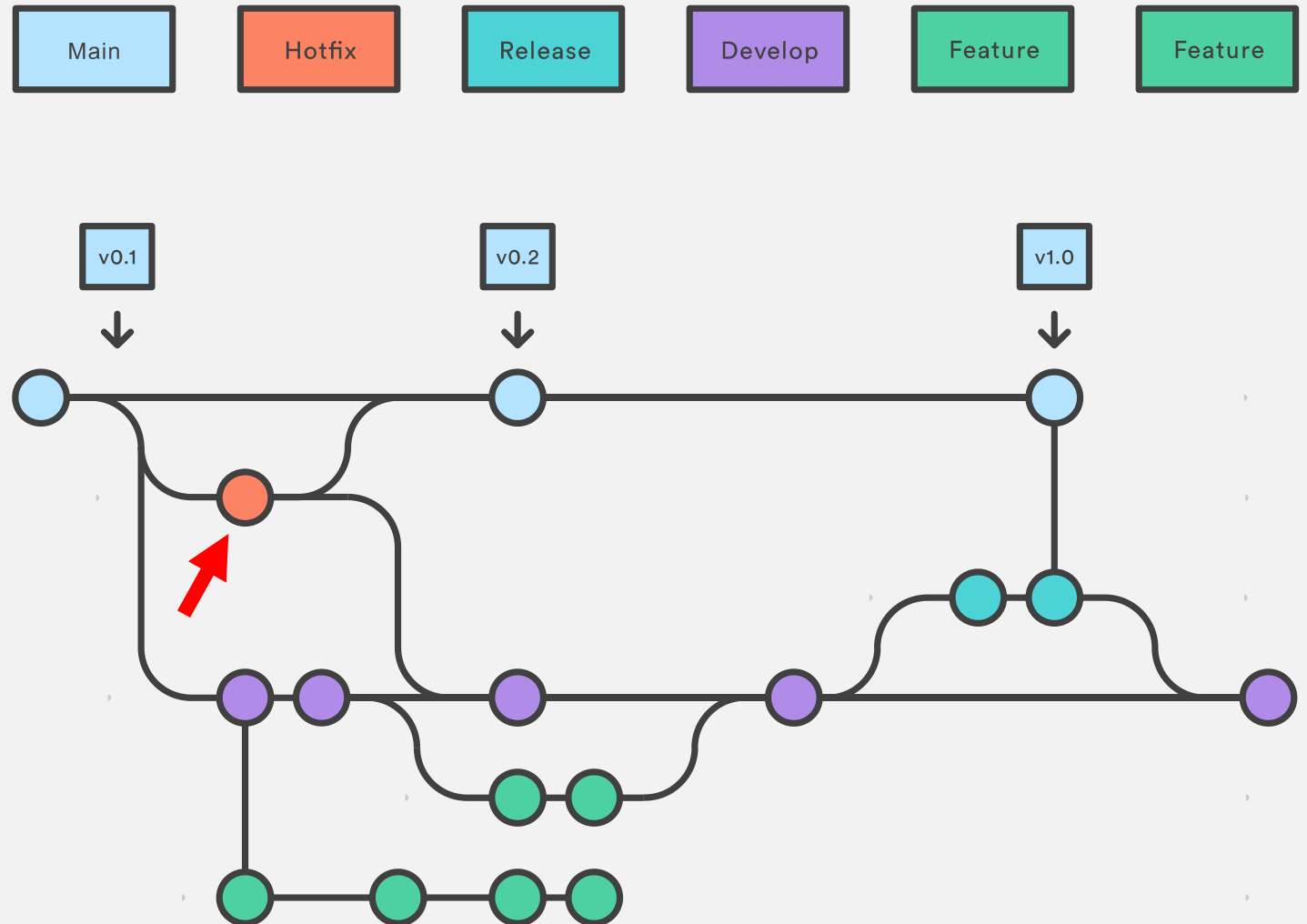
# Git flow: Hotfix branches

- Maintenance or Hotfix branches to patch releases



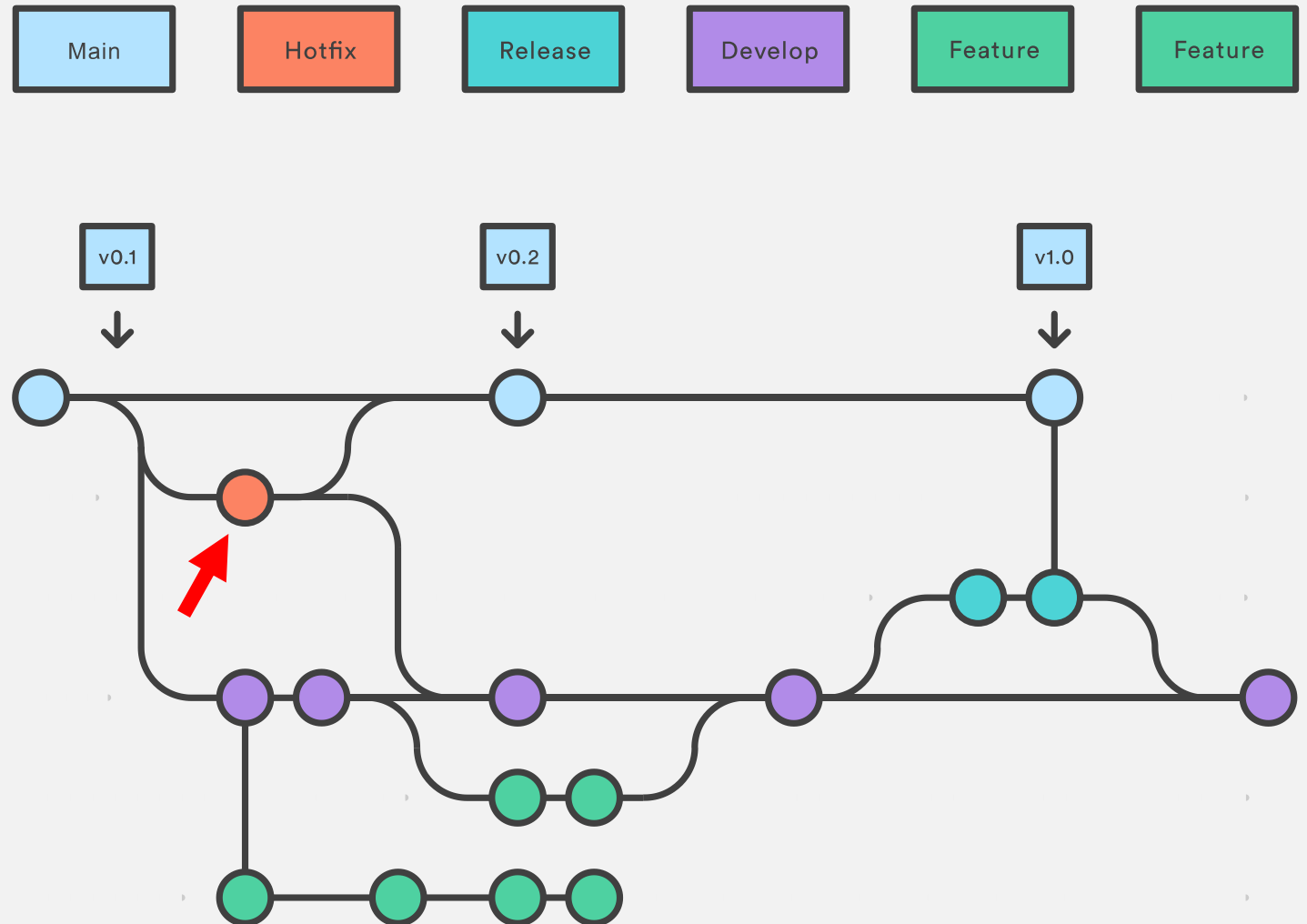
# Git flow: Hotfix branches

- Maintenance or Hotfix branches to patch releases



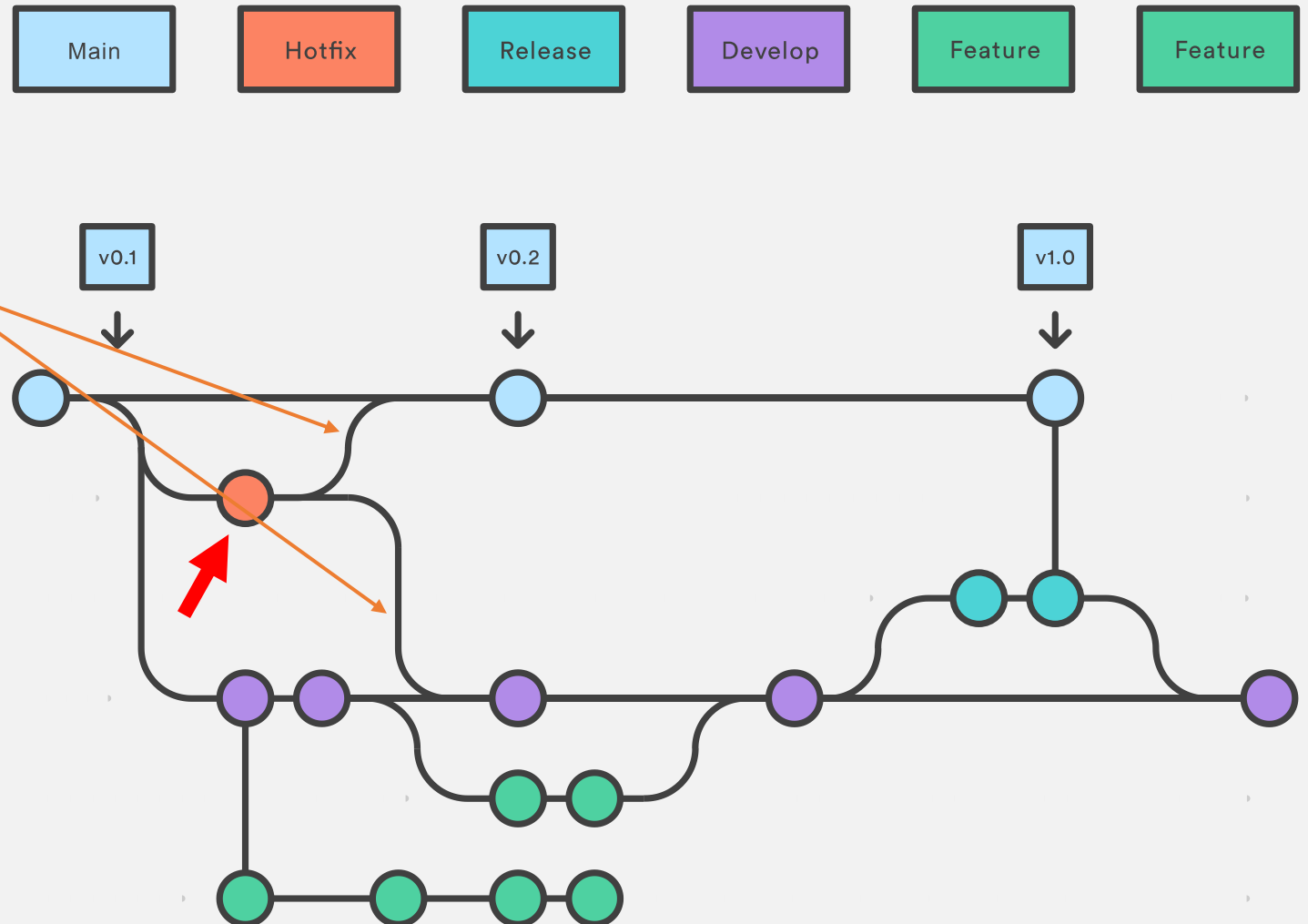
# Git flow: Hotfix branches

- Maintenance or Hotfix branches to patch releases
- They are based on main



# Git flow: Hotfix branches

- Maintenance or Hotfix branches to patch releases
- They are based on main
- Merge into Main and Develop (or release, if exists)



# Git flow: versioning the release of your software

The image displays two browser windows side-by-side. The left window shows the GitHub repository page for 'Living-with-machines / DeezyMatch'. The right window shows the project's landing page on 'living-with-machines.github.io'.

**Left Window (GitHub Repository):**

- URL: `github.com/Living-w...`
- Repository: **DeezyMatch** (Public)
- Stats: 4 Watchers, 29 Forks, 106 Stars
- Branches: `master` (selected)
- Files list (recent):
  - `.github/work...`: Update python version in CI (last year)
  - `DeezyMatch`: update tests according to the ... (10 months ago)
  - `dataset`: Change datasets and edit REA... (last year)
  - `examples`: update example notebook (10 months ago)
  - `figs`: Update Fig. in the README (3 years ago)
  - `inputs`: Change datasets and edit REA... (last year)
  - `.gitignore`: Update .gitignore (3 years ago)
  - `CONTRIBUT...`: Add CONTRIBUTORS.txt (3 years ago)
  - `LICENSE`: Update LICENSE (3 years ago)
  - `README.md`: Update README (10 months ago)
  - `_config.yml`: Set theme jekyll-theme-minimal (3 years ago)
  - `requirement...`: Update requirements.txt (2 years ago)
  - `setup.py`: v1.3.4 (10 months ago)
- Releases: 15
  - DeezyMatch v1.3.4** (Latest) on Sep 20, 2022
  - + 14 releases

**Right Window (Project Page):**

- URL: `living-with-machines.github.io...`
- Project Name: **DeezyMatch**
- Description: A Flexible Deep Learning Approach to Fuzzy String Matching
- Link: [View the Project on GitHub](#)
- Logo: DeezyMatch (with stylized 'D' and 'M')
- Tagline: **A Flexible Deep Neural Network Approach to Fuzzy String Matching**
- Badges: `pypi v1.3.4` (circled in red), `License MIT`, `launch binder`, `Integration Tests passing`
- Text: DeezyMatch can be used in the following tasks:
  - Fuzzy string matching
  - Candidate ranking/selection
  - Query expansion
  - Toponym matching
- Text: Or as a component in tasks requiring fuzzy string matching and candidate ranking, such as:
  - Record linkage

No code was damaged  
in the making of this workshop