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VERSION CONTROL
WITH GIT



UNIVERSITY OF AMSTERDAM

ASTRON

THE BASICS

Git

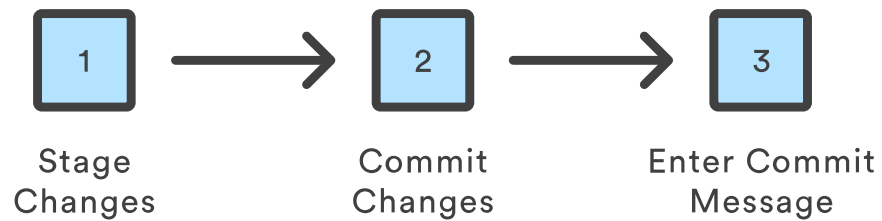
Git is a version control software capable of tracking changes in your code. It doesn't save the entire version each time, just the changes to each file. You can see the line on the right as a timeline of your project. Each dot is a commit.



Extending the timeline

`git commit`

There are a number of steps
you need to take to add a new
point to your timeline.



Switching

`git checkout`

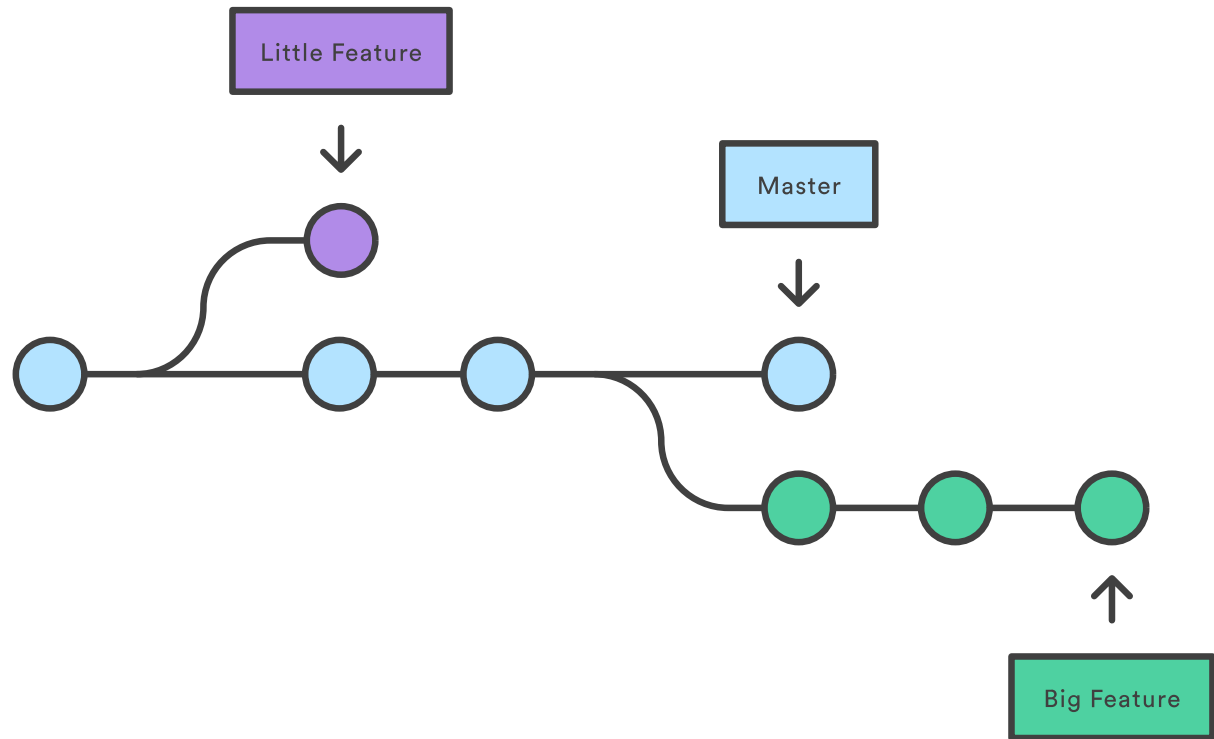
Git allows you to switch between commits. Each commit has its own reference code.



Branching out

`git branch`

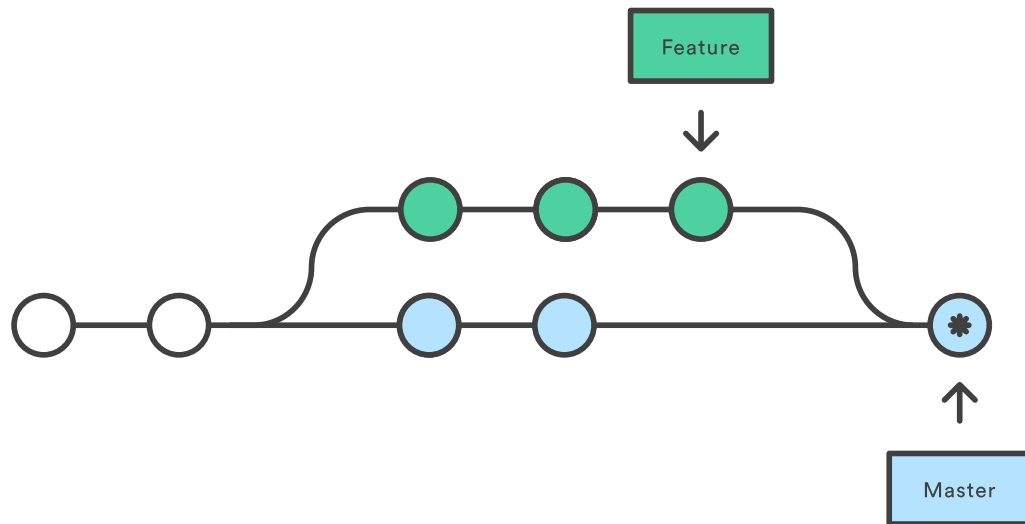
Git also allows you work on different versions of your code, in so-called branches. Creating a branch is called forking.



Merging

`git merge`

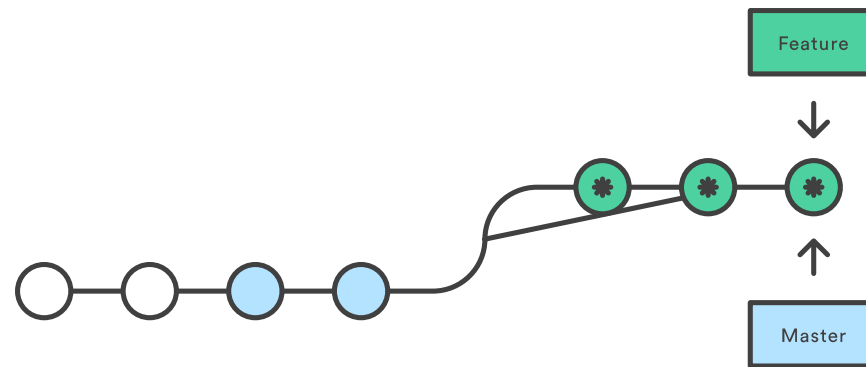
Finished with a feature? Merge it with the master branch. Had another commit on the master branch in the mean time? Don't worry - it will ask you to resolve any conflicts.



Don't want to lose anything?

`git rebase`

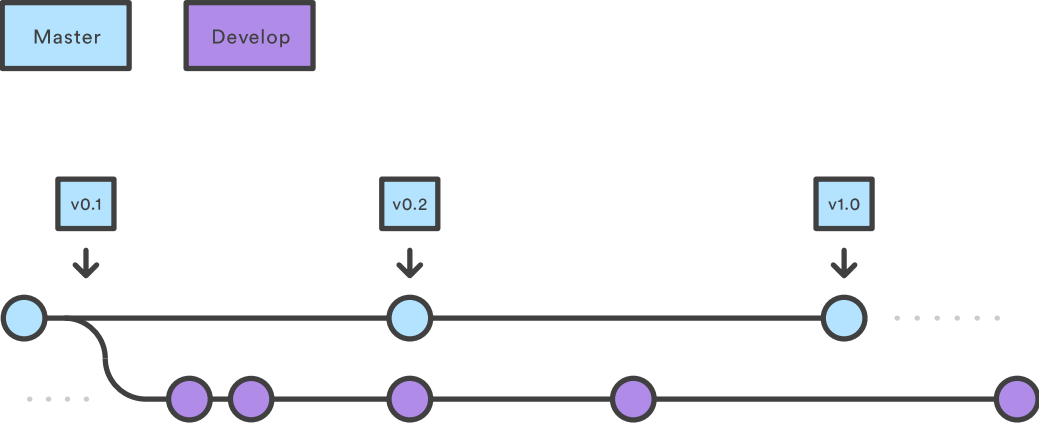
You can also rebase your branch.



G I T W O R K F L O W

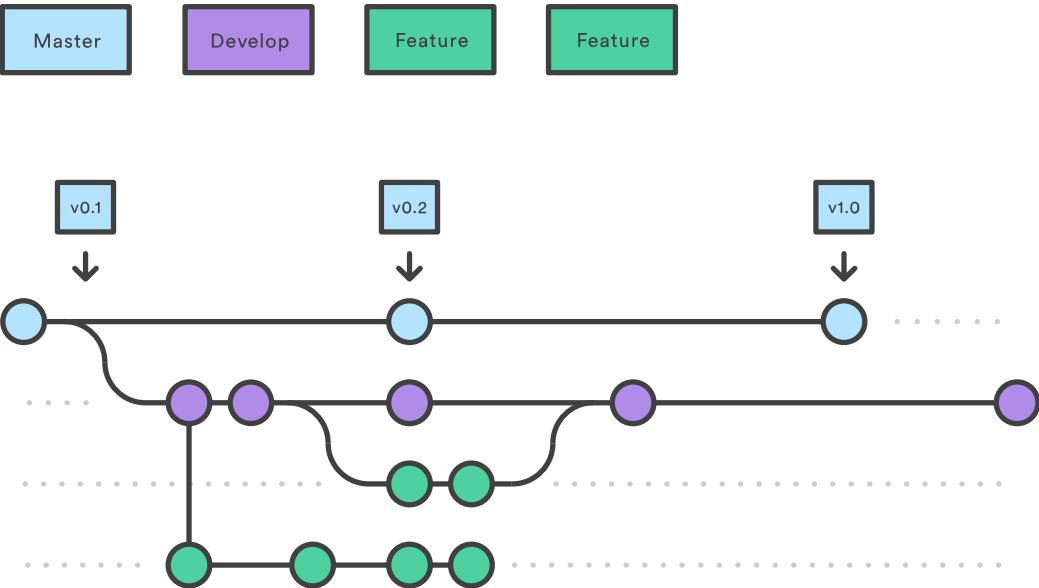
Git Workflow

- Master
- Develop



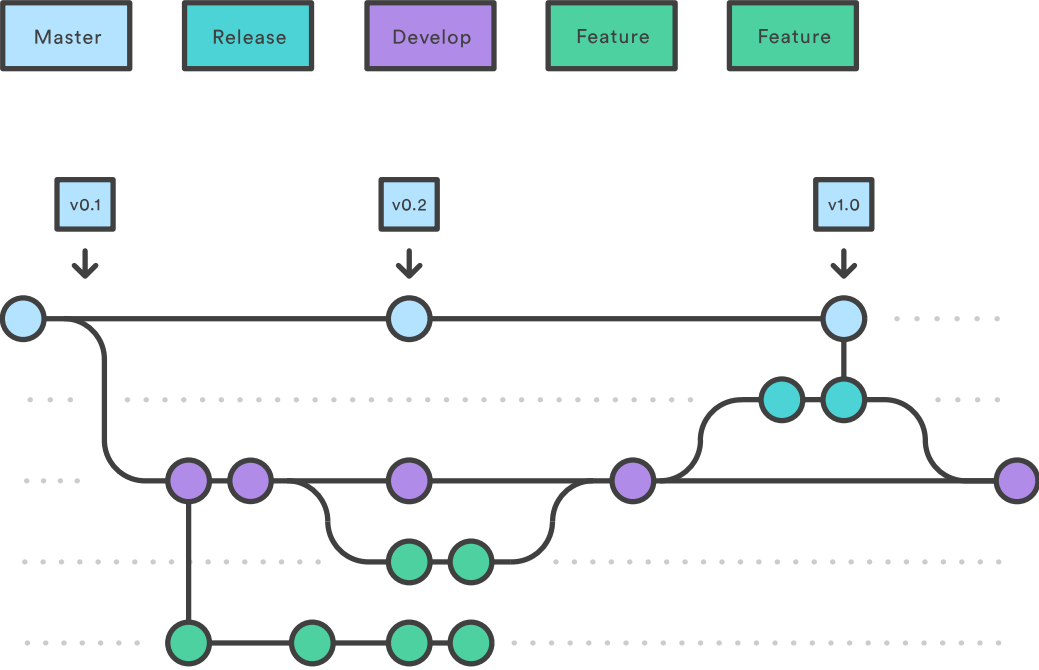
Git Workflow

- Master
- Develop
- Features



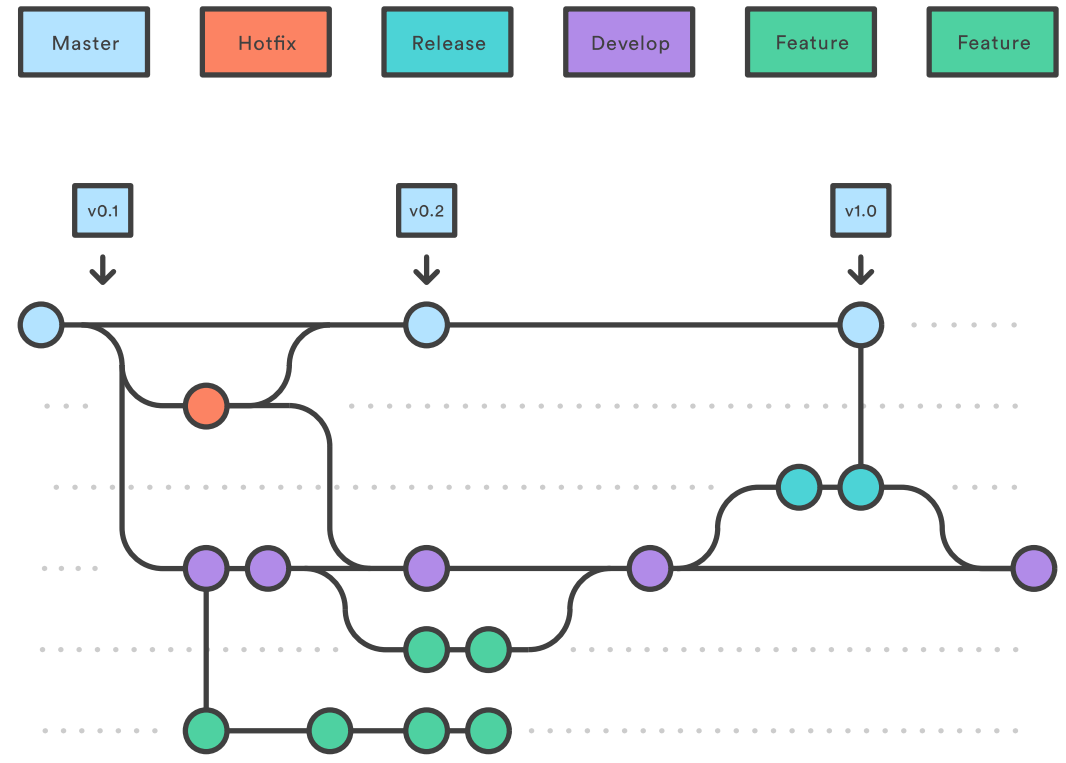
Git Workflow

- Master
- Develop
- Features
- Releases



Git Workflow

- Master
- Develop
- Features
- Releases
- Hotfix

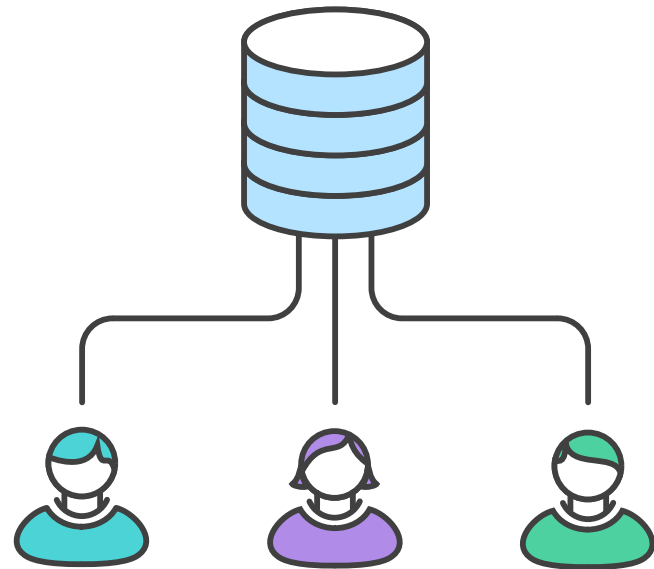


M U L T I P L E U S E R S

Multiple Users

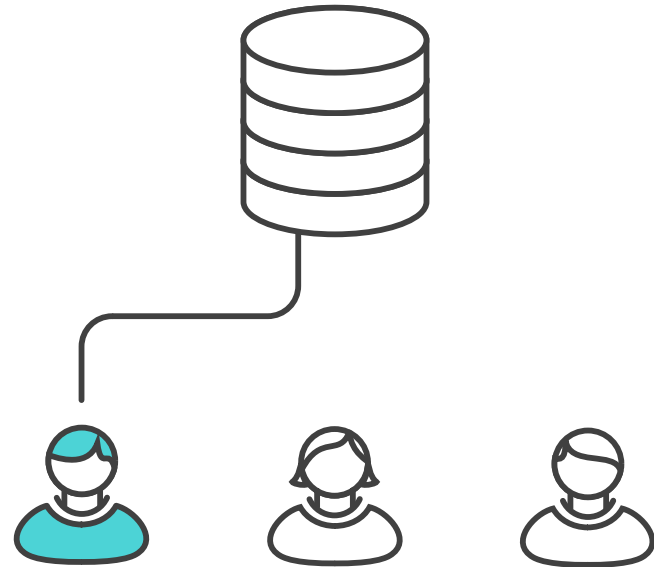
`git clone`

Want to work on the same code, or share your code?
It's all possible, with Github, Bitbucket, Gitlab or others.
You can even get automatic code testing.

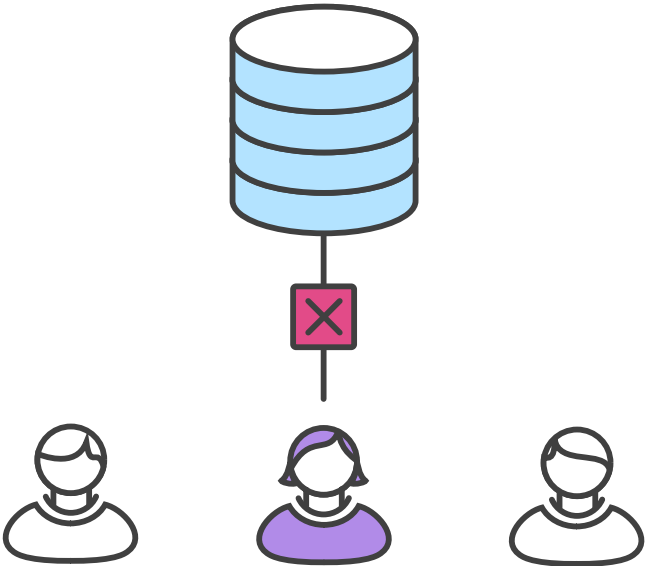


Publish a feature

```
git push origin master
```

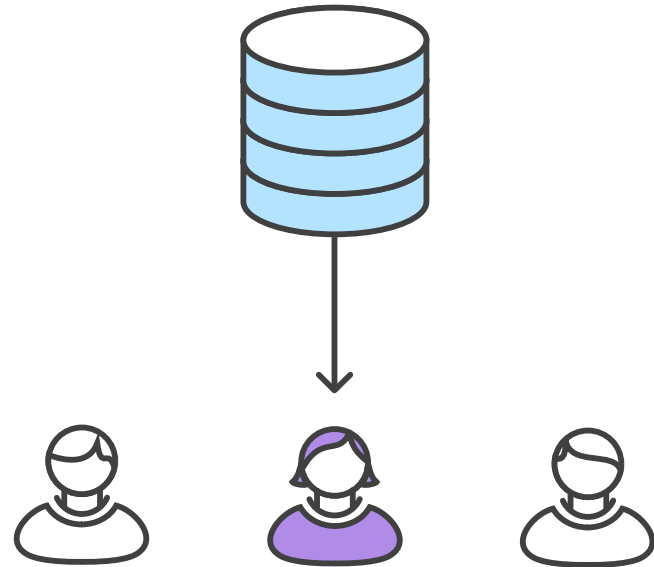


Conflict



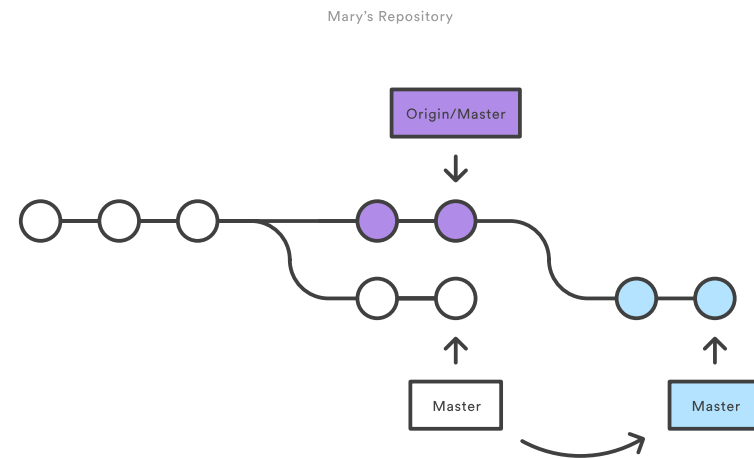
Update your branch

```
git pull --rebase origin master
```



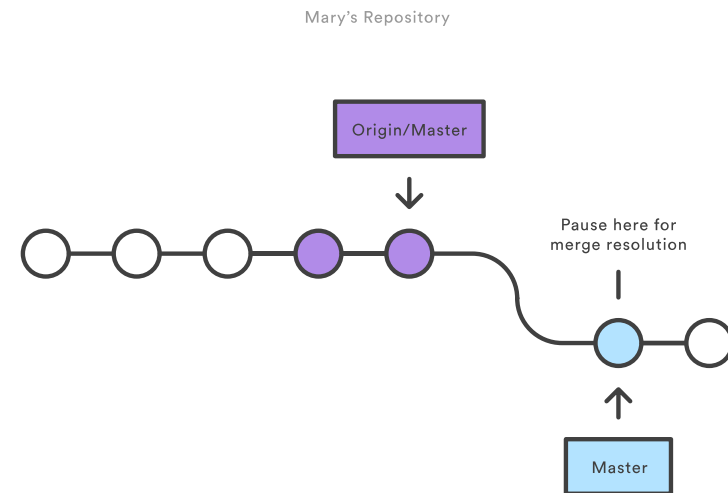
Update your branch

```
git pull --rebase origin master
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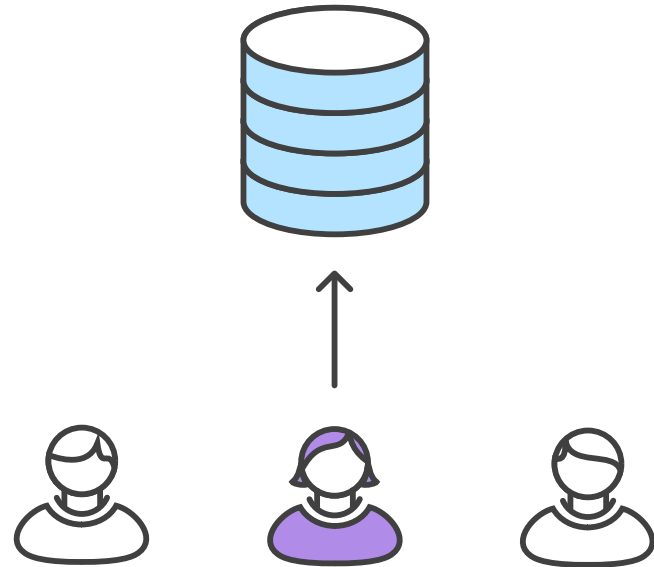
Update your branch

```
git pull --rebase origin master
```



Publish a feature

```
git push origin master
```



EVEN MORE

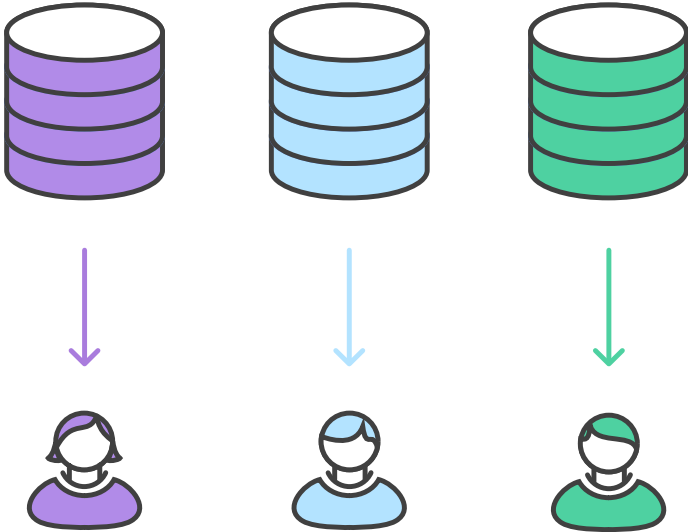
Forking

`git clone`



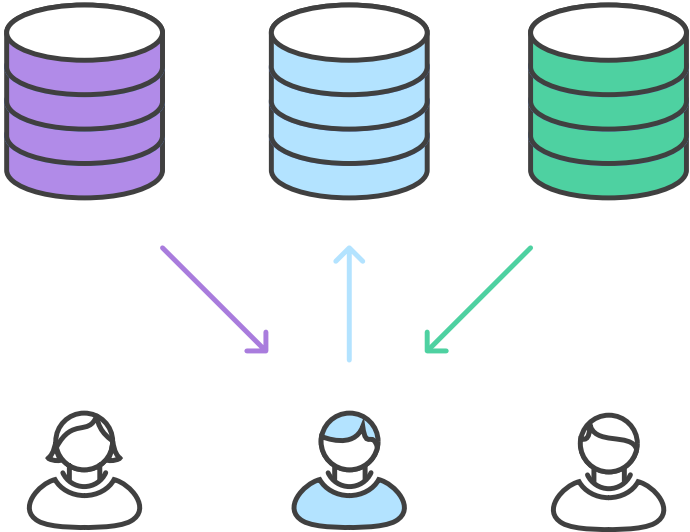
Forking

git clone



One version

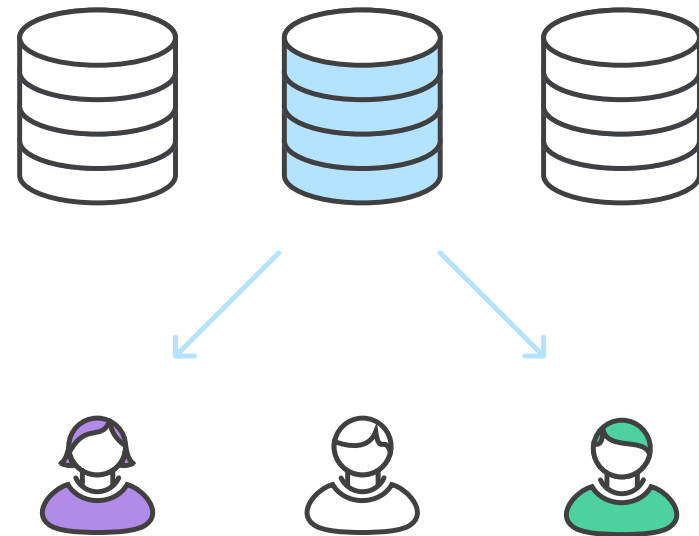
Create a pull request



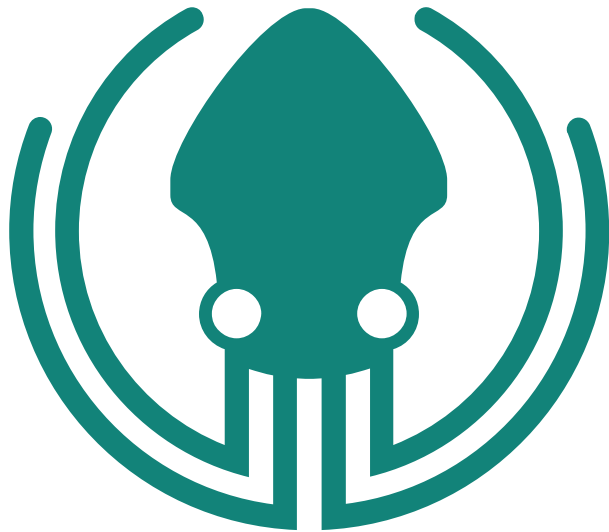
Ensure up-to-date

```
git pull upstream master
```

Import the changes again



TUTORIAL



Gitkraken

A Git GUI

Manage your source code