



```
r[[rg_mm$max]] <- terra::extend(r[[rg_mm$max]], ext.combi)

# shift the smaller one over to the other side
ext.min <- terra::ext(r[[rg_mm$min]])
ext.min <- terra::ext(as.numeric(cc.xmin - min(rg)), cc.xmin, ext.min[3], ext.min[4])

terra::ext(r[[rg_mm$min]]) <- ext.min

# extent the smaller one too, resample to larger one
r[[rg_mm$min]] <- terra::extend(r[[rg_mm$min]], ext.combi)
r[[rg_mm$min]] <- terra::resample(r[[rg_mm$min]], r[[rg_mm$max]])

# fuse rasters over grid end
r <- terra::merge(r[[1]], r[[2]])
```

EAGLE M.Sc., MB2 2023/24

Introduction into programming using R

Part II: Concepts, code & practical exercises

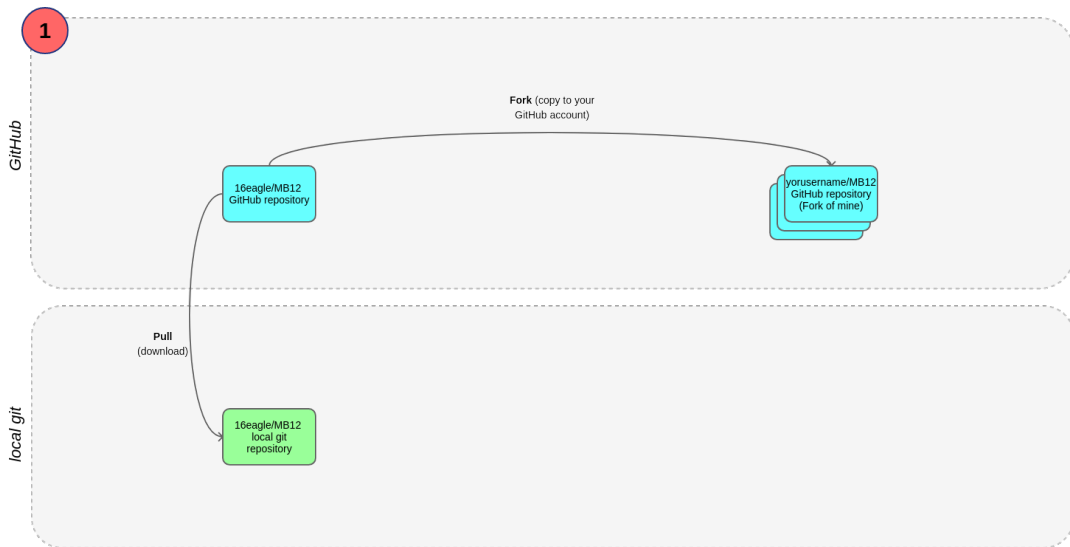
- Recap on git
- Exploring *poll.md* based on what you have learned today in the morning



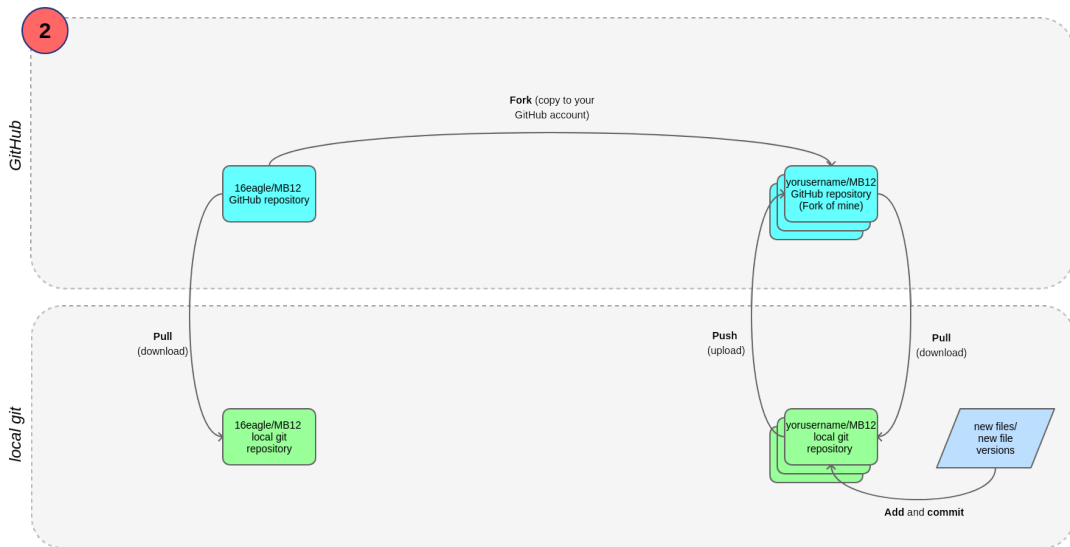
**What did we use git and GitHub for last time?
Which steps did we apply?**

You have learned how to work with

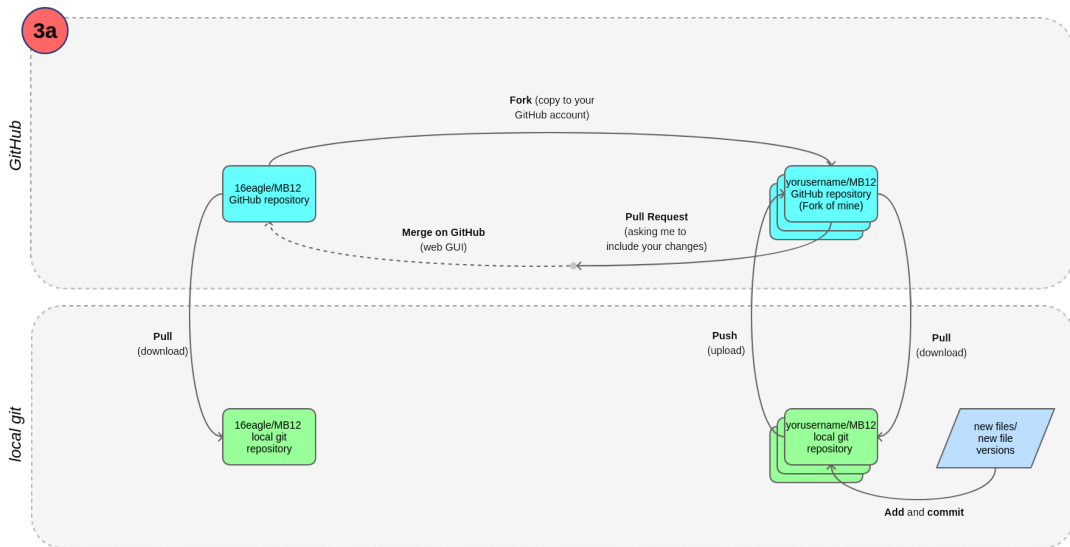
- git for local version control
- git and GitHub for publishing repos
- git and GitHub for collaboration (PR/merging)



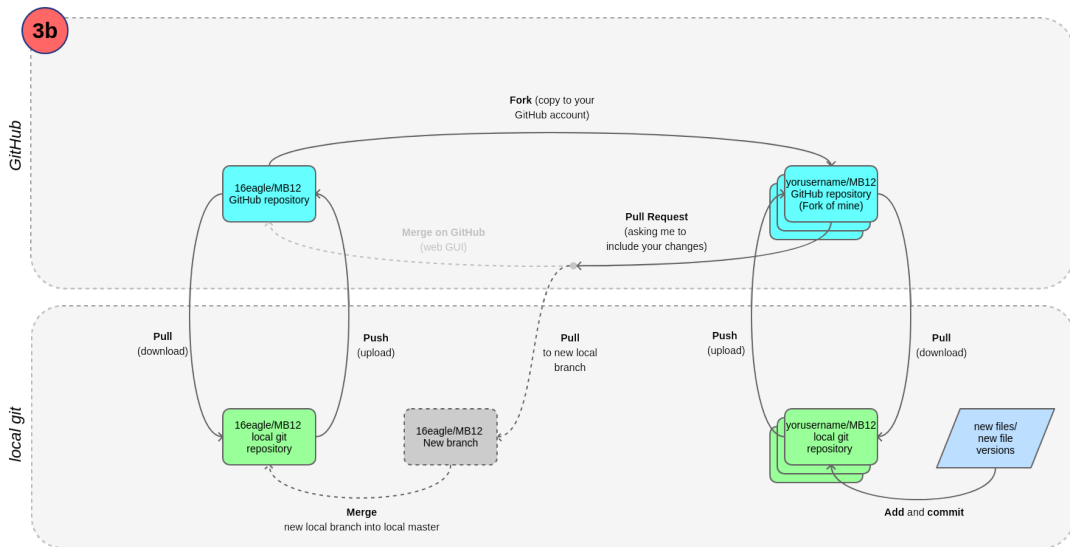
1 Schematics of our GitHub and git workflow



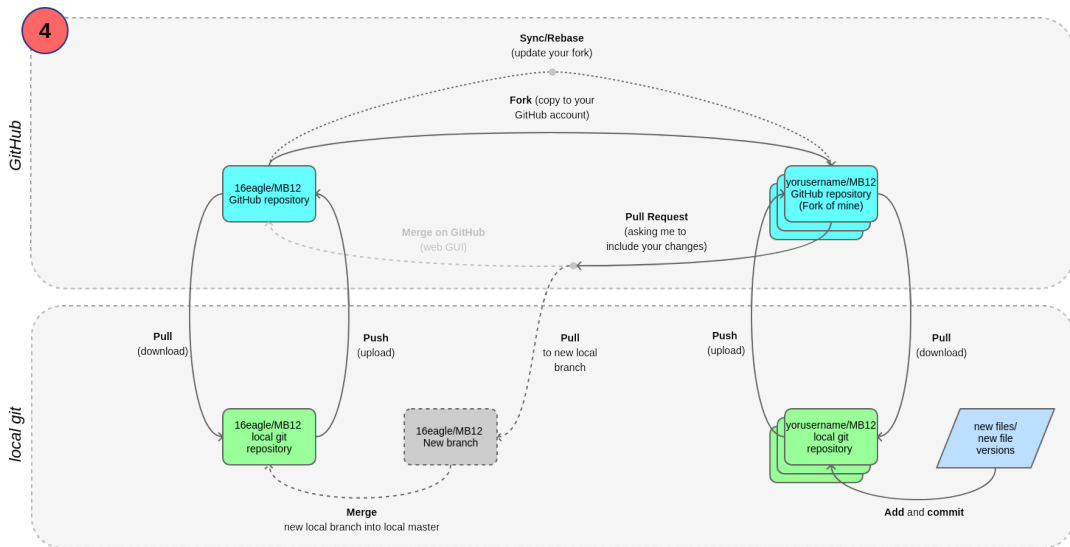
2 Schematics of our GitHub and git workflow



3 Schematics of our GitHub and git workflow



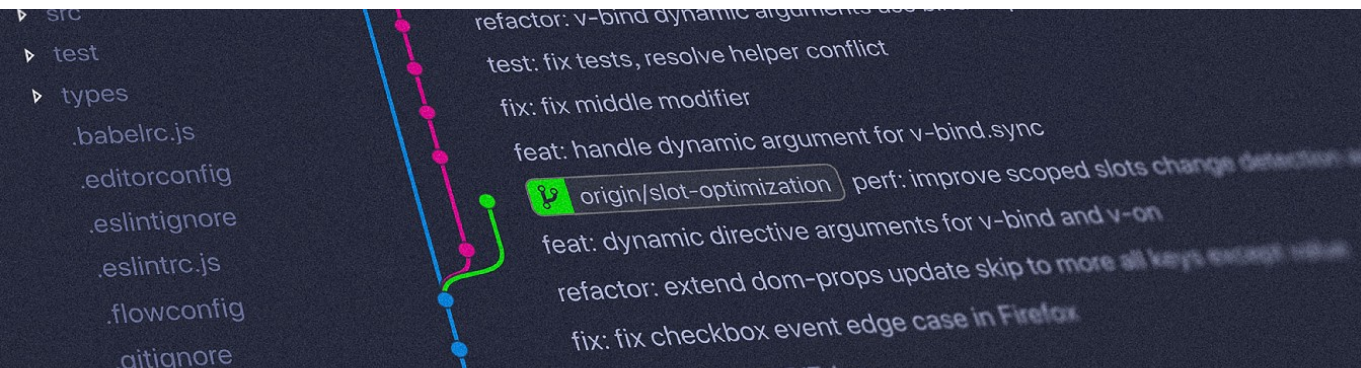
4 Schematics of our GitHub and git workflow



5 Schematics of our GitHub and git workflow



Any questions regarding last week's topic?



Follow-up:

Version control and collaboration using git II

Recap: Pulling your fork using the git cli

In your local directory that you want to use for the project (use `cd` to get there):

```
1 git init
2 git remote add origin https://github.com/yourGitHubUser/MB12.git
3 git pull origin master
```

Make your changes (edit the markdown file, copy new files etc.), then:

```
1 git add myfile.R
2 git commit -m "my commit message"
3 git push -u origin master
```

Now, you may create a *Pull Request* at <https://github.com/16EAGLE/MB12>. Next time, you will see how to merge a PR on the command line instead of using github's web GUI.

After you submitted your PR, I can either merge it on github.com (web GUI) or I can do that from the command line: In my local project directory, I create a new branch that contains the Pull Request:

```
1 git checkout -b someone-master master
2 git config pull.rebase false
3 git pull https://github.com/someone/MB12.git master
```

If there are conflicts, they need to be resolved now by editing the conflicting files and committing the changes, e.g. in RStudio. Then, we can merge into master and push upstream:

```
1 git checkout master
2 git merge --no-ff someone-master
3 git push origin master
```

Done! The PR should now be merged and closed.



Updating your forked repositories

Syncing and rebasing

After I have merged your changes into my MB12 repository (as just shown), *your* forks are now outdated (i.e. do not include the most recent changes in my repository).

Two ways of “updating” your fork:

- *Syncing* your fork in GitHub (follow <https://docs.github.com/en/pull-requests/collaborating-with-pull-requests/working-with-forks/syncing-a-fork>)
- *Rebasing* your local repository based on mine, e.g. from the command line (see next slide)

Make sure your terminal is inside the directory of your local MB12 git repo!

Add my git repo as an upstream repo:

```
1 git remote add upstream https://github.com/16EAGLE/MB12.git
2 git fetch upstream
```

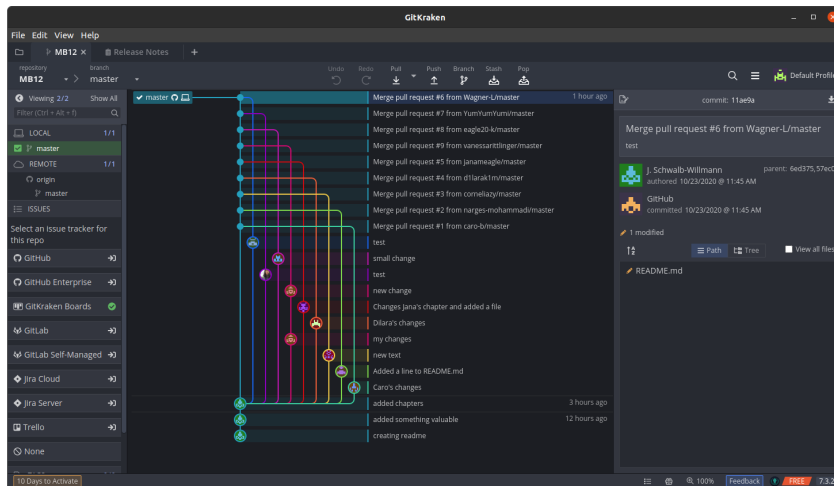
Make sure you are on master, then rebase:

```
1 git checkout master
2 git rebase upstream/master
```

Now, you can pull everything so that your repo matches mine again:

```
1 git pull -f origin master
```


Follow up on git: Git GUIs and visualizer



6 Gitkraken for Linux – *screenshoted*

Follow up on git: Git GUIs and visualizer

```


























~/Downloads/MB12
11ae9aa - (HEAD -> master, origin/master) Merge pull request #6 from Wagner-L/master (3 hours ago) <J. Schwalb-Willmann>
* 57ec0f8 - test (3 hours ago) <Luisa Wagner>
* 6ed3752 - Merge pull request #7 from YunYunYumi/master (3 hours ago) <J. Schwalb-Willmann>
* cb5aa3c - test (3 hours ago) <YunYunYumi>
* ab8ddf3 - Merge pull request #8 from eagle20-k/master (3 hours ago) <J. Schwalb-Willmann>
* 84777c2 - small change (3 hours ago) <eagle20-k>
* ab90767 - Merge pull request #9 from vanessarittlinger/master (3 hours ago) <J. Schwalb-Willmann>
* ca5d477 - new change (3 hours ago) <vanessarittlinger>
* f5d153c - my changes (4 hours ago) <vanessarittlinger>
* 1716a97 - Merge pull request #5 from janameagle/master (3 hours ago) <J. Schwalb-Willmann>
* b8151a0 - Changes Jana's chapter and added a file (3 hours ago) <janameagle>
* 209a6cd - Merge pull request #4 from dilarakin/master (3 hours ago) <J. Schwalb-Willmann>
* fee93bf - Dilara's changes (4 hours ago) <Dilara Kln>
* 9f0b27f - Merge pull request #3 from cornellazy/master (3 hours ago) <J. Schwalb-Willmann>
* 1e13d07 - new text (4 hours ago) <CorneliaZy>
* 60c81bb - Merge pull request #2 from narges-mohammadi/master (3 hours ago) <J. Schwalb-Willmann>
* 8408f6a - Added a line to README.md (4 hours ago) <Sanaz>
* 13f1bf1 - Merge pull request #1 from caro-b/master (3 hours ago) <J. Schwalb-Willmann>

* 4f08e50 - Caro's changes (4 hours ago) <Caroline Busse>
* 707bb86 - added chapters (5 hours ago) <16EAGLE>
* 02ae5dd - added something valuable (21 hours ago) <16EAGLE>
* 8f3a4fb - creating readme (21 hours ago) <16EAGLE>
~/Downloads/MB12$

```

7 The git command itself – *screenshoted*

Follow up on git: Git GUIs and visualizer

Merge pull request #2 from narges-mohammadi/master <small>***</small>	Verified		66c81bb	<>
 16EAGLE committed 3 hours ago				
Merge pull request #1 from caro-b/master <small>***</small>	Verified		13f1bf1	<>
 16EAGLE committed 3 hours ago				
test			57ec0f8	<>
 wavmont committed 3 hours ago				
small change			84777c2	<>
 eagle20-k committed 3 hours ago				
test			cb5a83c	<>
 YumYumYuml committed 3 hours ago				
new change			ca5d477	<>
 vanessarittlinger committed 3 hours ago				
Changes Jana's chapter and added a file			b8151a8	<>
 janameagle committed 3 hours ago				
Dilara's changes			fee93bf	<>
 Dilara Kim authored and Dilara Kim committed 3 hours ago				
my changes			f5d153c	<>
 vanessarittlinger committed 4 hours ago				
new text			1e13d07	<>
 cornellazy committed 4 hours ago				
Added a line to README.md			8408f6a	<>
 narges-mohammadi committed 4 hours ago				
Caro's changes			4f08e50	<>
 caro-b committed 4 hours ago				
added chapters			767h06	<>

8 GitHub – *screenshoted*

Two further sources:

- On Linux: <https://git-scm.com/download/gui/linux>
- General: <https://livesoftware.com/tools-to-visualize-the-history-of-a-git-repository/>



Live coding
Exploring *poll.md* using R



Any questions?

Anonymous feedback via [slido.com](https://www.slido.com), event code **#mb2training**.

What we would like to know from you:

- Is the speed ok?
- Is the session structure ok?
- Is there any content you'd like to be covered?
- Is it boring or not?
- Is it helpful or not?
- Is the presentation style ok?
- Anything else?



Go to slido.com & join #mb2training
Please give feedback using the feedback box.



Coffee time – see you next week