Software Engineering COMP1035

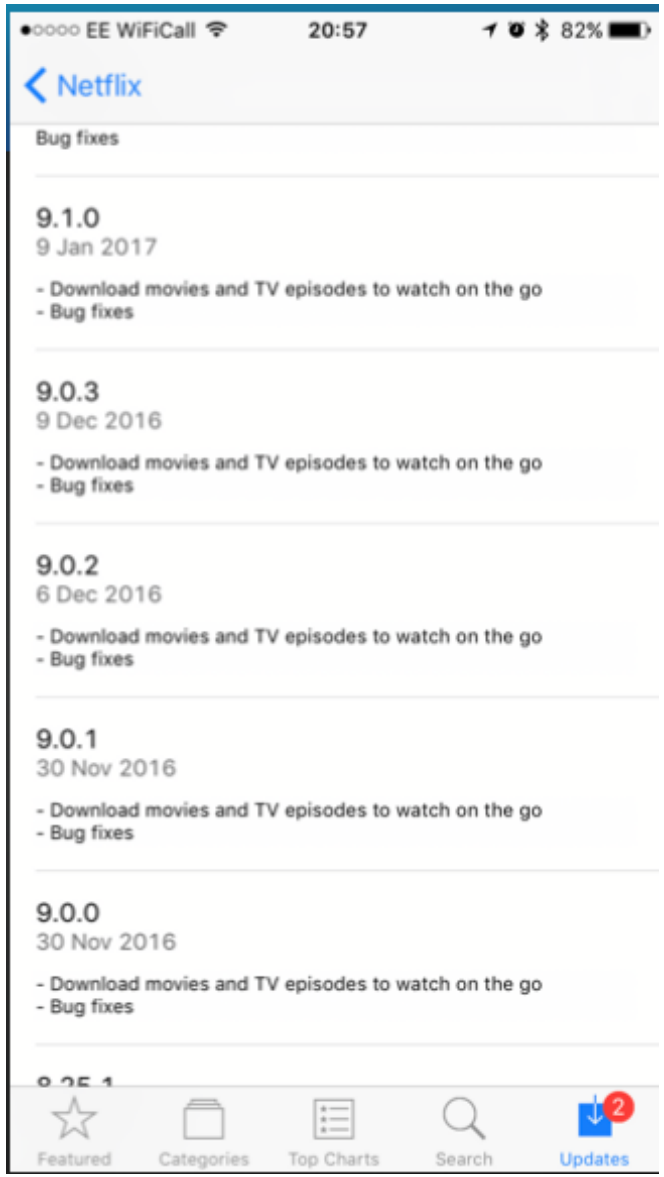
Lecture 02

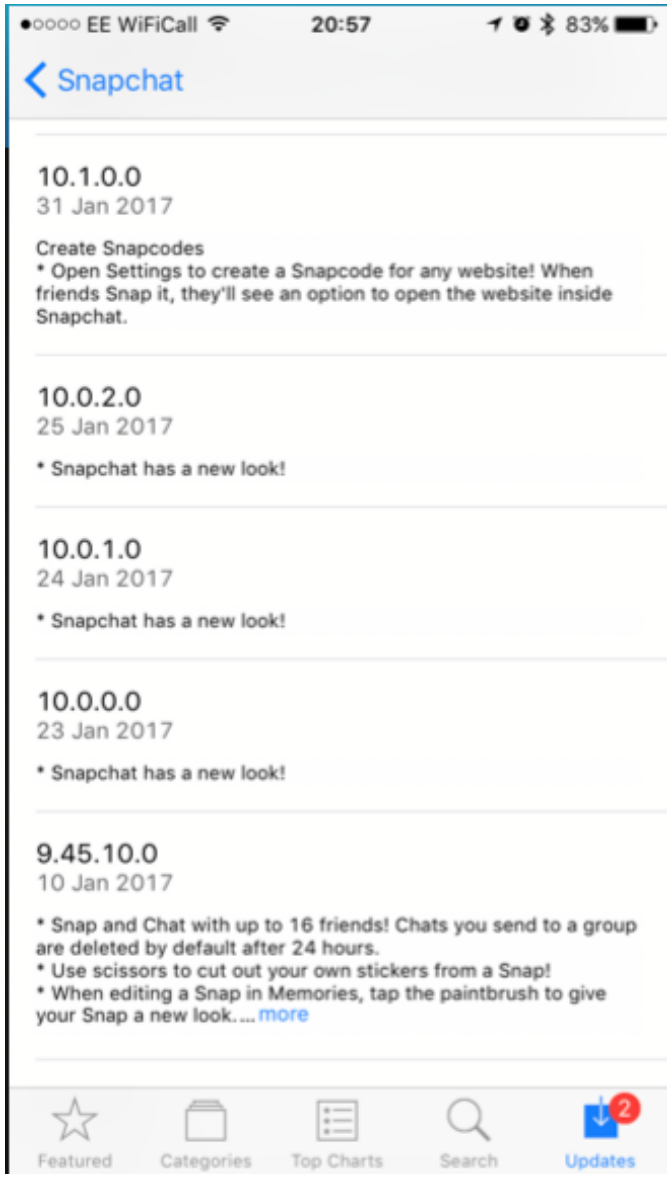
Git Projects

How Projects Use Git

Updated Releases (MacOS)

- https://en.wikipedia.org/wiki/MacOS

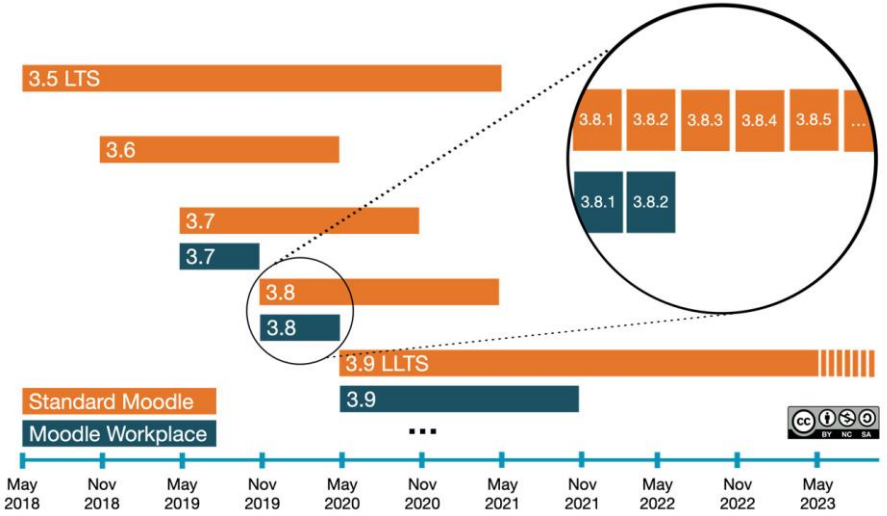

EE WiFiCall
20:57
82%
Netflix
Bug fixes
9.1.0
9 Jan 2017
- Download movies and TV episodes to watch on the go
- Bug fixes
9.0.3
9 Dec 2016
- Download movies and TV episodes to watch on the go
- Bug fixes
9.0.2
6 Dec 2016
- Download movies and TV episodes to watch on the go
- Bug fixes
9.0.1
30 Nov 2016
- Download movies and TV episodes to watch on the go
- Bug fixes
9.0.0
30 Nov 2016
- Download movies and TV episodes to watch on the go
- Bug fixes
Featured
Categories
Top Charts
Search
Updates
2


EE WiFiCall
20:57
83%
Snapchat
10.1.0.0
31 Jan 2017
Create Snapcodes
* Open Settings to create a Snapcode for any website! When friends Snap it, they'll see an option to open the website inside Snapchat.
10.0.2.0
25 Jan 2017
* Snapchat has a new look!
10.0.1.0
24 Jan 2017
* Snapchat has a new look!
10.0.0.0
23 Jan 2017
* Snapchat has a new look!
9.45.10.0
10 Jan 2017
* Snap and Chat with up to 16 friends! Chats you send to a group are deleted by default after 24 hours.
* Use scissors to cut out your own stickers from a Snap!
* When editing a Snap in Memories, tap the paintbrush to give your Snap a new look. ... more
Featured
Categories
Top Charts
Search
Updates
2

Moodle Versions

"Since version 2.0, Moodle aims to release the new major version every six months or so".

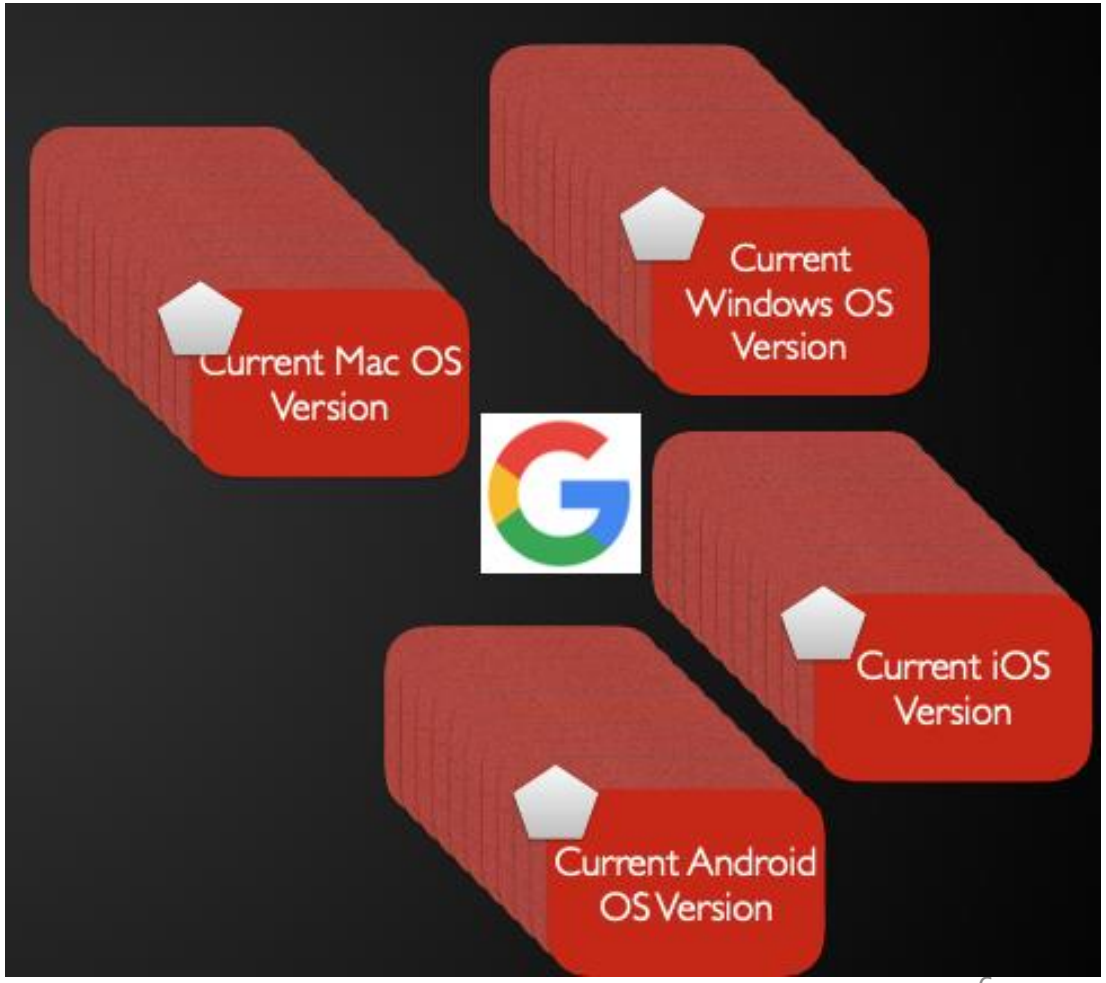
Minor versions are released every two months, including both bugs and security issues fixed.



https://docs.moodle.org/dev/Moodle_versions

Versions of Google Chrome

- Issues new versions on a regular basis.
- Has trial-test releases before each public release.
- Need to build each release to multiple platforms.



Chromium Dev Channel

- Stable versions – currently version 80.0.3987.87.
- Beta versions – version66.0.3359.33 (Official Build) beta.
- Dev versions – more often than weekly.
- Canary builds – are the bleeding edge. Released daily, this build has not been tested or used, it's released as soon as it's built.
- Other builds: "**If you're absolutely crazy**, you can download the latest working (and that's a very loose definition of working) build from download-chromium.appspot.com."

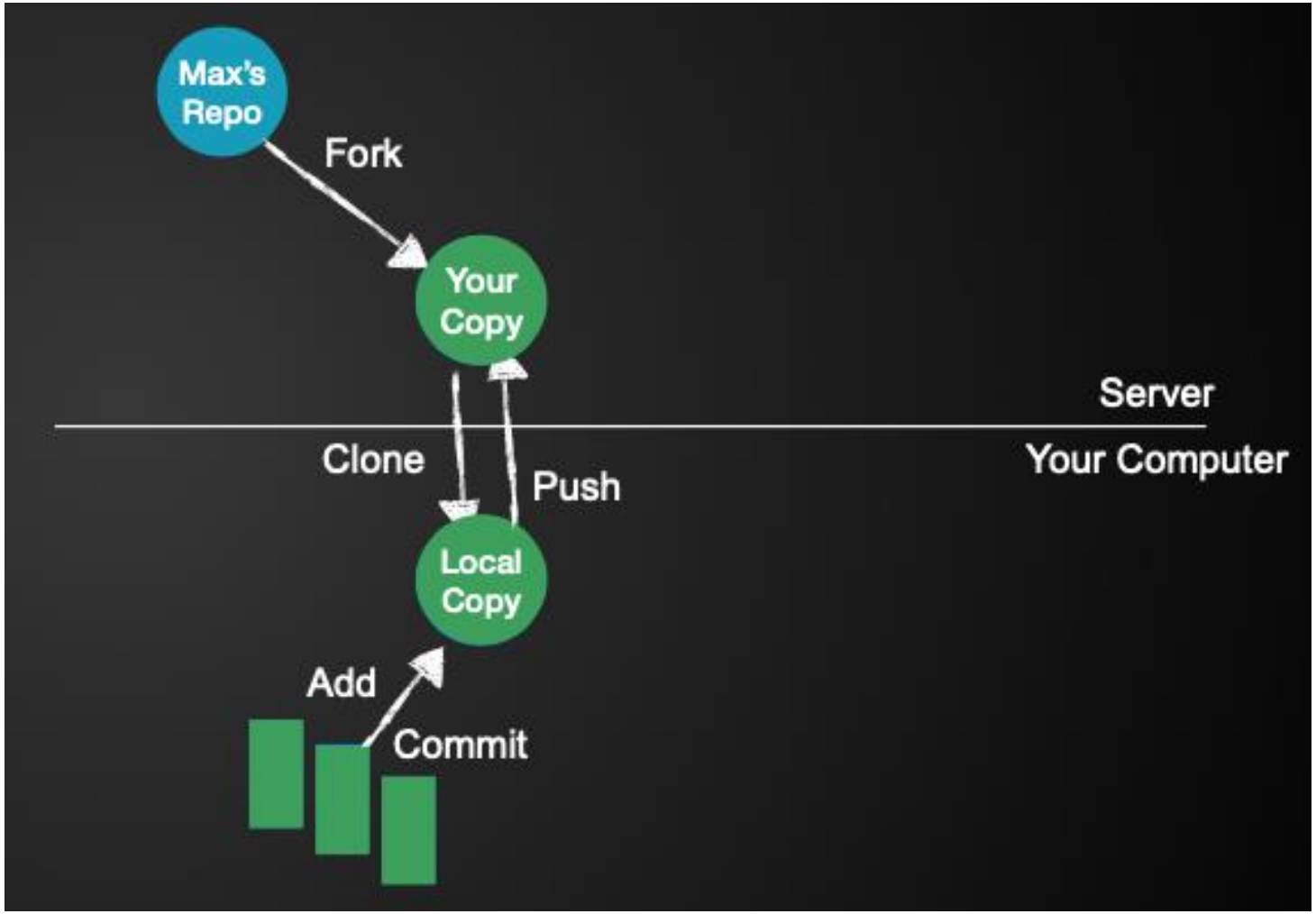
https://www.chromium.org/getting-involved/dev-channel

https://www.thewindowsclub.com/chrome-stable-beta-dev-canary

Overview

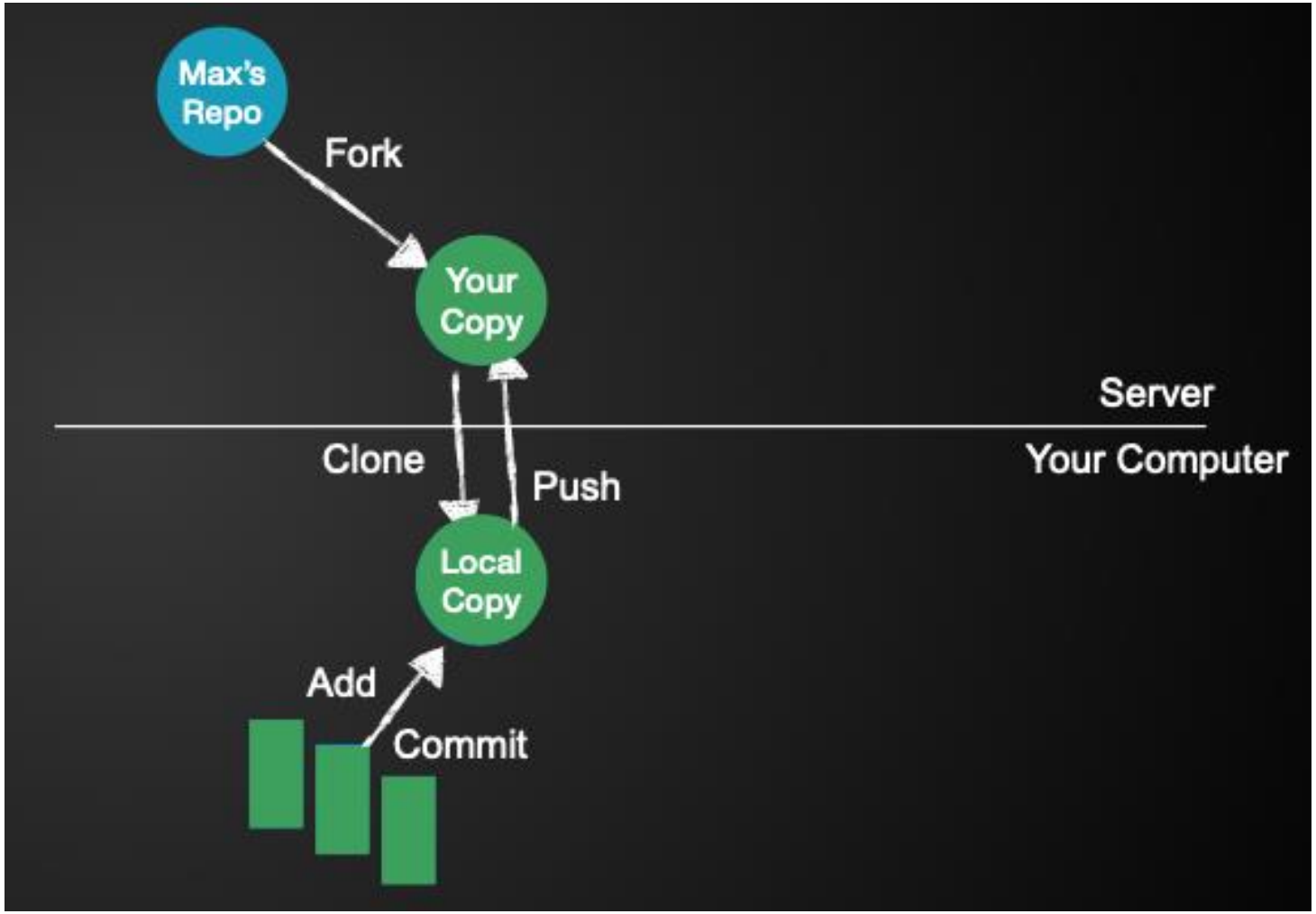
Semester 2

- You will be learning:
  - Fork
  - Clone
  - Status
  - Diff
  - Add
  - Commit
  - Push
- This was an individual repository.



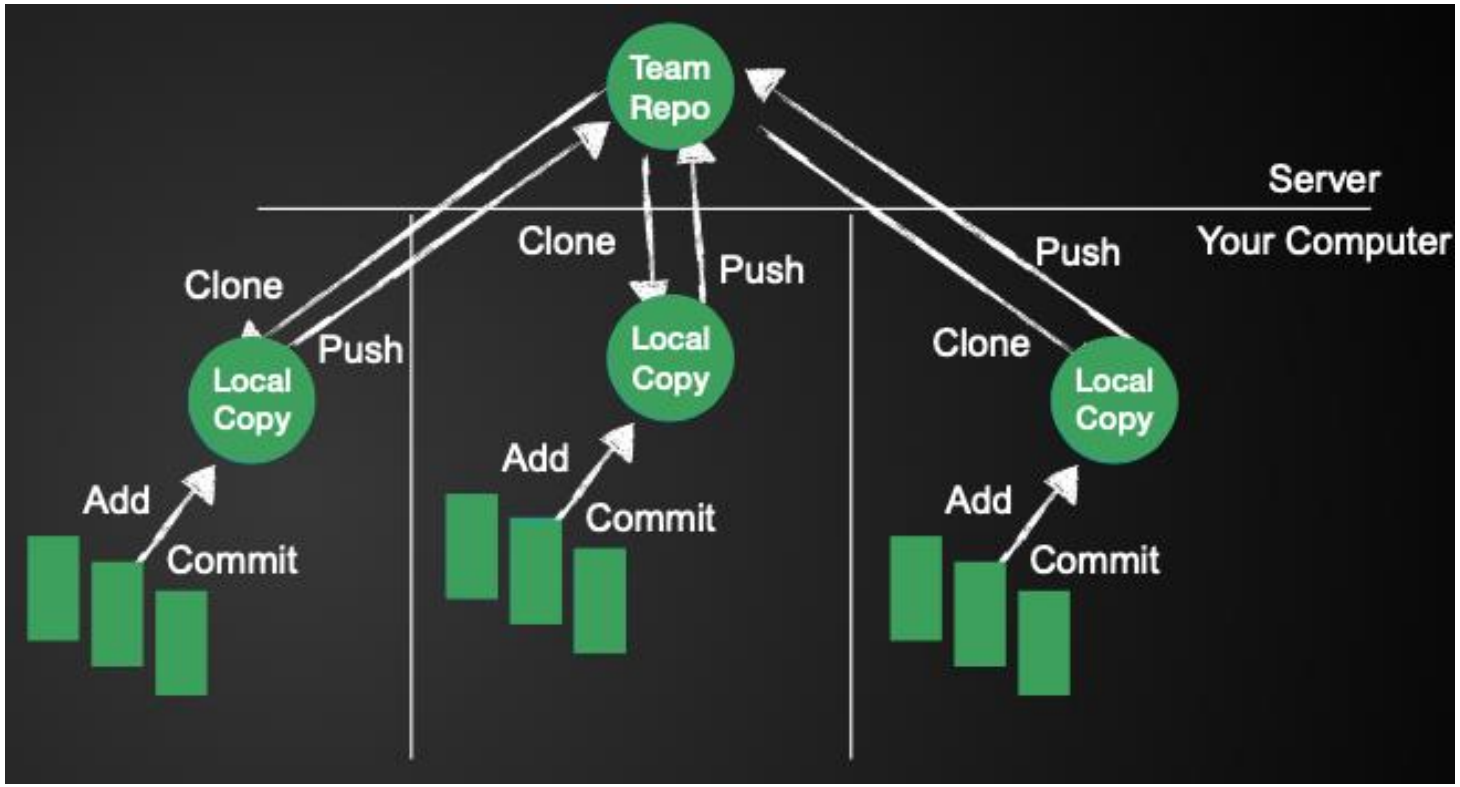
Semester 2

- A fork is a copy of a repository.
- You'll learn in Lab-01.

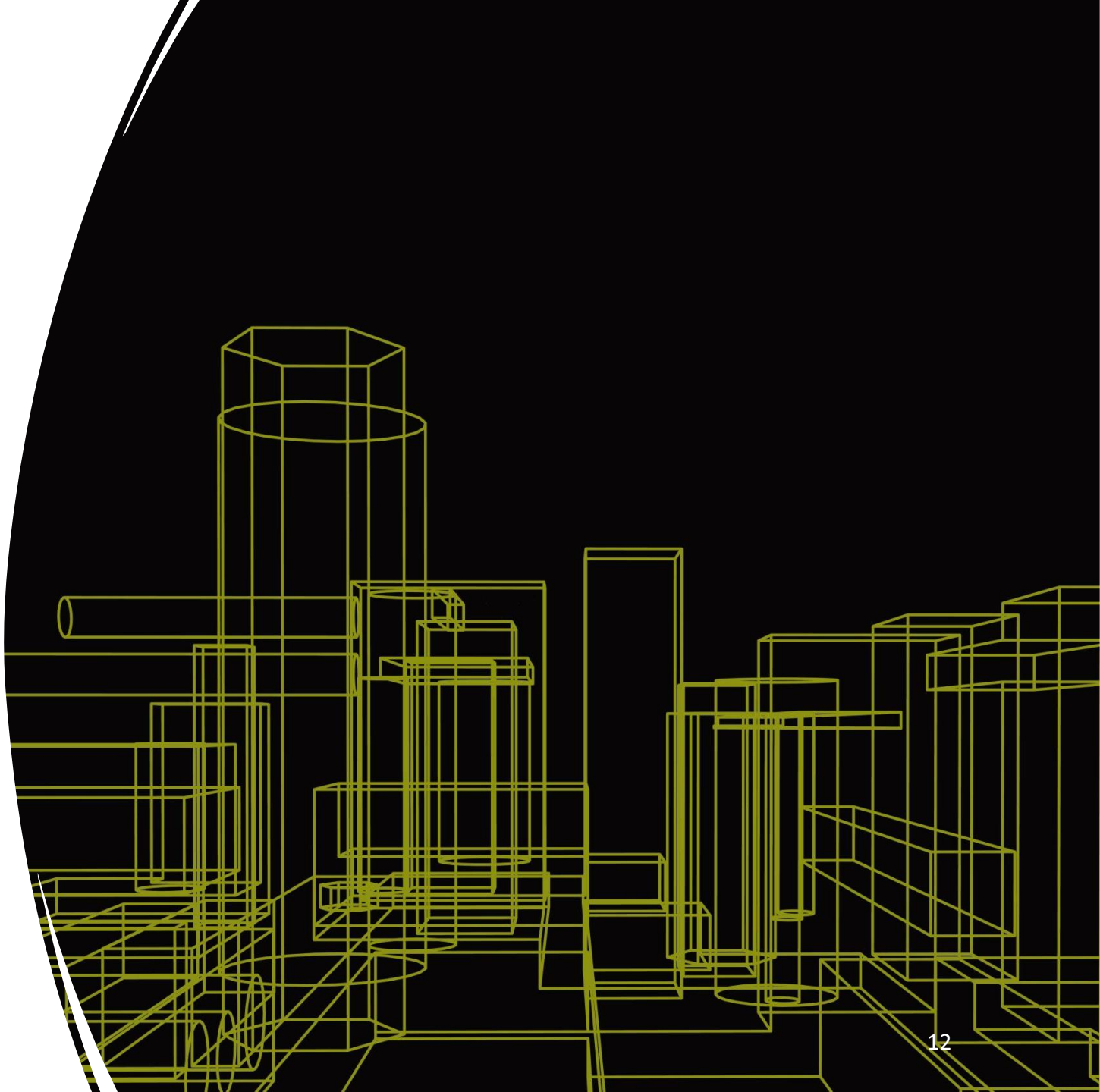


Semester 2

- Team actions
  - Pull before Push.
  - Conflict resolution.



Some Fundamentals



Git is Designed to Protect Code (hence Version **Control**)

- It will keep a history of everything.
  - It's hard to lose a file.
  - You can always find an old copy.
- It's designed to stop multiple people overwriting changes by mistake.
  - It will tell you when someone else has changed things.
  - And ask you integrate them before you submit yours.
- It lets you work on copies (branches).
  - So that you aren't 'messing with the main version.
    - We're going to do branching later in this term.

You See a ‘View’ (called **HEAD**)

- A git folder has a complex structure of files behind it.
  - See the **`.git`** hidden folder!
  - This may include many versions of the same code.
  - Could have many ‘folders’, which could have different or additional files in it.
- If you never branch or anything, it’s not that complex.

You See a ‘View’ (called **HEAD**)

- In abstracted terms
  - It has the main code folder and a staged/working folder.
  - **`git add`:** you are saying ‘I want to move this file to the main code folder’.
  - **`git commit`:** you commit it into the main code folder.
  - It’s a bit more complex than that because it remembers every commit you made ever too.
- In your ‘view’ – you see whichever version you are ‘working on’.
  - Based on which branch the **`git checkout`**.
  - With the upated files you’ve edited before you add/commit.

Try **git log** to see it.

Git Folders Have a History

- At any time, you can step backwards to a previous commit.
  - Perhaps to before you broke it.
- You could roll back an entire git folder if you really broke it.
- You can extract a single file out of an old commit too.
- Or you can checkout an old commit >> a new branch.
  - You can play with it there, if that helps figure something out.
    - And then just delete the branch later (for cleanup).
- It’s designed to keep your code-base safe.

Git Folders Clone a Remote Git Folder

- When **`git push`** and **`git pull`:**
  - Git is doing a comparison to see what the difference is between yours.
- This means you can have an official source on e.g., a server.
- And you have a working copy, which you can dump if you want.
- Or when you think your copy is safely correct.
  - You can update the official source.

Different Group Members

Designed to Support Multiple People

- Multiple people have their own copy, and **`git push`** updates to server.
- Git will automatically handle anything that's easy.
  - Like you added a file – so it'll just push it.
- Even when someone else has edited a different bit of the same file.
  - Git will say – those are different bits, so I can merge those easily.
- And when it can't - it'll ask you to do it "intelligently".
  - Before it pushes, it grabs the remote changes.
  - It combines both changes into one file, that you must edit before you can push.
  - When you have resolved it, then you can **`git push`**.

What's Going On

Git Push	”I'd like to push my changes please.”
	“Sorry Mary – cannot do. Jeff changed a few things since you pulled. Have a look first.”
Git Pull	”Let's have a look then”.
	“OK, here's the things Jeff changed, mushed with yours. Look at that file in particular and let me know when it's all working at your end”.
[edit file]	“Ah I see, I'll combine these bits. Like this …”.
Git Push	“OK try that”.
	”Cheers Mary, I'll make sure other people pull this shiny code before they push”.

.gitignore

.gitignore

- This is a list of types of files that git will ignore.
- This means you can get git to only manage source code files.
  - And ignore all build files, .exe's etc.
  - Can also ignore any private files – perhaps a txt file that has an authentication token in it.
- Very useful for projects.
- You can find all sorts of .gitignore files for different programming languages online.

Git tag

git tag –a v1.2 –m “version 1.4”

- Basically, gives a friendly name to a commit.
- This can be a working version that is ready to release.
- This can be a version you want to show someone (like a supervisor).

- Use **`git push –follow-tags`** to make sure the server gets that tag.

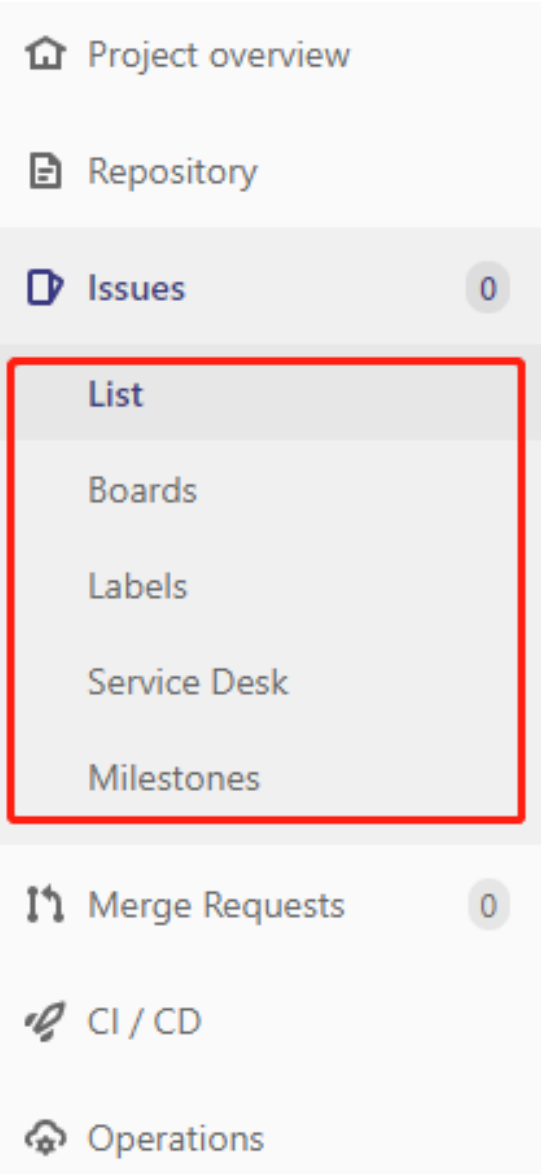
Why Doesn’t E.g., Dropbox Work Instead?

Why Don’t Collaborative Editors (Like Google Docs) Work for This?

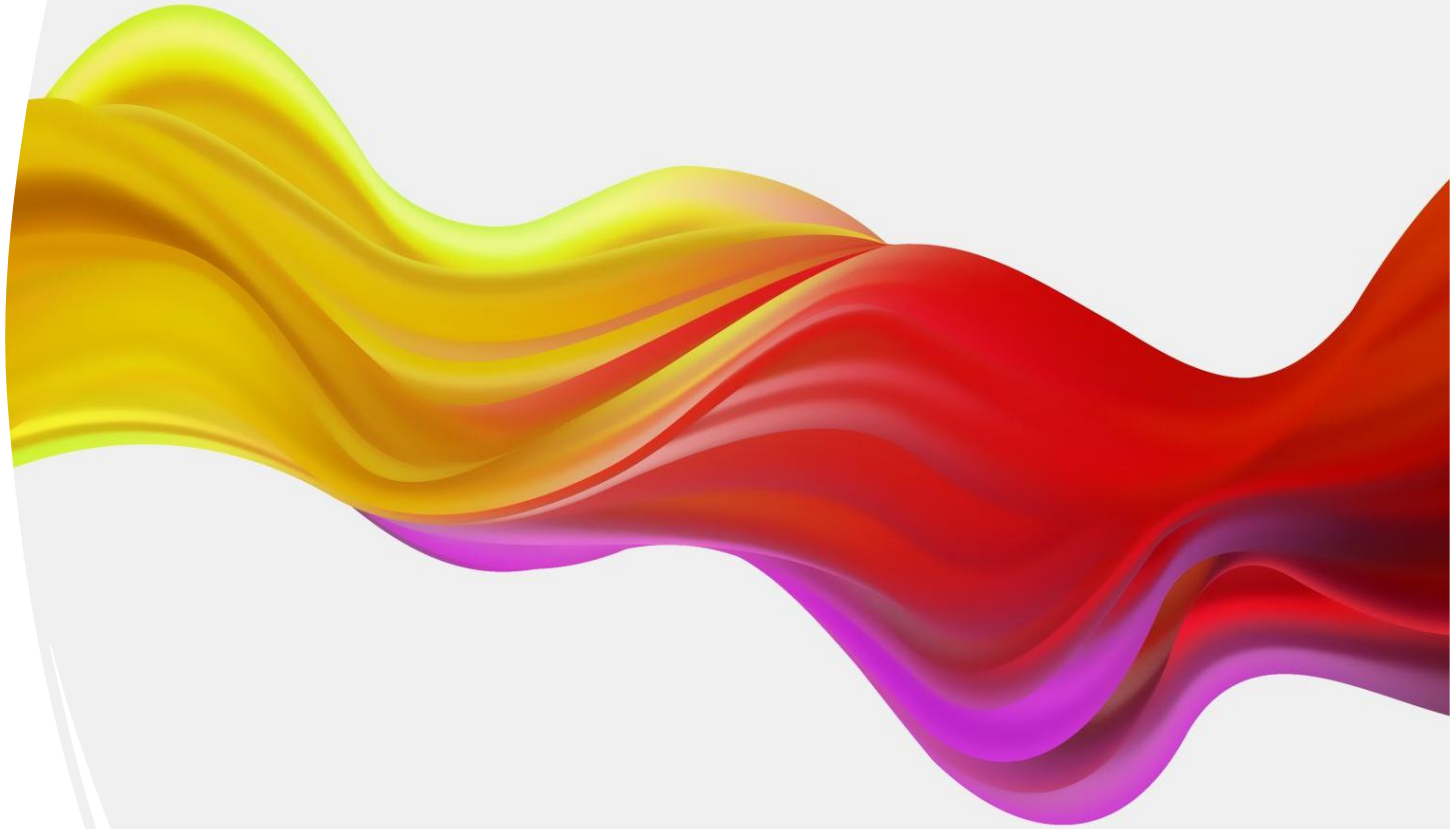
Milestones, Issues, and Labels

Milestones, Issues, Labels

- Can use milestones to track progress.
- You can associate a milestone with issues and pull requests.
- Label can help you to organize and tag your work so you can track and find work items.



Multi-Users Demonstration Video




THANK
YOU