

Using Git

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Acknowledgements

- Adapted from a lecture at Cambridge (under CC-NC-SA)
- <https://missing.csail.mit.edu/2020/version-control/>



<https://xkcd.com/1597/>

So what is Git

- Version Control System (VCS)
 - So like Dropbox, but better
- A command line tool
- How you will hand in all assignments, for this course, and more to come

Sidenote: Authentication

1. Generate a keypair

```
1 ssh-keygen -t ed25519
```

sh

2. Upload to Gitlab

3. Test if it works

```
1 ssh -vT git@gitlab.ewi.tudelft.nl
```

sh

```
1 # We expect to see the following response
```

sh

```
2 OpenSSH_8.6p1, LibreSSL 2.8.3
```

```
3 [...]
```

```
4 Authenticated to gitlab.ewi.tudelft.nl ([131.180.119.16]:22).
```

```
5 [...]
```

```
6 Welcome to GitLab, @[username]!
```

The Absolute Basics

1. Clone
2. Commit
3. Push + Pull

Basic Commands

Clone

```
1 git clone <URL>
```

sh

Commit

```
1 # First edit a file
```

```
2 git add <file>
```

```
3 git commit -m "I changed <file>"
```

sh

Push

```
1 git push
```

sh

Branching + Merging

1. Switching between branches

```
1 git checkout <branch>
```

sh

2. Creating new ones

```
1 git checkout -b <branch>
```

sh

3. Merging changes

```
1 git checkout main
```

sh

```
2 git merge other
```


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4. Conflicts

```
1 Auto-merging README.md
```

sh

```
2 CONFLICT (other): Merge conflict in README.md
```

Branching + Merging

3 `Automatic` merge failed

Wait what did I just do?

Git Log

```
1 git log
2 # or
3 git log --all --graph --decorate
```

sh

Remote(s)

```
1 git remote -v
```

sh

Gitlab

Gitlab also helps us with our project workflow

- Merge
- Review
- Plan

Questions?