

# Source control with git

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# What is version control?

Did you ever play a computer game without saving your progress ?

# What is version control?

- Allows you to go back in time and restore your code to a specific version
- Can be used for all kinds of text based documents (not just code)
- Allows to share code with others and work on the same documents

# Available version control Systems?

- cvs (outdated)
- svn (centralized server)
- mercurial (competitor to git easier to understand)
- git (by far the most used system)

# Interest over time

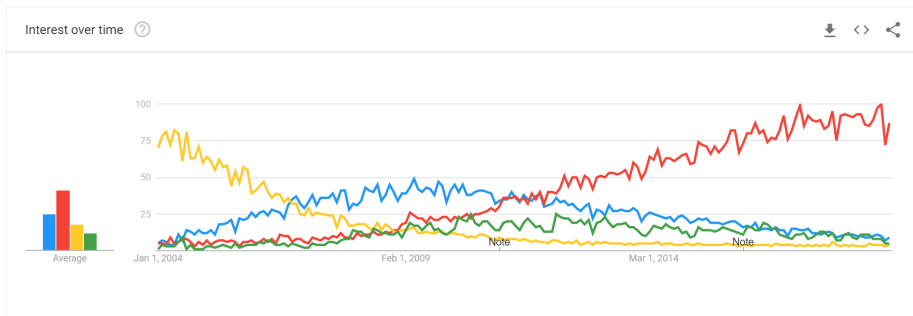


Figure: git=red

Linus Torvalds: I'm an egotistical bastard, and I name all my projects after myself. First 'Linux', now 'Git'

Urban Dictionary: git: A completely ignorant, childish person with no manners.

- written to manage the linux kernel
- today almost all open-source projects are managed with git

# Exercise 1 (initialization)

- get a remote repository somewhere and clone it
  - git clone ...
- add some files
  - git add ...
- commit them
  - git commit -a
- push the commit(s) to the remote repository
  - git push

## Exercise 2 (show differences)

- change some of the files you added
- show the changes you made
  - `git diff`
- commit the changes
  - `git commit -a`
- push them to the remote repository
  - `git push`



## Exercise 3 (commit log)

- show the commit log
  - `git log`

## Exercise 4 (reverting to a revision)

- get the commit hash of the oldest version
  - `git log`
- revert to this version
  - `git revert the-hash..HEAD`
  - check the files in your folder (`ls -l`)
- check the log again
  - `git log`

# Clone my repository

- 1 `cd /whatever/folder/you/want (cd $HOME)`
- 2 `git clone https://github.com/kemnitzs/hpc.git`

# Pull my changes

1 `git pull`

# Provoke a merge conflict

- 1 change the username in merge\_conflict.txt
- 2 wait until we are all done with this
- 3 git pull
- 4 vim merge\_conflict.txt