

Software Engineering: Tutorial 1

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Organisational matters

General information

- The tutorial starts at c.t., that is, at 12:15 o'clock
- Attendance is not mandatory
- Please bring your laptop if possible
- Relevant material presented during the tutorial will be uploaded to [Github](#)

Format of the tutorial

- Discuss common mistakes in your assignments
- Provide additional useful knowledge with respect to the lecture, e.g., basic terminal usage
- Prepare you for your assignments
- Answer your questions regarding the assignments
 - For general questions regarding the lecture, please ask directly in the forum

Basic terminal usage

Poll

1. Who of you has previous experience working with the command line?
2. Who is regularly using the command line during their normal workflow?

For advanced users

1. Create a function `mkcd` that is accessible from the terminal.
 - `mkcd [FOLDER]` : creates a new folder and navigates to it using `cd`
2. Make sense of the following command and decide what the output might be:
 - `cat file.txt | sort | uniq > out.txt`

Useful commands

command	usage
ls	show files in current directory
cd [DIR]	changes the current working directory
pwd	prints the current working directory
mv [FILE]* [FILE]	moves one or more file(s) to another directory
cp [FILE]* [File]	copies one or more file(s) to another directory
touch [FILE]	creates a new file
mkdir [-p] [FILE]	creates a new directory

Useful commands

command	usage
cat [FILE]	outputs the content of a given file
path/to/executable	executes an executable
[CMD1] [CMD2]	redirects the output of CMD1 to CMD2 as input
[CMD] > out.txt	writes the output of CMD to the file out.txt
[CMD] >> out.txt	appends the output of CMD to the file out.txt
man CMD	shows the manual/documentation for a given command

Questions

Are there any questions?

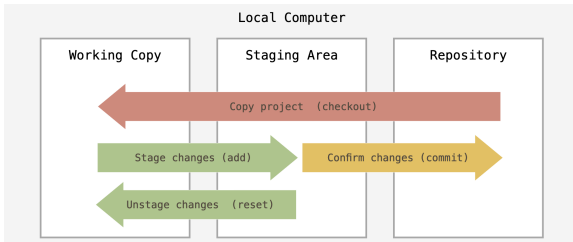
git recap

For advanced users

1. Play around with `git bisect`: [here](#)'s an example
2. Make sense of `git reflog`
3. Figure out the use of `git stash`

Summary

- git is the de-facto standard VCS
- snapshot based
- decentralized



Working Copy vs. Staging Area vs. Repository

Working Copy The **working copy** is the project folder that is currently under git version control. The working copy consists of “normal” files outside the `.git`, that can be altered.

Staging Area The **staging area** is like a drafting area. It is also called **index** and contains snapshots of files to be committed.

Repository The **repository** is represented by the `.git` folder. The repository **contains the whole history** of the project, e.g., commits and file snapshots. For example, this is also what is stored on Github.

Common commands

- `git help cmd`
- `git add file`
- `git checkout file`
- `git init`
- `git reset file`
- `git commit`
- `git status folder`
- `git log`
- `git diff`
- `git show commit`

Other useful commands and options

- `git add -p`
 - interactively add files
- `git add -u`
 - only re-add files the index that already have been added previously
- `git mv file`
 - move the working copy of a file and reflect the change in the index
- `git rm file`
 - remove the working copy of a file and reflect the change in the index

Questions?

Are there any questions?

Useful links

- git visualizer: <https://git-school.github.io/visualizing-git/>
- git branching tutorial: <https://learngitbranching.js.org/>
- git cheat sheet: <https://training.github.com/downloads/github-git-cheat-sheet.pdf>