

# Software Engineering: Tutorial 1

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David Voigt

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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**

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

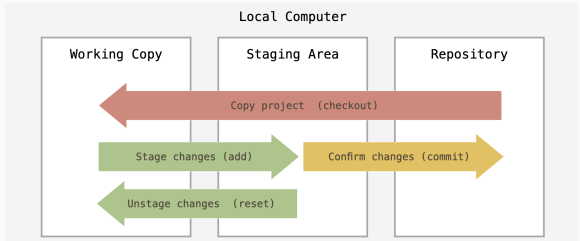
**git recap**

## 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** 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>