Avanceret Programmering (Uge 40)

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Today

- Project
- Git / Github
- Sorting

Section 1

Project

Project

100 hours project.

- Due December 10th
- Deliveries and presentations (5 min) every 2 weeks:
  - October 8th
  - October 29th
  - November 12th
  - November 26th
- Delivery: Github-link with `README.md`.
- Exam: Presentation of project with follow-up questions.

Section 2

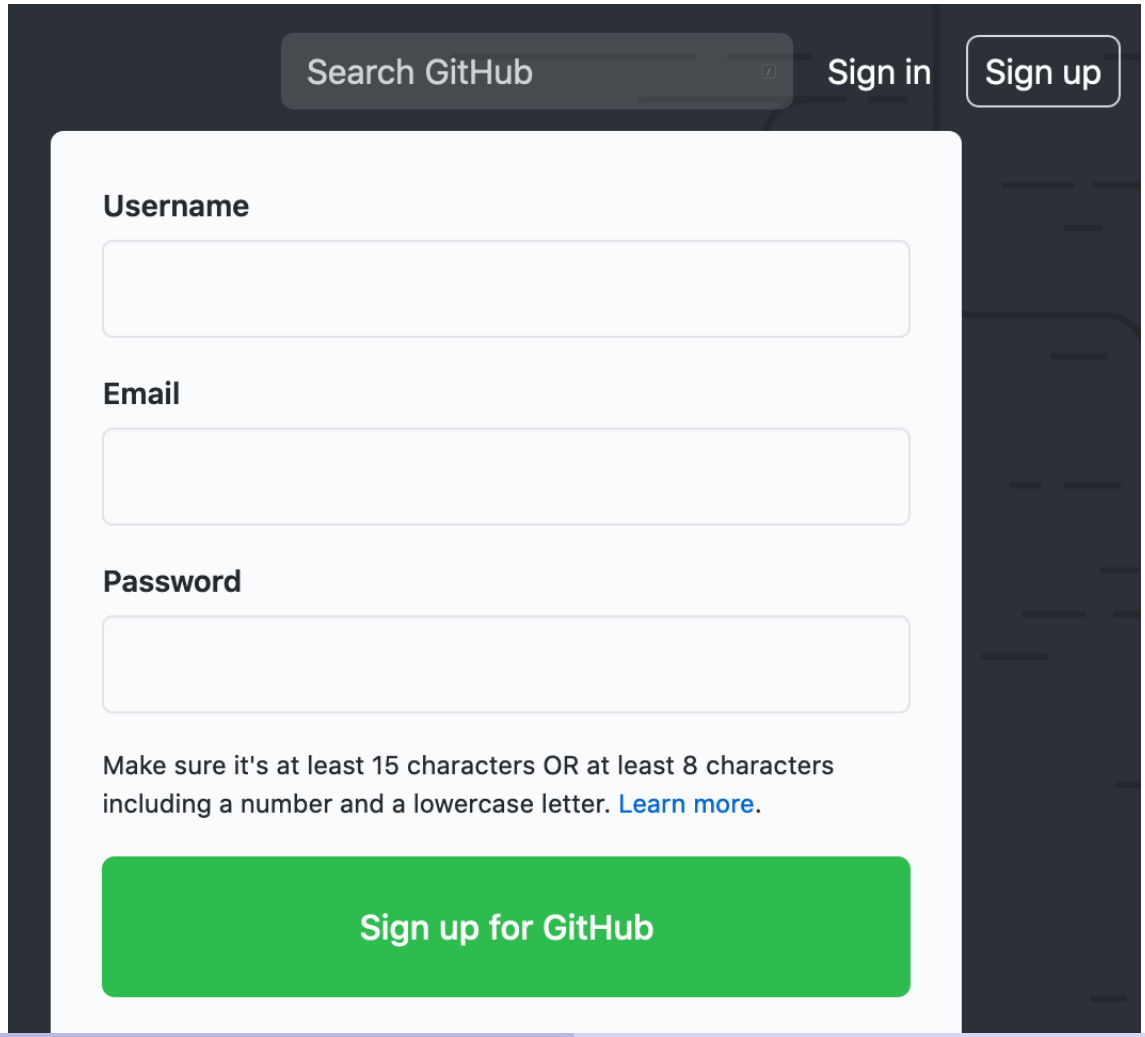
Git / Github

Git

Git is a Version Control System. It is almost impossible to do any kind of development without it.

Github - Create User

Create a user on GitHub



Github - Create Repository

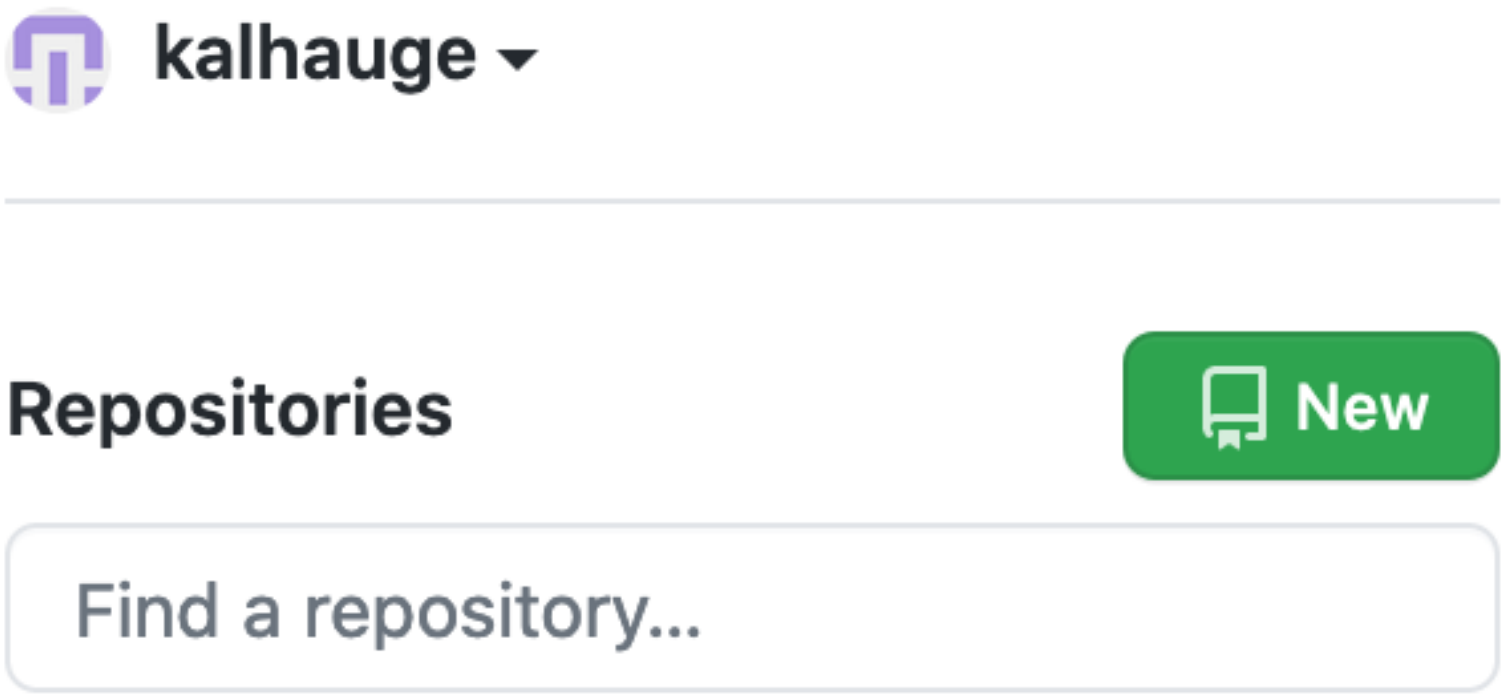


Figure 2: Create a Repository

Github - Create Repository (cont.)

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? Import a repository.

Repository template
Start your repository with a template repository's contents.

No template

Owner * **Repository name** *

kalhauge /

Great repository names are short and memorable. Need inspiration? How about **verbose-carnival**?

Description (optional)

Public
Anyone on the internet can see this repository. You choose who can commit.

Private
You choose who can see and commit to this repository.

Initialize this repository with:
Skip this step if you're importing an existing repository.

Add a README file
This is where you can write a long description for your project. Learn more.

Add .gitignore
Choose which files not to track from a list of templates. Learn more.

Choose a license

Git - Basics

Commit

A specific point in time of the code

Staging

The place you put things to be committed.

Branch

A pointer to a Commit.

Remote

A remote storage of the version history.

Git Bash

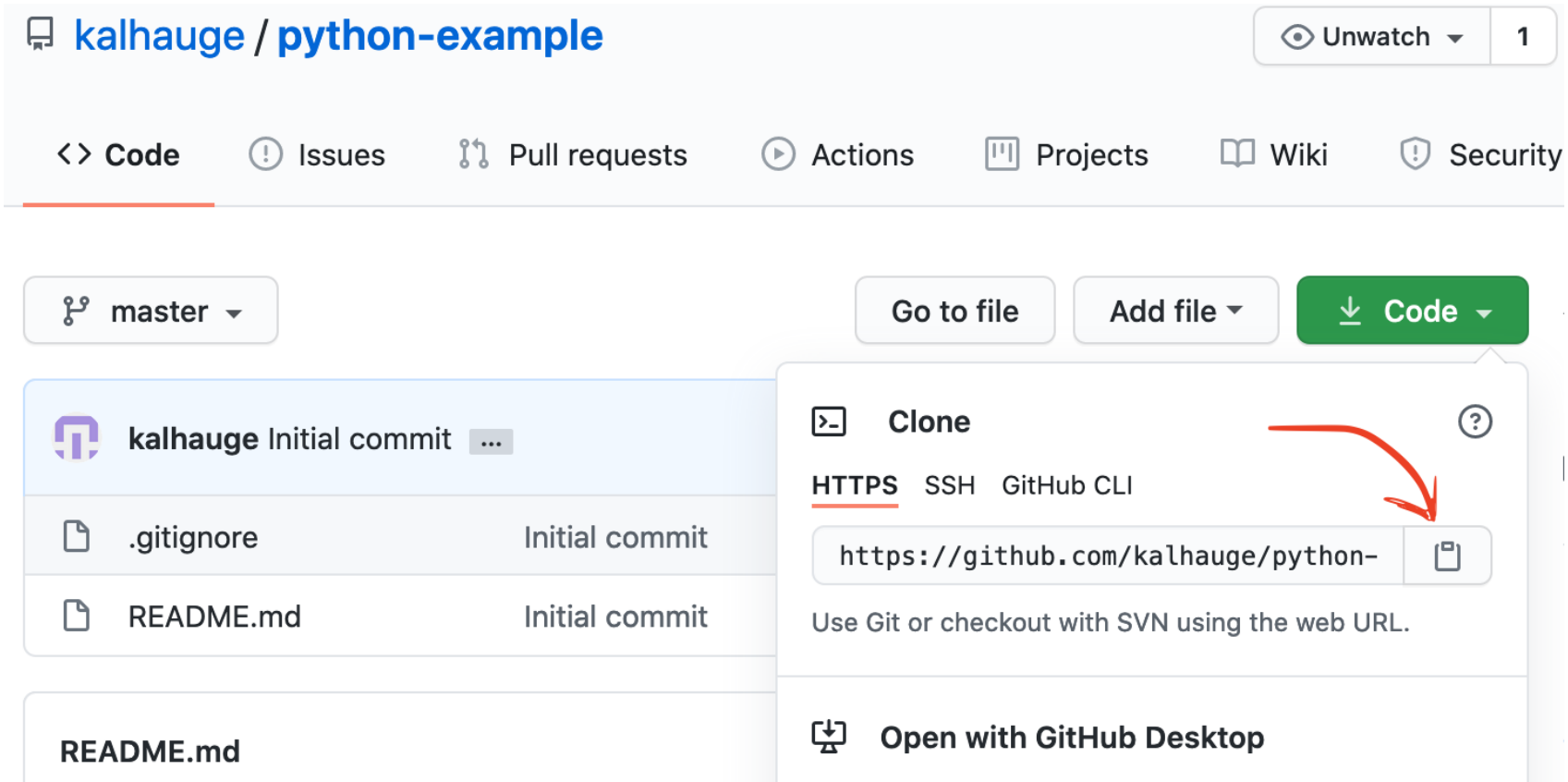
Download and install Git Bash from here:

https://gitforwindows.org/

Git' Started

Open `Git Bash` in the folder you'll like the code in.

```
$ git clone <paste-url>
```



Git' Setup

```
$ git config --global user.name "Christian Kalhauge"
$ git config --global user.email ckl@cphbusiness.dk
```

Git' Going

When you have made changes to your repository:

```
# stage all changes
$ git add .
# commit the staged changes with a commit message
# change <commit-message> with your message
$ git commit -m '<commit-message>'
# push the results to the remote
$ git push
```

Git' A Grip

See the status of the repository

```
$ git status
```

See the history

```
$ git log --oneline --graph --all
```

Git' Back

Undo all your changes since last commit:

```
$ git checkout .
```

Go back a commit

```
$ git reset --hard HEAD^
```

Go back to the last version you uploaded

```
$ git reset --hard origin/master
```

Git' Good

https://www.youtube.com/watch?v=2sjqTHE0zok

https://git-scm.com/book/en/v2/

https://davidenunes.com/git-good/

Section 3

Sorting

Test if a list is sorted – Exercise

`issorted.py`

Bubblesort - Execise

https://en.wikipedia.org/wiki/Bubble_sort

`bubblesort.py`

Merge - Execise

`merge.py`

Mergesort - Exercise

https://en.wikipedia.org/wiki/Merge_sort

`mergesort.py`

Quick-Sort

https://en.wikipedia.org/wiki/Quicksort

`quicksort.py`