

Brief intro to Git(Hub)

Git(Hub)

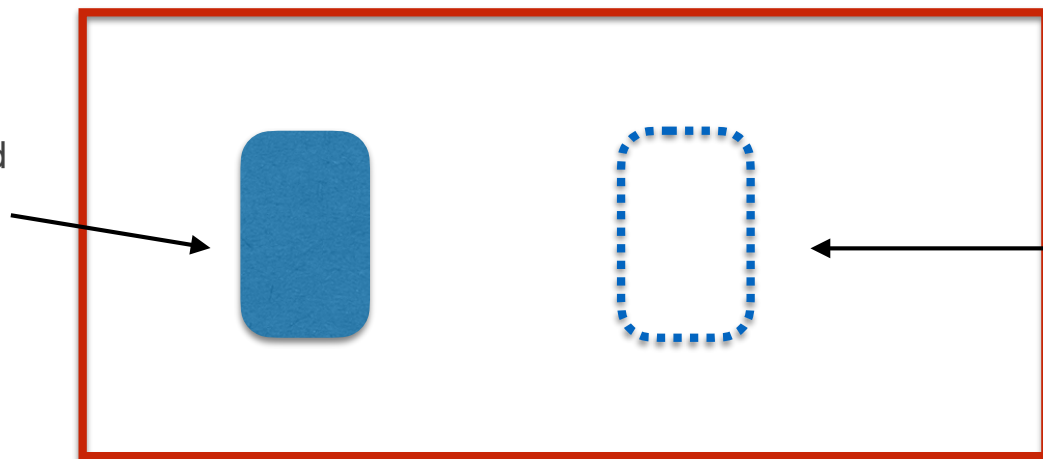
- Git is a **version control system**:
 - allows simultaneous work of different people on the same project
 - tracks the changes (**‘commits’**) made by each member
 - helps solve the **conflicts** between various versions
- GitHub is a platform which hosts Git projects (**‘repositories’**)
 - is free to use
 - required to create a (free) account
 - can be used in command line or using GUI tools (**‘GitHub Desktop’**)

Git repository

repository



this file is registered
in the database
(‘committed’)



this file exists, but
has not been
registered yet
OR
the file has been modified, but
the changes have not been
registered yet

1. Cloning an existing repository

User's computer

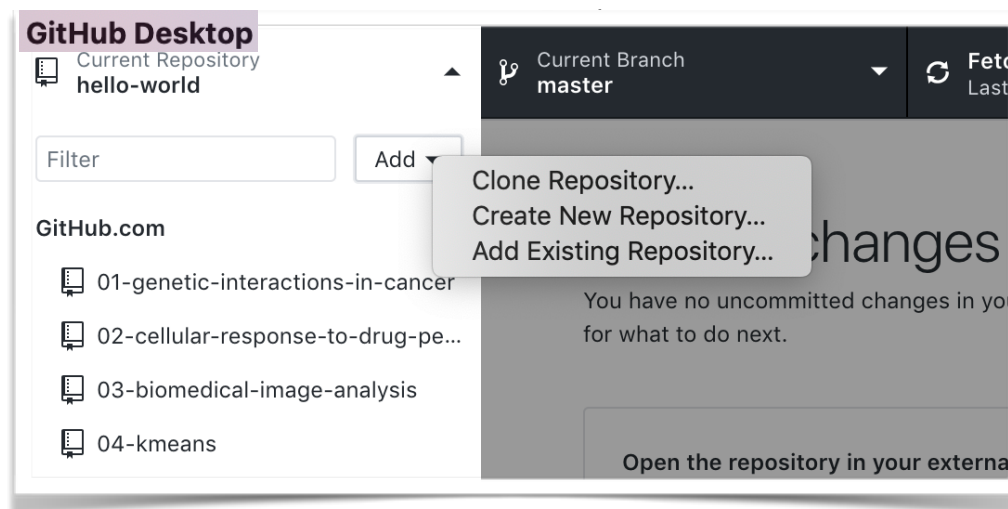


 **GitHub**

Team's repository



cloning





Current Repository
hello-world

Current Branch
master

Fetch origin
Last fetched 19 minutes ago

Changes

History

☒ 0 changed files

No local changes

You have no uncommitted changes in your repository! Here are some friendly suggestions for what to do next.

Open the repository in your external editor

Configure which editor you wish to use in [preferences](#)

Repository menu or ⌘⇧A

Open in Visual Studio Code

View the files in your repository in Finder

Repository menu or ⌘⇧F

Show in Finder

Open the repository page on GitHub in your browser

Repository menu or ⌘⇧G

View on GitHub

sd

Summary (required)

Description

⤵

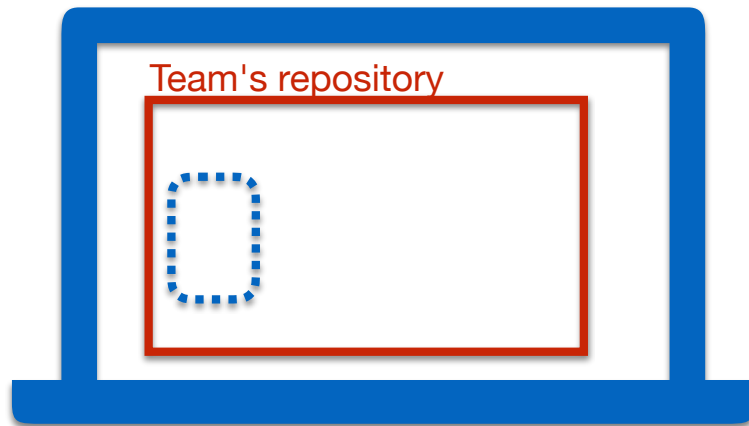
Commit to master

Carl Herrmann

Health Data Science Unit - Medizinische Fakultät Heidelberg

2. creating a local file

User's computer



Team's repository



- When a new file is added / modified in the local folder, it is not yet registered in the git database!
- it first needs to be **committed**



lberg

Current Repository
hello-world

Current Branch
master

Fetch origin
Last fetched 22 minutes ago

Changes 1

History

my_markdown.Rmd

@@ -0,0 +1,30 @@

1 +---

2 +title: "My first markdown"

3 +author: "Carl Herrmann"

4 +date: "4/23/2019"

5 +output: html_document

6 +---

7 +

8 +```{r setup, include=FALSE}

9 +knitr::opts_chunk\$set(echo = TRUE)

10 +```

11 +

12 +## R Markdown

13 +

14 +This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <<http://rmarkdown.rstudio.com>>.

15 +

16 +When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

17 +

18 +```{r cars}

19 +summary(cars)

20 +```

21 +

22 +## Including Plots

23 +

24 +You can also embed plots, for example:

1 changed file

my_markdown.Rmd

↑

new file created locally

sd

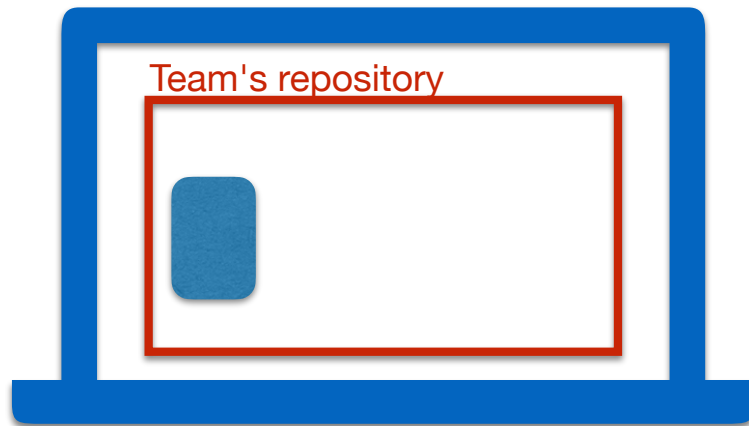
Create my_markdown.Rmd

Description

Commit to master

2. Adding a file

User's computer



 GitHub

Team's repository



- When a new file is added / modified in the local folder, it is not yet registered in the git database!
- it first needs to be **committed**



Current Repository
hello-world

Current Branch
master

Fetch origin
Last fetched 22 minutes ago

Changes 1

History

my_markdown.Rmd

1 changed file

my_markdown.Rmd

indicate the
type of changes made
and commit

↓

sd

Create my_markdown.Rmd

Description

Commit to master

@@ -0,0 +1,30 @@

1 +---

2 +title: "My first markdown"

3 +author: "Carl Herrmann"

4 +date: "4/23/2019"

5 +output: html_document

6 +---

7 +

8 +```{r setup, include=FALSE}

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HTML, PDF, and MS Word documents. For more details on using R Markdown see <<http://rmarkdown.rstudio.com>>.

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16 +When you click the **Knit** button a document will be generated that includes both co
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embed an R code chunk like this:

17 +

18 +```{r cars}

19 +summary(cars)

20 +```

21 +

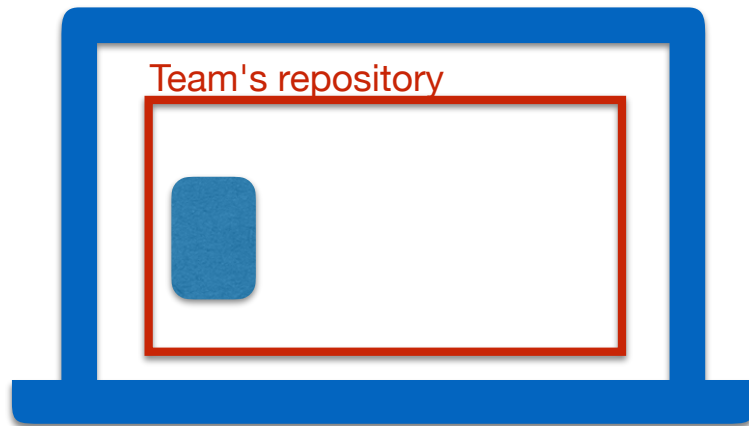
22 +## Including Plots

23 +

24 +You can also embed plots, for example:

2. Adding a file

User's computer



 **GitHub**

Team's repository



- the file is now committed to the local git repository
- it needs to be pushed to the remote repository on GitHub



Current Repository
hello-world

Current Branch
master

Push origin
Last fetched 30 minutes ago

Changes

History

0 changed files

Summary (required)

Description

Commit to master

Committed just now

Create my_markdown.Rmd

Undo

No local changes

You have no uncommitted changes in your repository! Here are some friendly suggestions for what to do next.

Push 1 commit to the origin remote

You have one local commit waiting to be pushed to GitHub

Always available in the toolbar when there are local commits waiting to be pushed or P

Push origin

Open the repository in your external editor

Configure which editor you wish to use in [preferences](#)

Repository menu or A

Open in Visual Studio Code

View the files in your repository in Finder

Repository menu or F

Show in Finder

Open the repository page on GitHub in your browser

Repository menu or G

View on GitHub



test repository

Edit

Manage topics

2 commits

1 branch

0 releases

1 contributor

Branch: master

New pull request

Create new file

Upload files

Find File

Clone or download

 **carlherrmann** Create my_markdown.Rmd

Latest commit b2b0bdf 2 minutes ago

 [README.md](#)

Initial commit

37 minutes ago

 [my_markdown.Rmd](#)

Create my_markdown.Rmd

2 minutes ago

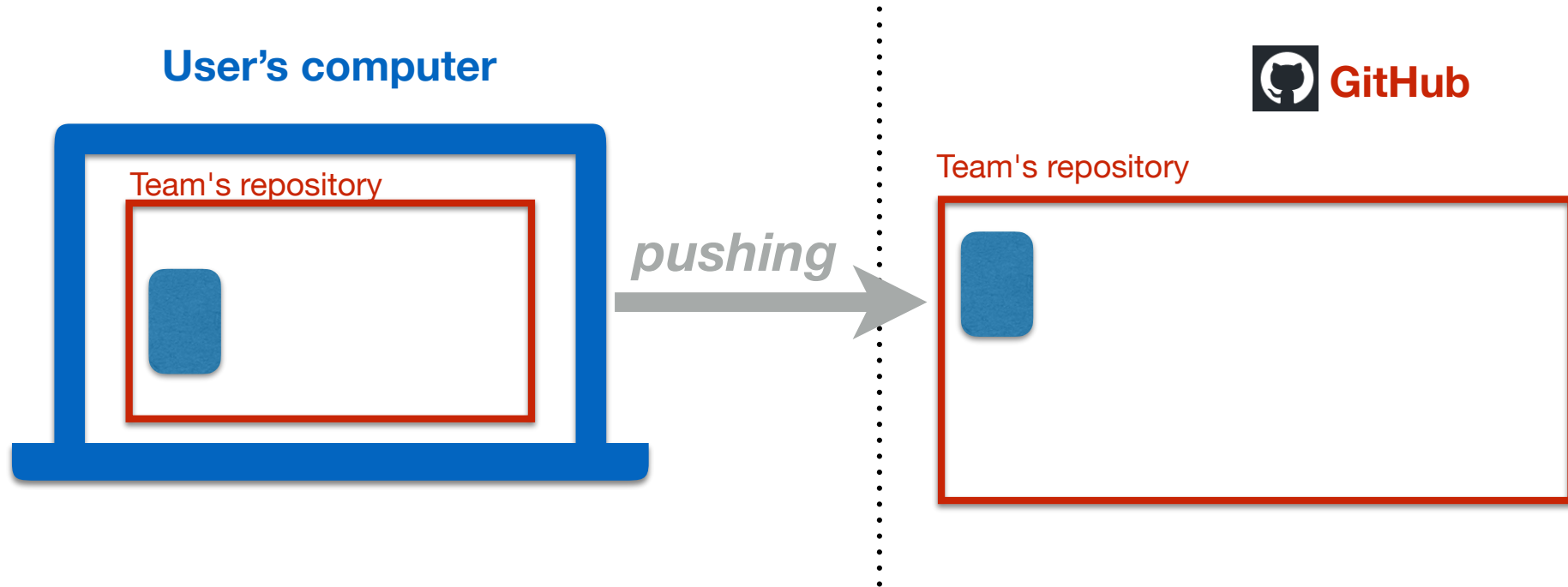
 **README.md**



hello-world

test repository

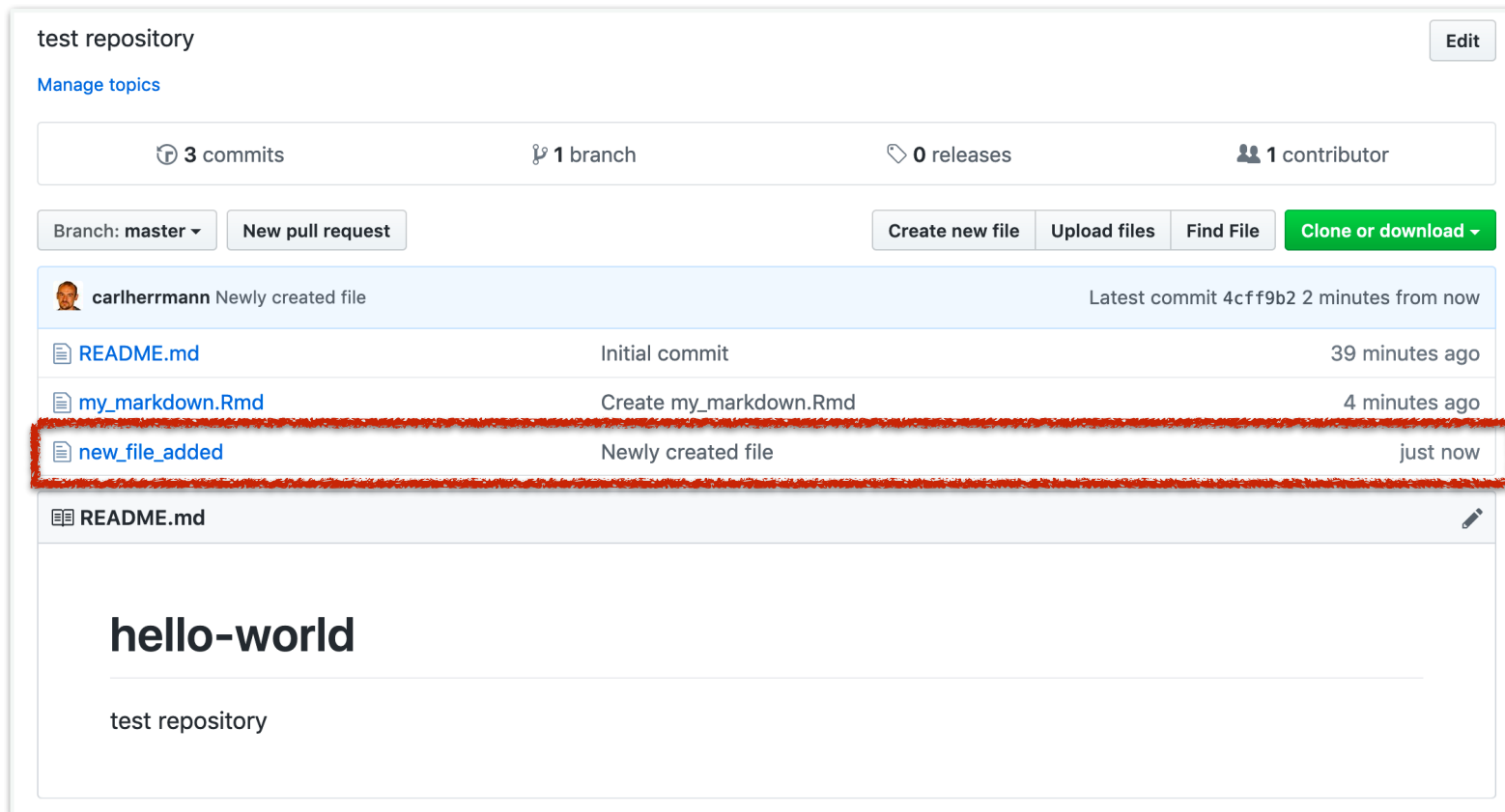
2. Adding a file



- the file is not committed to the local git repository
- it needs to be pushed to the remote repository on GitHub

3. Pulling from the remote repository

- Someone (probably one of your team mates) has added a new file into the remote repository
- It is not yet in your local repository and need to be **pulled**



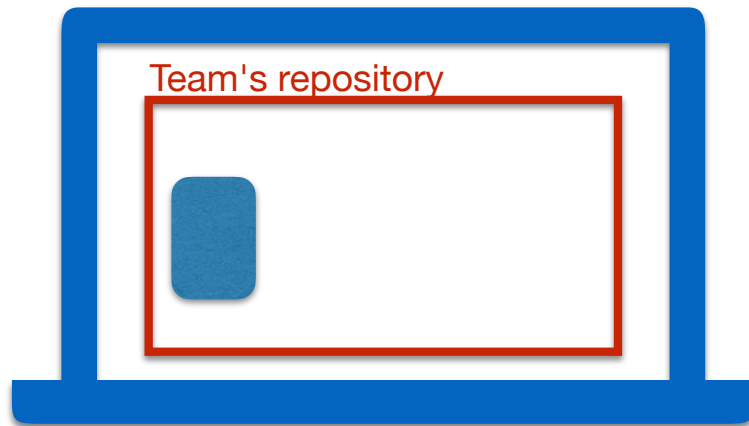
The screenshot shows a GitHub repository interface for 'test repository'. At the top, it displays '3 commits', '1 branch', '0 releases', and '1 contributor'. Below this, there are buttons for 'Branch: master', 'New pull request', 'Create new file', 'Upload files', 'Find File', and a green 'Clone or download' button. A table of files is shown, with the following entries:

File	Commit Message	Time
README.md	Initial commit	39 minutes ago
my_markdown.Rmd	Create my_markdown.Rmd	4 minutes ago
new_file_added	Newly created file	just now

The file 'new_file_added' is highlighted with a red dashed box. Below the file list, the content of the selected file (README.md) is shown, displaying 'hello-world' and 'test repository'.

3. Pulling from the remote repository

User's computer



 **GitHub**

Team's repository





Current Repository
hello-world

Current Branch
master

Fetch origin
Last fetched 4 minutes ago

Changes

History

0 changed files

No local changes

You have no uncommitted changes in your repository! Here are some friendly suggestions for what to do next.

Open the repository in your external editor

Configure which editor you wish to use in [preferences](#)

Repository menu or ⌘ ↑ A

Open in Visual Studio Code

View the files in your repository in Finder

Repository menu or ⌘ ↑ F

Show in Finder

Open the repository page on GitHub in your browser

Repository menu or ⌘ ↑ G

View on GitHub

Summary (required)

Description

+

Commit to master

Carl Herrmann

Health Data Science Unit - Medizinische Fakultät Heidelberg

Current Repository
hello-world

Current Branch
master

Pull origin
Last fetched just now

1

Changes

History

✓

0 changed files

No local changes

You have no uncommitted changes in your repository! Here are some friendly suggestions for what to do next.

Pull 1 commit from the origin remote

The current branch (master) has a commit on GitHub that does not exist on your machine.

Always available in the toolbar when there are remote changes or ⌘ ↑ P

Pull origin

Open the repository in your external editor

Configure which editor you wish to use in [preferences](#)

Repository menu or ⌘ ↑ A

Open in Visual Studio Code

View the files in your repository in Finder

Repository menu or ⌘ ↑ F

Show in Finder

Open the repository page on GitHub in your browser

Repository menu or ⌘ ↑ G

View on GitHub

 Summary (required)

Description

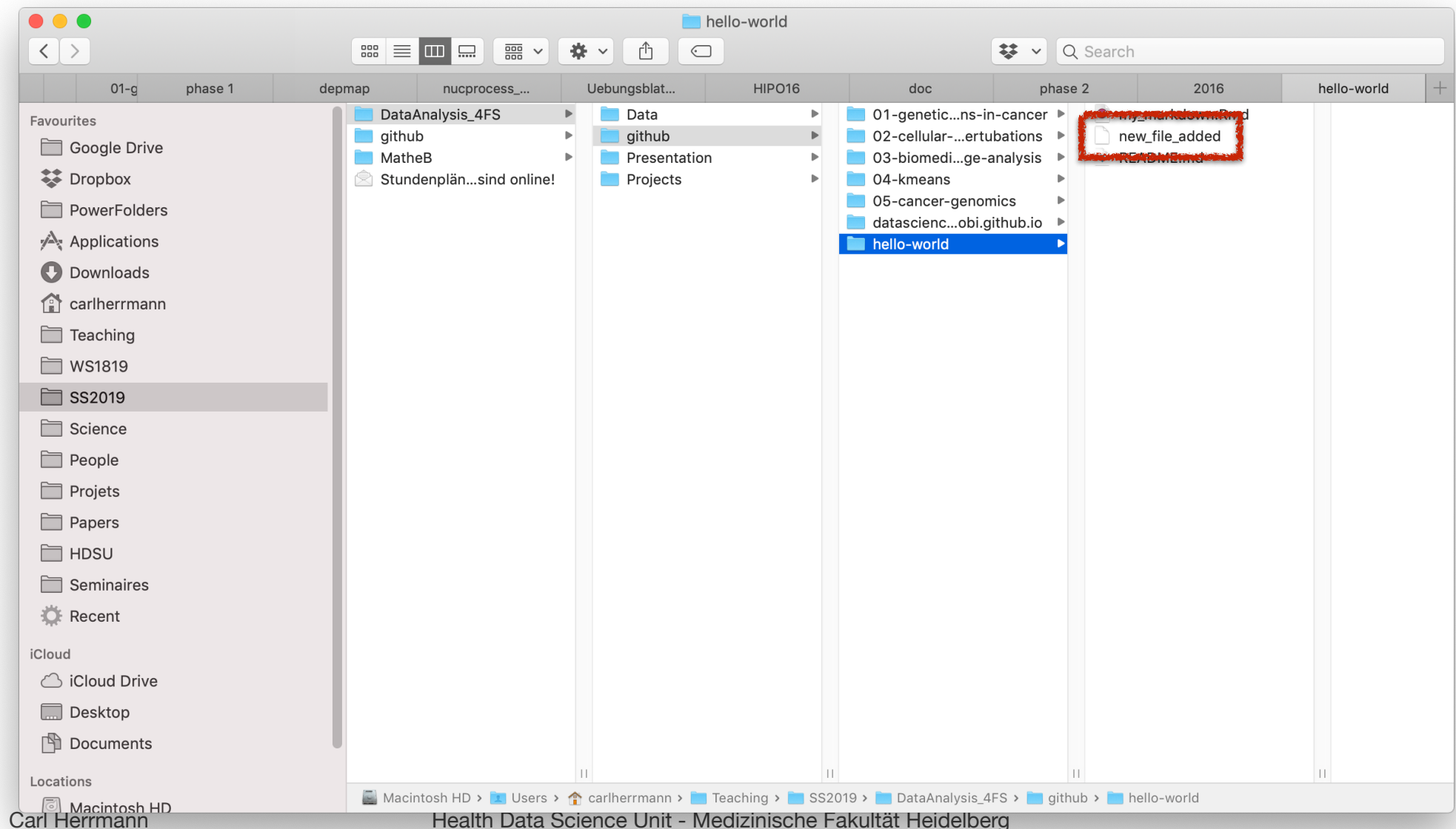


Commit to master

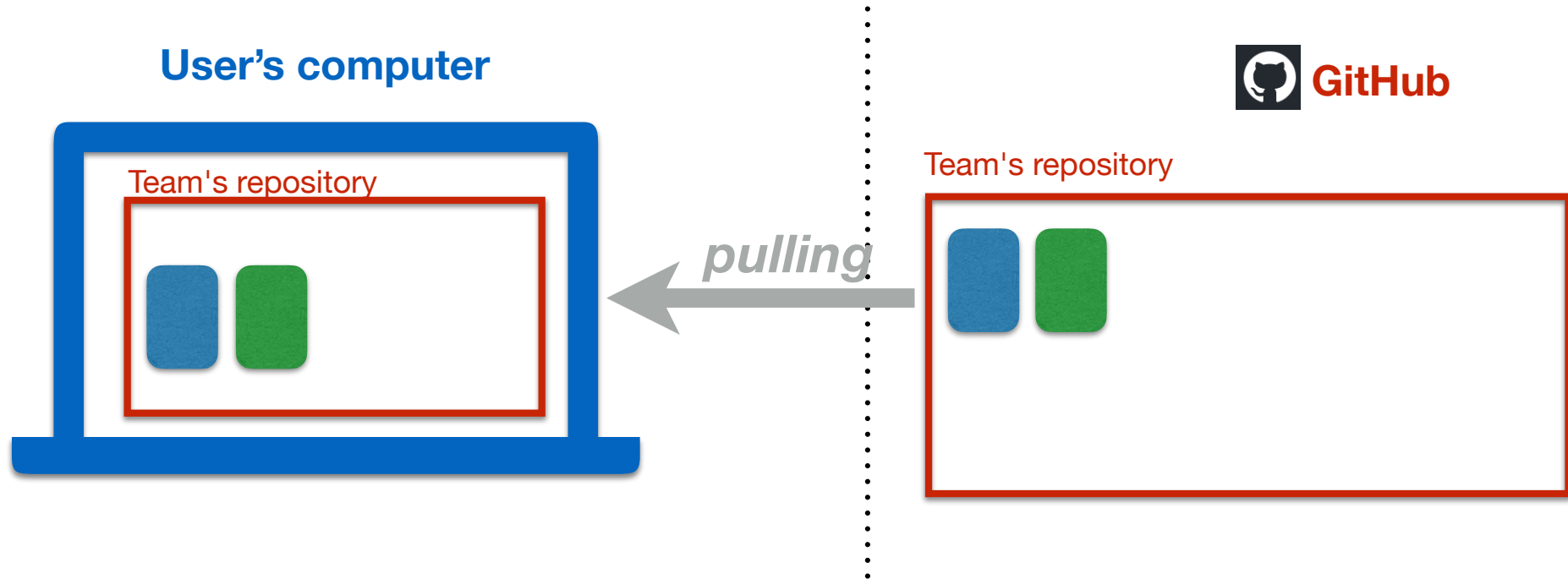
Carl Herrmann

Health Data Science Unit - Medizinische Fakultät Heidelberg

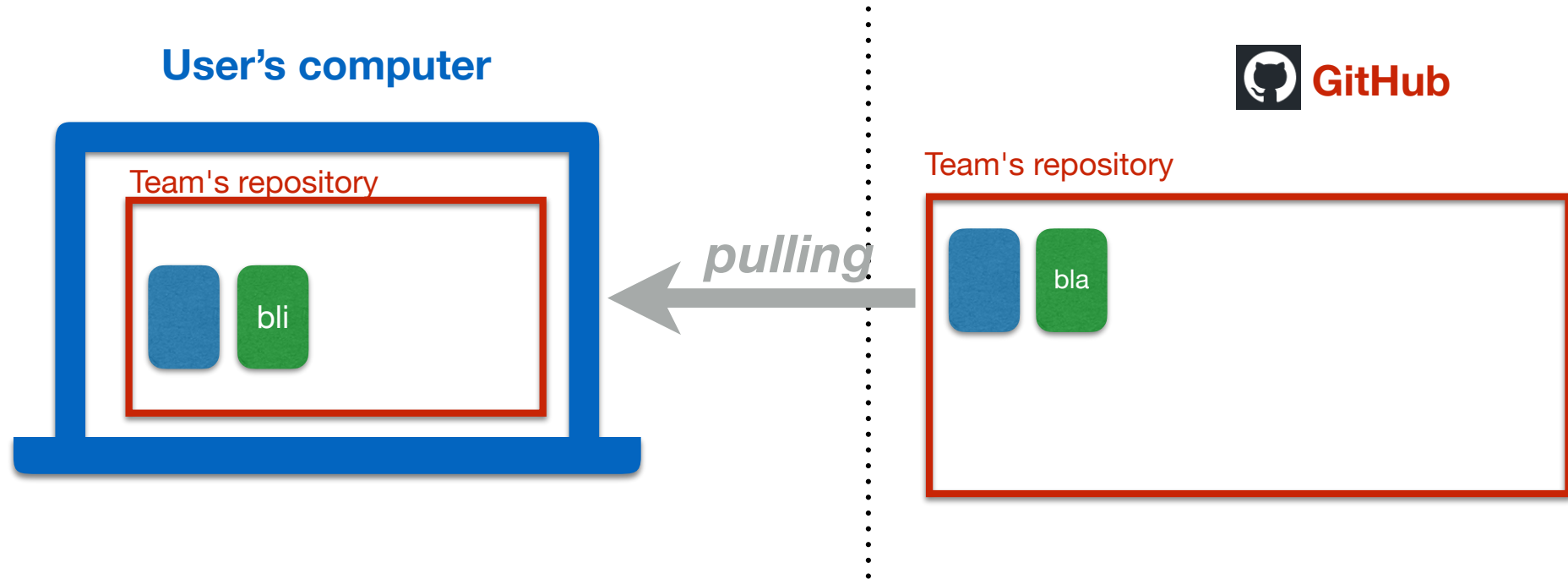
- Once the remote repository is pulled, the new file(s) are available locally



3. Pulling from the remote repository



4. conflicting changes





Current Repository
hello-world

Current Branch
master

Push origin
Last fetched 33 minutes ago 1 +

Changes

History

0 changed files

No local changes

You have no uncommitted changes in your repository! Here are some friendly suggestions for what to do next.

Newer Commits on Remote

 Desktop is unable to push commits to this branch because there are commits on the remote that are not present on your local branch. Fetch these new commits before pushing in order to reconcile them with your local commits.

Fetch

Summary (required)

Description

Commit to master

Committed just now
Cool modification by Jane

Undo

View the files in your repository in Finder

Repository menu or ⌘ ↑ F

Show in Finder

Open the repository page on GitHub in your browser

Repository menu or ⌘ ↑ G

View on GitHub



Current Repository
hello-world

Current Branch
master

Pull origin
Last fetched just now

Changes 1

History

new_file_added

@@ -1,3 +1,7 @@
1 1 This is new file that is added to the remote repository.
2 2
3 3 -Awesome change by Jane!
3 +<<<<<<< HEAD

1 changed file

new_file_added

Resolve conflicts before merging **origin/master** into **master**

1 conflicted file

new_file_added

1 conflict

Open in Visual Studio Code

Open in command line, your tool of choice, or close to resolve manually.

Abort merge

Commit merge

Update new_file_added

Description

Commit to master

Committed a minute ago
Cool modification by Jane

4. conflicting changes

- Conflicting changes can be resolved with a text editor
- options depend on which editor is used

```
You, a few seconds ago | 2 authors (You and others)
This is new file that is added to the remote repository.

Accept Current Change | Accept Incoming Change | Accept Both Changes | Compare Changes
<<<<<<< HEAD (Current Change)
Awesome change by Jane!
=====
This is a great new modification by Joe!
>>>>>>> af5e9c9981b21a39ed11d09f468bea576d669191 (Incoming Change)
```

local change

changes in the
remote file

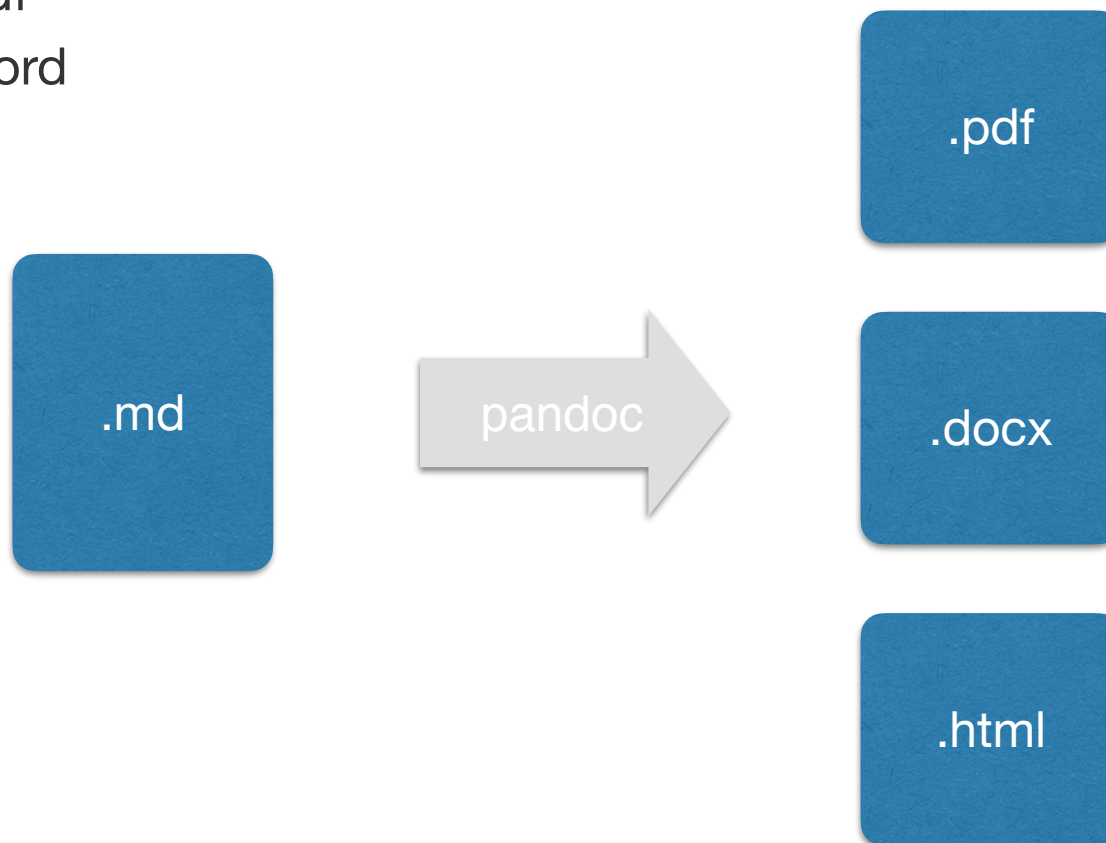
To do

- Create your own personal GitHub account
- Register your Github user name into the Google Sheet
- all team members will be added to the corresponding GitHub repo
 - Project 03 - Team 02 → **project-03-group-02**

(R)markdown

Markdown

- Markdown is a way to format plain text with a simple text editor
- Markdown documents can be converted with a **renderer** into
 - html
 - pdf
 - word



Rendering markdown

markdown

```
# My document

## this is a header

In the text we can *highlight* or put in **bold**.

## making lists

We can make **numbered lists**:

1. first item
2. second item

or unordered lists

* first item
* second item
  + subitem
  + subitem
* third item

This is `code` which can be put inline

```bash
this is bash code
```

```python
this is python code
```
```

pdf

My document

this is a header

In the text we can *highlight* or put in **bold**.

making lists

We can make **numbered lists**:

1. first item
2. second item

or unordered lists

- first item
- second item
- subitem
- subitem
- third item

This is code which can be put inline

this is bash code
this **is** python code

html

My document

this is a header

In the text we can *highlight* or put in **bold**.

making lists

We can make **numbered lists**:

1. first item
2. second item

or unordered lists

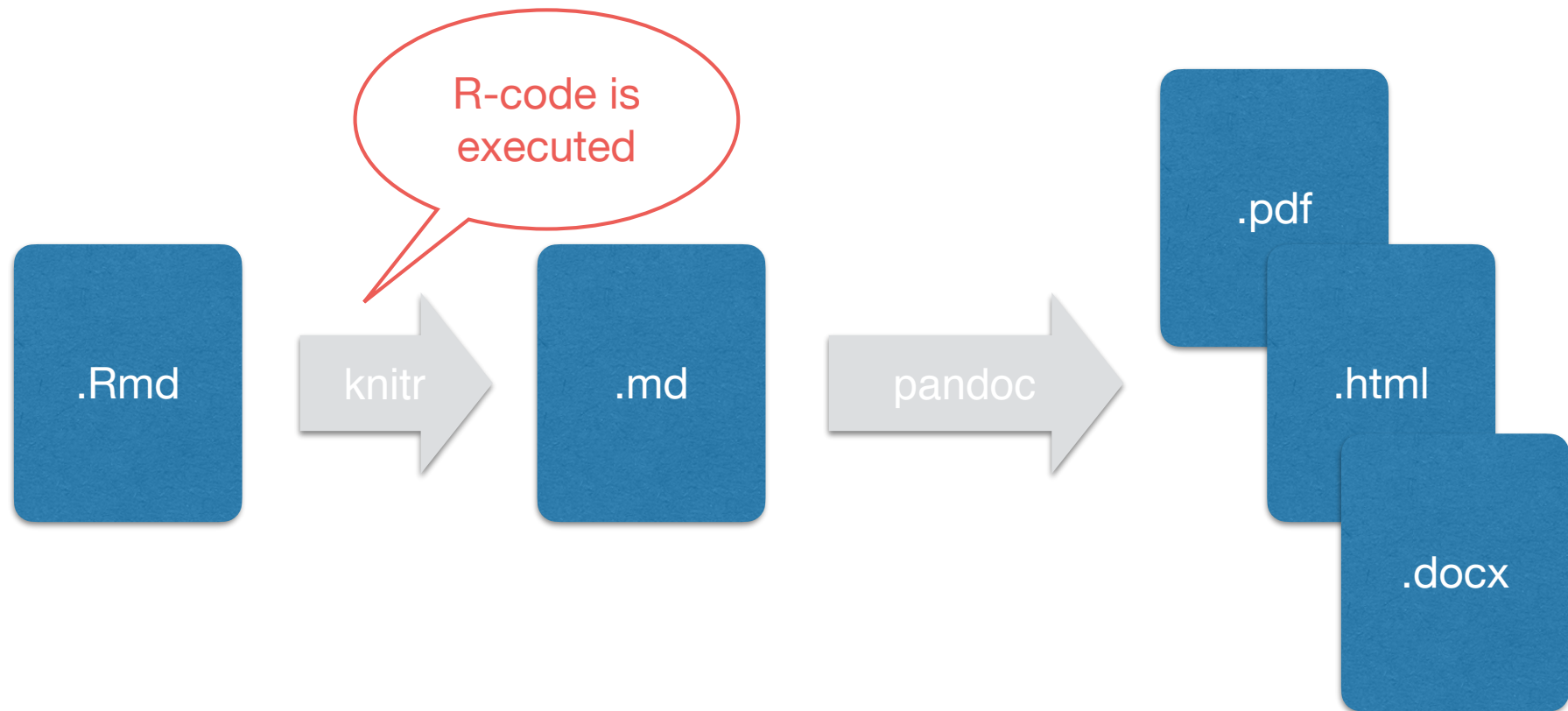
- first item
- second item
- subitem
- subitem
- third item

This is code which can be put inline

this is bash code
this is python code

Rmarkdown

- With Rmarkdown, R-code parts can be included into the markdown document
- the R-code will be executed, the result integrated into markdown



Rmarkdown format

```
---  
title: "Project 01"  
author: "Carl Herrmann"  
date: "4/17/2019"  
output:  
  html_document:  
    keep_md: yes  
  pdf_document: default  
---
```

```
# A Rmarkdown tutorial
```

This is a brief tutorial on how to use Rmarkdown to create dynamic documents

```
```{r setup, include=FALSE}  
knitr::opts_chunk$set(echo = TRUE)
knitr::opts_knit$set(root.dir='/Users/carlherrmann/Teaching/SS2019/DataAnalysis_4FS')
```
```

```
## Load the dataset
```

```
```{r read_data}  
allDepMapData = readRDS('Data/depmap/DepMap19Q1_allData.RDS')
```
```

Now plot the distribution of the cell lines according to the tissue type

```
```{r plot_data}  
freq = sort(table(allDepMapData$annotation$Primary.Disease))
par(las=2,mar=c(3,8,3,3));barplot(freq,horiz=TRUE, col='lightgrey')
```
```

header: set options

R code chunks

text in markdown

Rmarkdown chunk options

- Display options can be set for each chunk individually, or for all chunks at the beginning of the document

```
``{r setup, include=FALSE}  
knitr::opts_chunk$set(echo = TRUE)  
knitr::opts_chunk$set(cache = TRUE)
```

valid for all chunks

- echo=TRUE : R-code is displayed in final document
- cache = TRUE : results of all chunks are cached

```
``{r plot_data, fig.height=12, fig.width=12}  
freq = sort(table(allDepMapData$annotation$Primary.Disease))  
par(las=2, mar=c(3, 8, 3, 3)); barplot(freq, horiz=FALSE, col='lightgrey')  
``
```

valid for **this** chunks

- set height and width of output figure

Reference

- <https://rmarkdown.rstudio.com/>
- <https://www.rstudio.com/wp-content/uploads/2016/03/rmarkdown-cheatsheet-2.0.pdf>
-