R Schnittstellen - Versionsverwaltung und Applikationen

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9 Mai 2017

Versionsverwaltung

Wozu überhaupt Versionskontrolle?

Warum Versionskontrolle?

- Versionskontrollsysteme (VCS) protokollieren Änderungen an einer Datei oder einer Anzahl von Dateien über die Zeit hinweg

Wikipedia Artikel zu Versionsverwaltung

Gründe für die Nutzung von Versionskontrolle

GitHub

GitHub Konferenz

London 22 und 23 Mai 2017

GitLab

Git installieren

- Windows und OS X:

http://git-scm.com/downloads

- Debian/Ubuntu:

```
sudo apt-get install git-core
```

- Fedora/RedHat:

```
sudo yum install git-core
```

Links

- Gründe eines Sozialwissenschaftlers Versionskontrolle zu nutzen
- Git Bootcamp

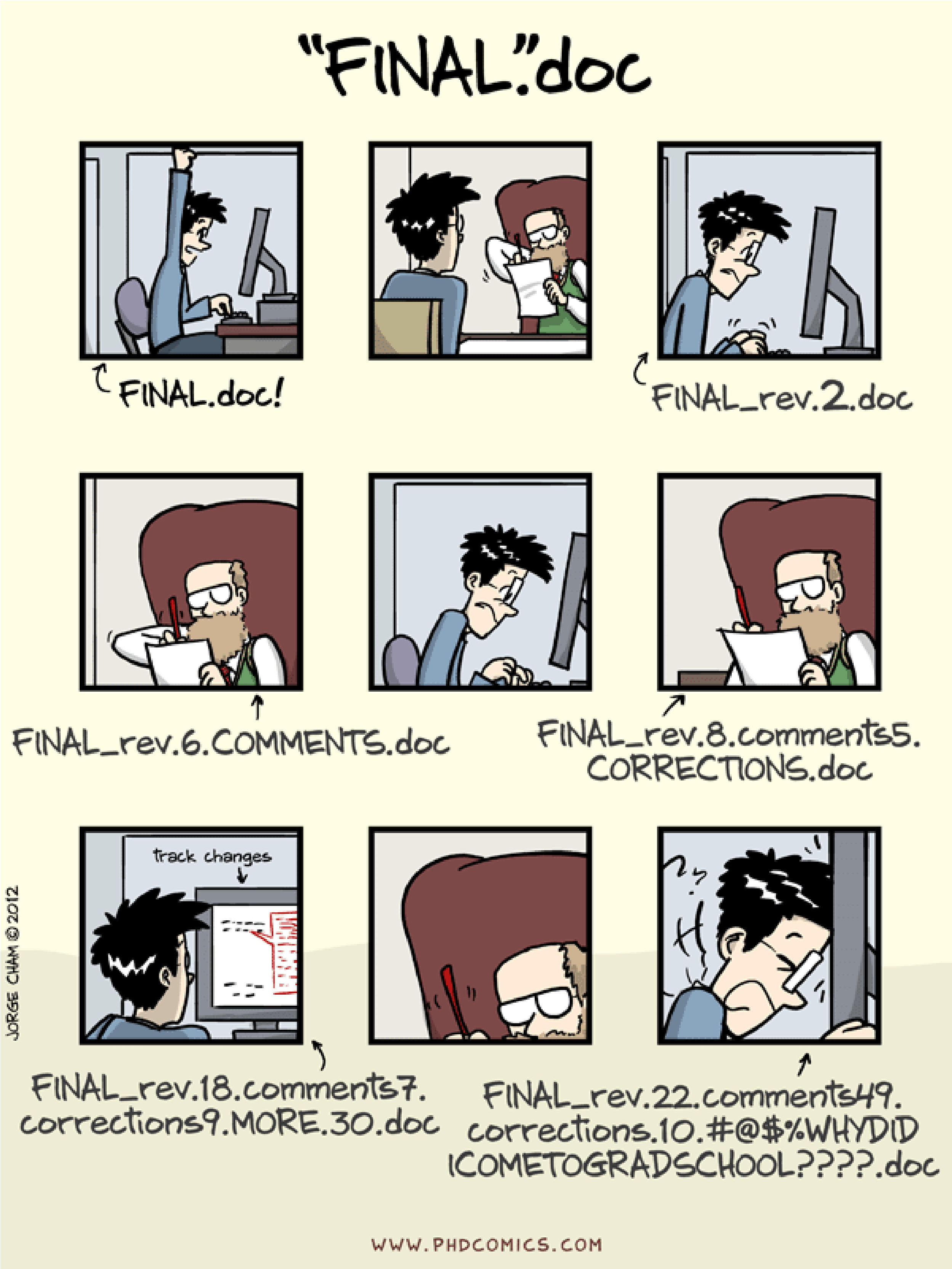
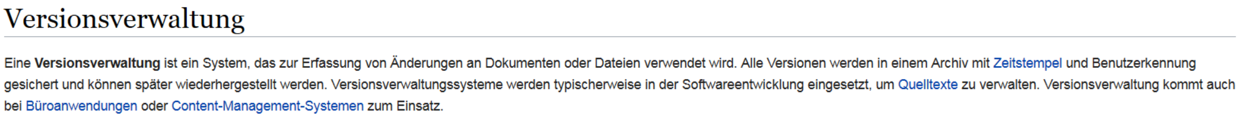

"FINAL".doc
FINAL.doc!
FINAL_rev.2.doc
FINAL_rev.6.COMMENTS.doc
FINAL_rev.8.comments5.CORRECTIONS.doc
track changes
FINAL_rev.18.comments7.corrections9.MORE.30.doc
FINAL_rev.22.comments49.corrections.10.#@$%WHYDIDICOMETOGRADSCHOOL????.doc
JORGE CHAM © 2012
WWW.PHDCOMICS.COM

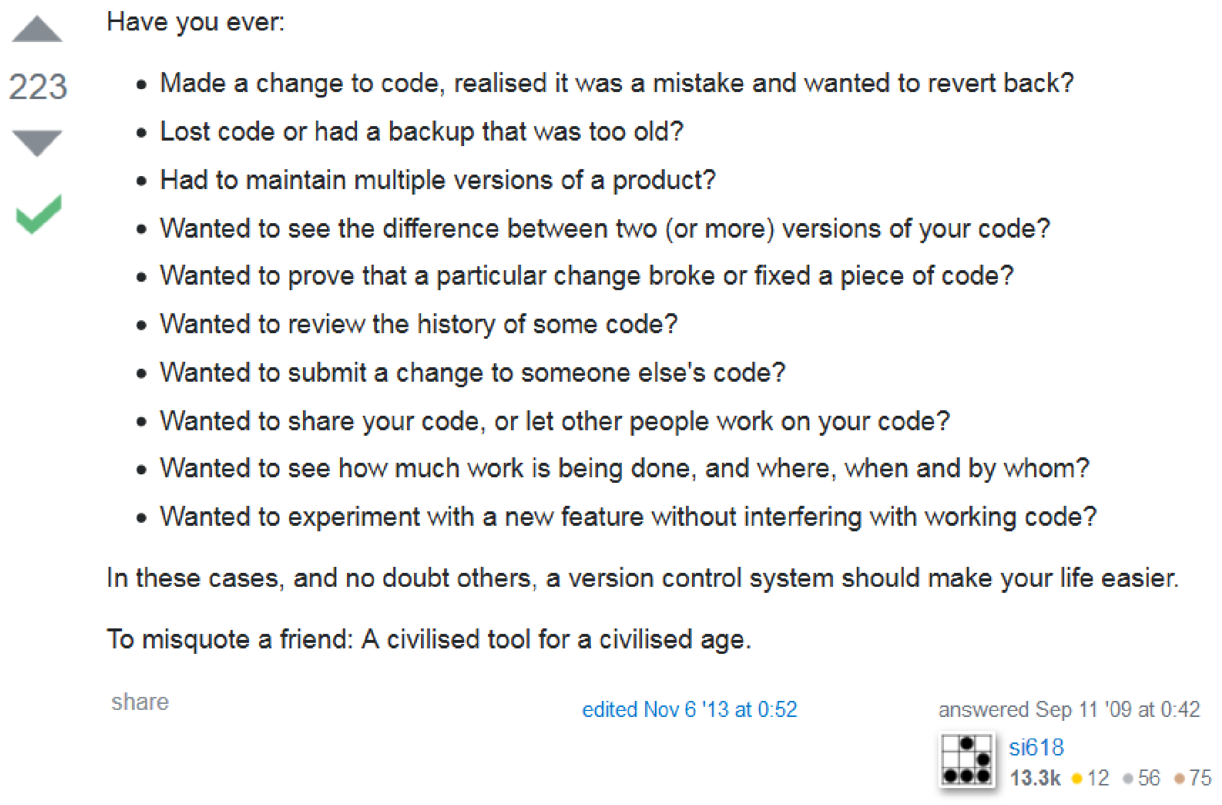
Figure 1:



Versionsverwaltung

Eine **Versionsverwaltung** ist ein System, das zur Erfassung von Änderungen an Dokumenten oder Dateien verwendet wird. Alle Versionen werden in einem Archiv mit Zeitstempel und Benutzerkennung gesichert und können später wiederhergestellt werden. Versionsverwaltungssysteme werden typischerweise in der Softwareentwicklung eingesetzt, um Quelltexte zu verwalten. Versionsverwaltung kommt auch bei Büroanwendungen oder Content-Management-Systemen zum Einsatz.

Figure 2:



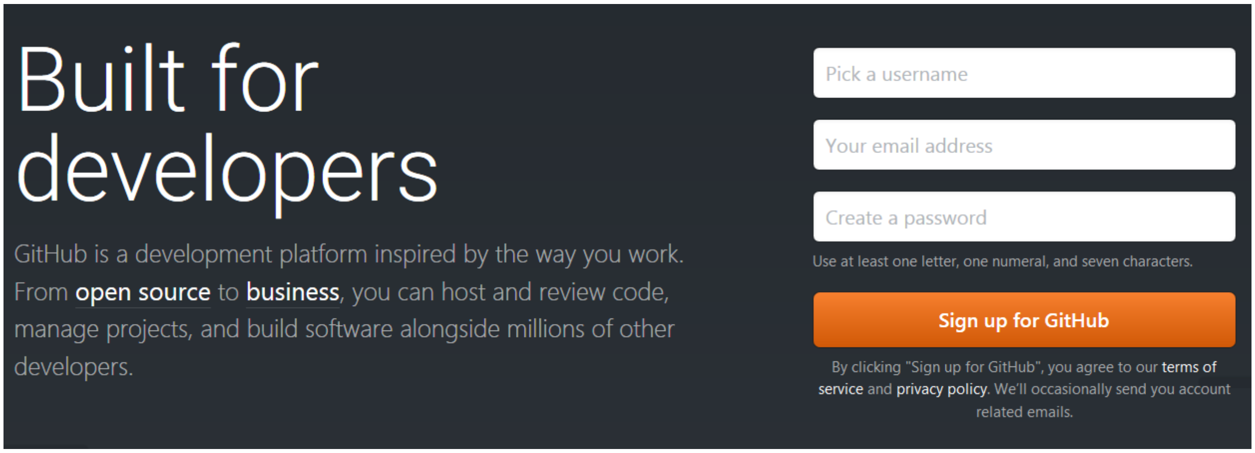
Have you ever:

- Made a change to code, realised it was a mistake and wanted to revert back?
- Lost code or had a backup that was too old?
- Had to maintain multiple versions of a product?
- Wanted to see the difference between two (or more) versions of your code?
- Wanted to prove that a particular change broke or fixed a piece of code?
- Wanted to review the history of some code?
- Wanted to submit a change to someone else's code?
- Wanted to share your code, or let other people work on your code?
- Wanted to see how much work is being done, and where, when and by whom?
- Wanted to experiment with a new feature without interfering with working code?

In these cases, and no doubt others, a version control system should make your life easier.

To misquote a friend: A civilised tool for a civilised age.

Figure 3:



Built for developers

GitHub is a development platform inspired by the way you work. From open source to business, you can host and review code, manage projects, and build software alongside millions of other developers.

Pick a username
Your email address
Create a password
Use at least one letter, one numeral, and seven characters.
Sign up for GitHub
By clicking "Sign up for GitHub", you agree to our terms of service and privacy policy. We'll occasionally send you account related emails.

Figure 4:

Figure 5:

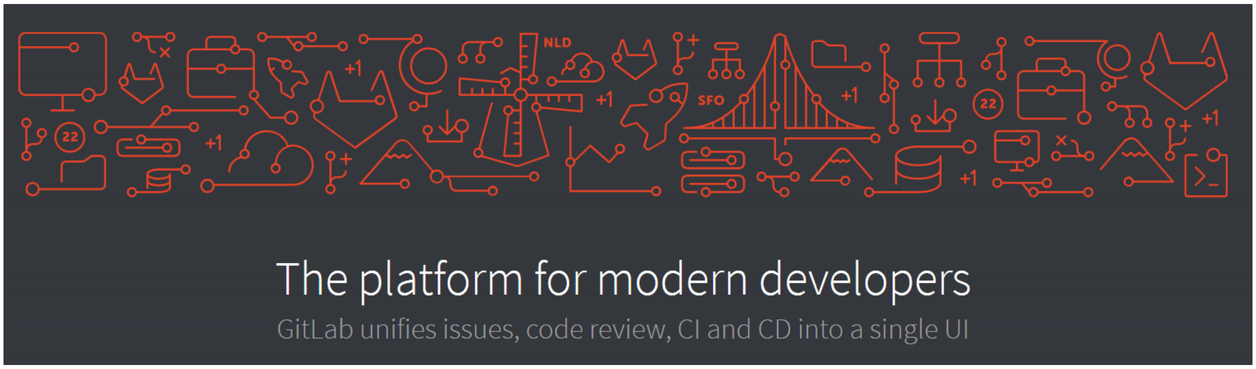

NLD
SFO
22
+1
The platform for modern developers
GitLab unifies issues, code review, CI and CD into a single UI

Figure 6:

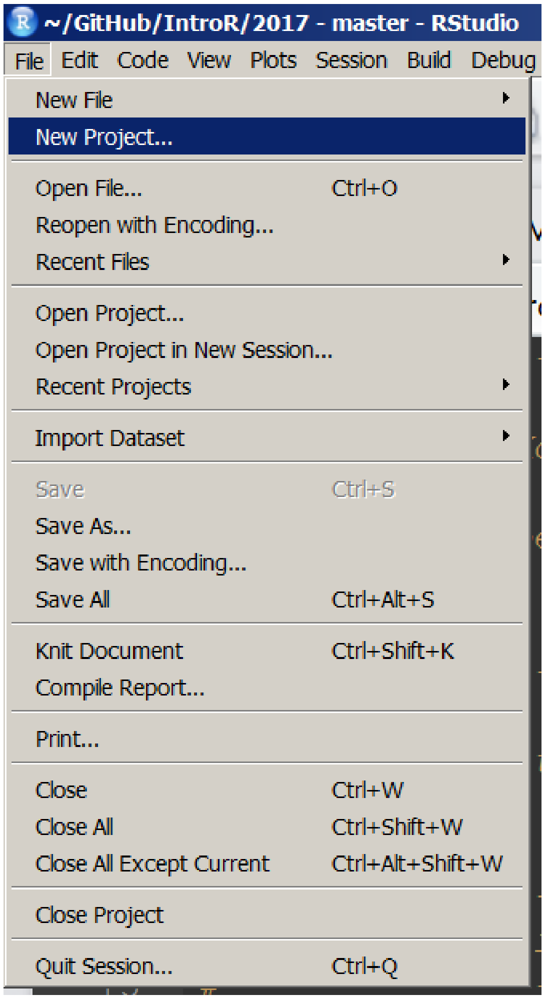
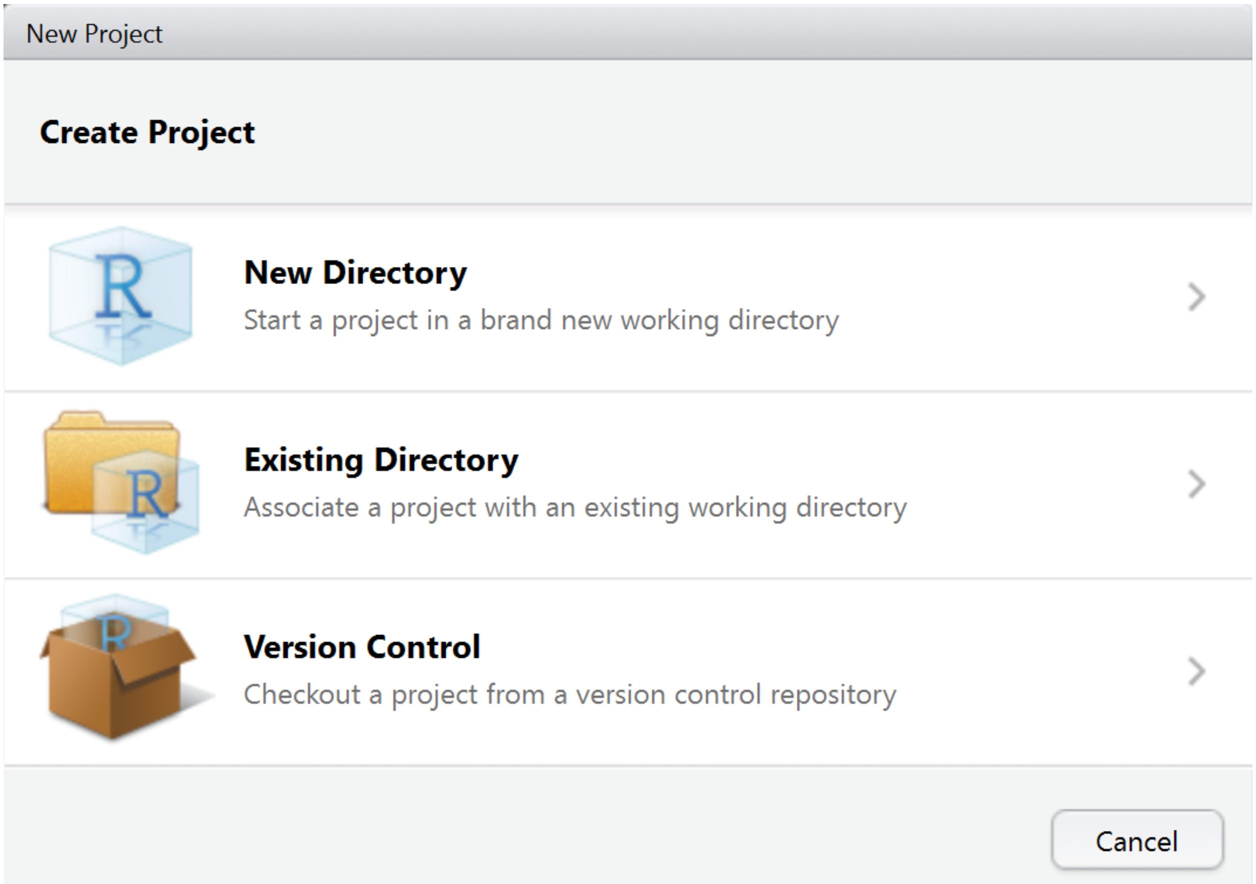

~/GitHub/IntroR/2017 - master - RStudio
File
Edit
Code
View
Plots
Session
Build
Debug
New File
New Project...
Open File... Ctrl+O
Reopen with Encoding...
Recent Files
Open Project...
Open Project in New Session...
Recent Projects
Import Dataset
Save Ctrl+S
Save As...
Save with Encoding...
Save All Ctrl+Alt+S
Knit Document Ctrl+Shift+K
Compile Report...
Print...
Close Ctrl+W
Close All Ctrl+Shift+W
Close All Except Current Ctrl+Alt+Shift+W
Close Project
Quit Session... Ctrl+Q

Figure 7:

R und Git

Rstudio und git - ein Projekt anlegen

Ein Projekt mit Versionskontrolle



New Project

Create Project

New Directory
Start a project in a brand new working directory

Existing Directory
Associate a project with an existing working directory

Version Control
Checkout a project from a version control repository

Figure 8:

Auswahl Versionskontrolle

Ein Projekt clonen

Der git-Reiter in Rstudio

Aktuelle eigene Änderungen committen

Der übliche Ablauf

- Datei bearbeiten und speichern
- Änderungen commiten
- Änderungen von anderen ziehen (pull)
- Eigene Änderung hochladen (push)

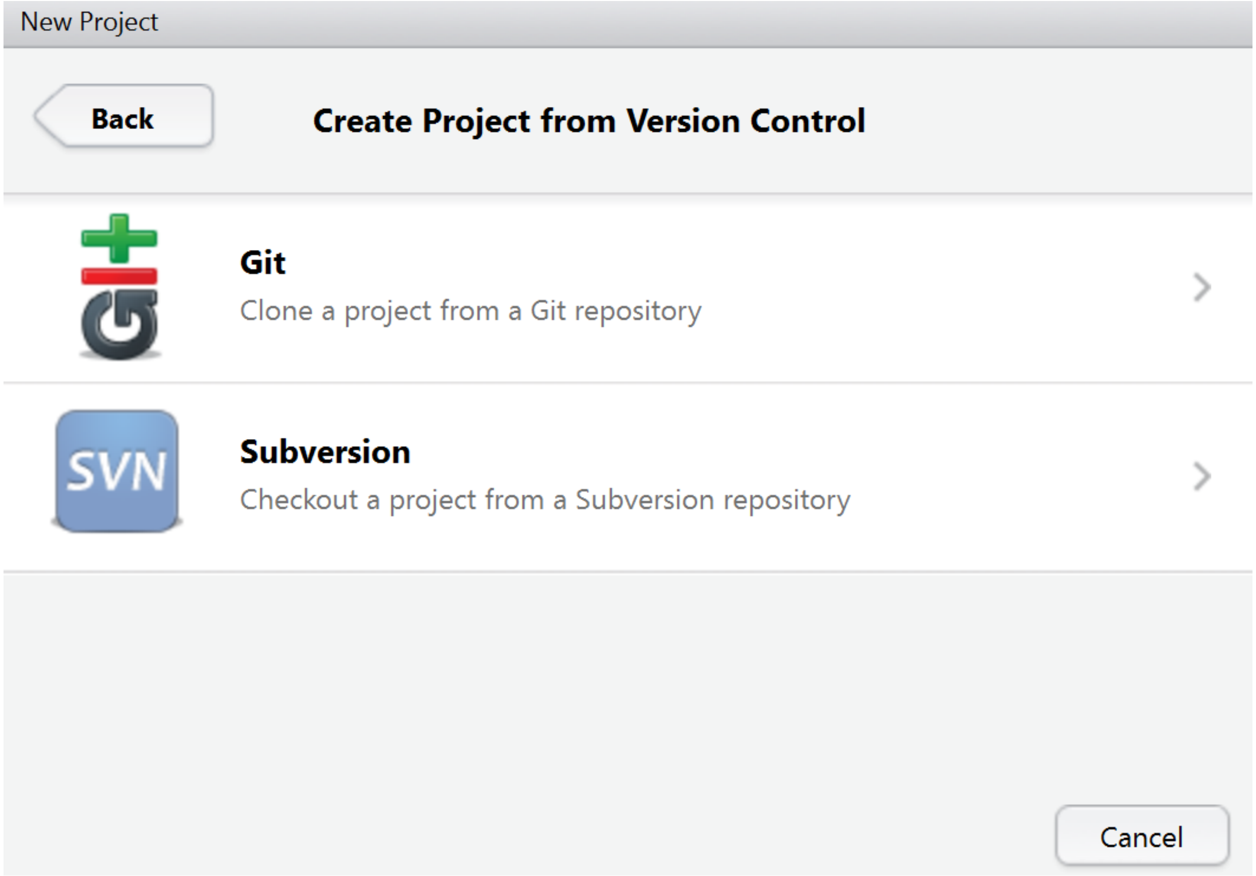
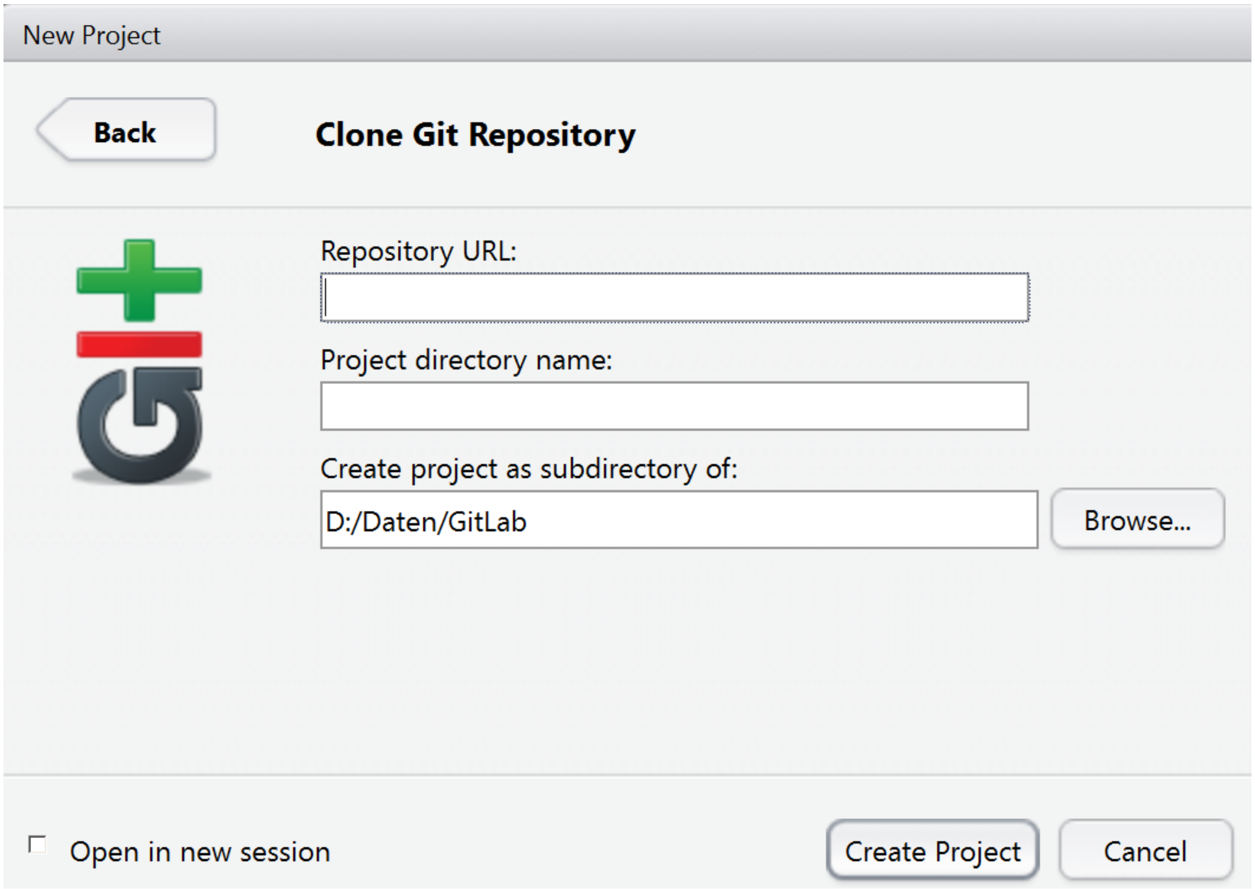

New Project
Back
Create Project from Version Control
Git
Clone a project from a Git repository
Subversion
Checkout a project from a Subversion repository
Cancel

Figure 9:



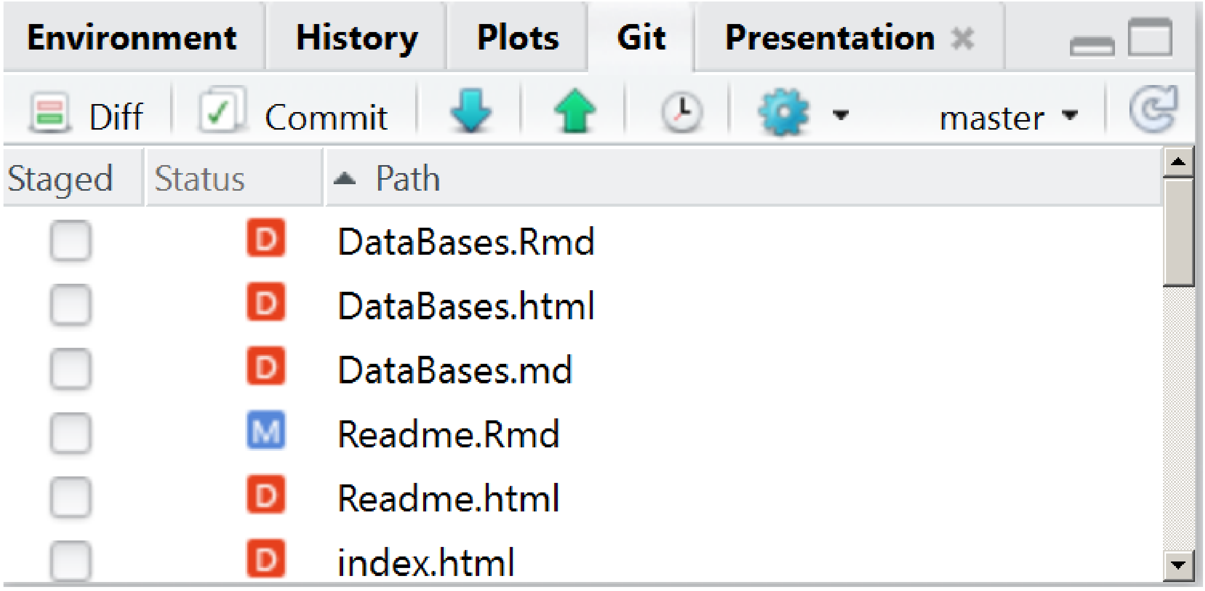
Repository URL:

Project directory name:

Create project as subdirectory of: D:/Daten/GitLab

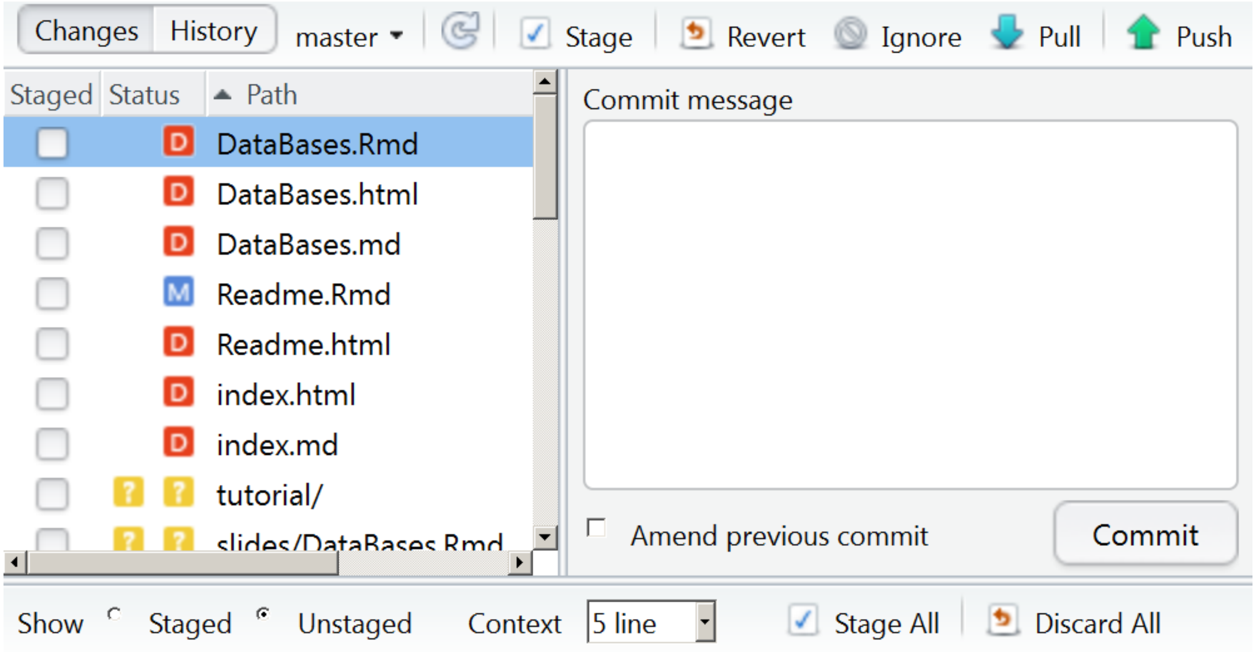
□ Open in new session

Figure 10:



Staged	Status	Path
□	D	DataBases.Rmd
□	D	DataBases.html
□	D	DataBases.md
□	M	Readme.Rmd
□	D	Readme.html
□	D	index.html

Figure 11:



Staged	Status	Path
□	D	DataBases.Rmd
□	D	DataBases.html
□	D	DataBases.md
□	M	Readme.Rmd
□	D	Readme.html
□	D	index.html
□	D	index.md
□	? ?	tutorial/
□	? ?	slides/DataBases.Rmd

□ Amend previous commit

Show ○ Staged ● Unstaged

Context 5 line

Figure 12:

Links

- Commit failed - git shell
- Git cheatsheet

Commands

```
git commit
```

```
git push
```

http://stackoverflow.com/questions/1125968/force-git-to-overwrite-local-files-on-pull

Problems with disk space

WinDirStat https://support.microsoft.com/de-de/kb/912997 http://www.pcwelt.de/tipps/Update-Dateien-loeschen-8357046.html

Quelle für Pakete

Ein Paket von Github installieren

```
install.packages("devtools")
library(devtools)
install_github("Japhilko/gosmd")
```

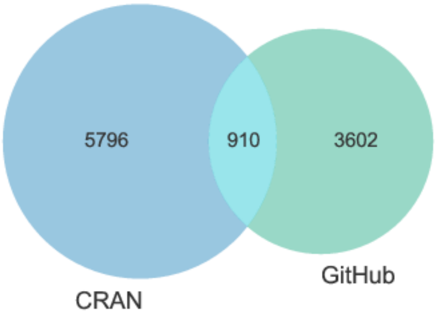
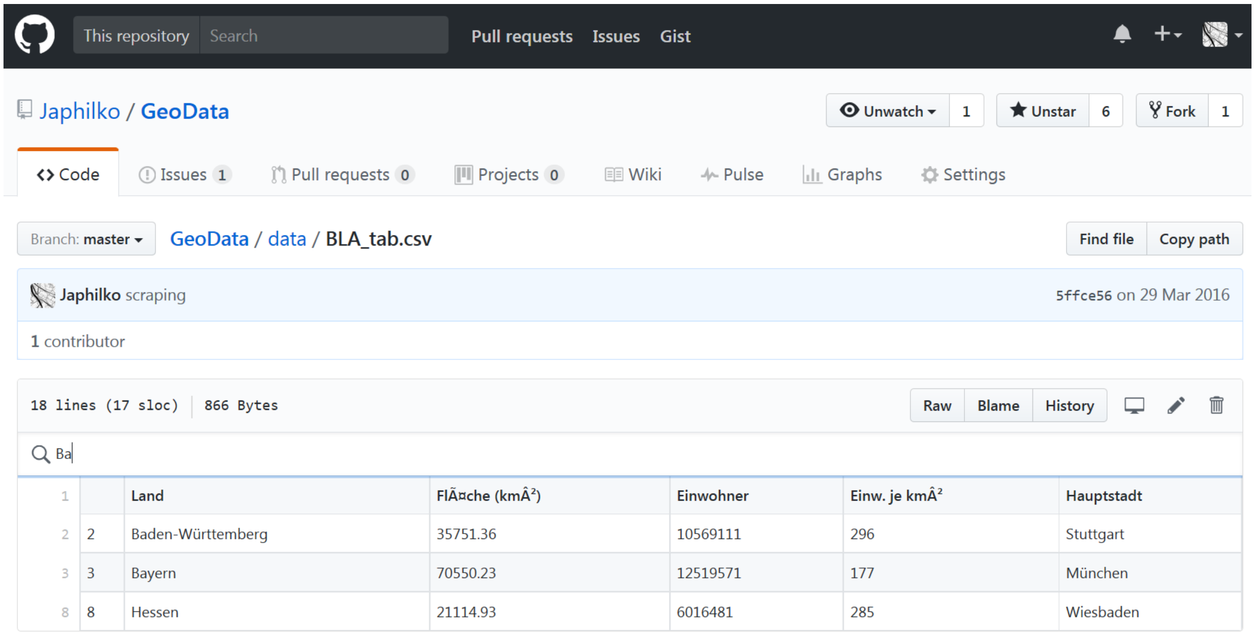


Figure 13:

Datensätze Suchfunktion



Japhilko / GeoData

Branch: master

GeoData / data / BLA_tab.csv

Japhilko scraping 5ffce56 on 29 Mar 2016

1 contributor

18 lines (17 sloc) | 866 Bytes

Ba

1		Land	FlÃ¤che (kmÂ²)	Einwohner	Einw. je kmÂ²	Hauptstadt
2	2	Baden-Württemberg	35751.36	10569111	296	Stuttgart
3	3	Bayern	70550.23	12519571	177	München
8	8	Hessen	21114.93	6016481	285	Wiesbaden

Figure 14:

Git und Rstudio

Links

- Using github and rstudio
- How do I tell Git for Windows where to find my private RSA key
- Reset local repository branch to be just like remote repository HEAD
- How I Manage Data Analysis Projects with RStudio and Git - Part 1
- How do I force "git pull" to overwrite local files?

Version Control, File Sharing, and Collaboration Using GitHub and RStudio

January 29, 2017

By geraldbelton

(This article was first published on R – Gerald Belton, and kindly contributed to R-bloggers)

This is Part 3 of our "Getting Started with R Programming" series. For previous articles in the series, click here: Part 1, Part 2.

This week, we are going to talk about using git and GitHub with RStudio to manage your projects.

Figure 15:

Shiny Apps

Das shiny Paket installieren

```
install.packages("shiny")
```

Wer hat's erfunden?

```
citation("shiny")
```

```
##
## To cite package 'shiny' in publications use:
##
##   Winston Chang, Joe Cheng, JJ Allaire, Yihui Xie and Jonathan
##   McPherson (2017). shiny: Web Application Framework for R. R
##   package version 1.0.1. https://CRAN.R-project.org/package=shiny
##
## A BibTeX entry for LaTeX users is
##
##   @Manual{,
##     title = {shiny: Web Application Framework for R},
##     author = {Winston Chang and Joe Cheng and JJ Allaire and Yihui Xie and Jonathan McPherson},
##     year = {2017},
##     note = {R package version 1.0.1},
##     url = {https://CRAN.R-project.org/package=shiny},
##   }
```

Shiny
by RStudio
A web application framework for R
Turn your analyses into interactive web applications
No HTML, CSS, or JavaScript knowledge required

Figure 16:

Eine erste Beispielapp

```r
library(shiny)
runExample("01_hello")
```

Der Start

Dem Kind einen Namen geben

Die erste App

- man muss den Run App Button drücken

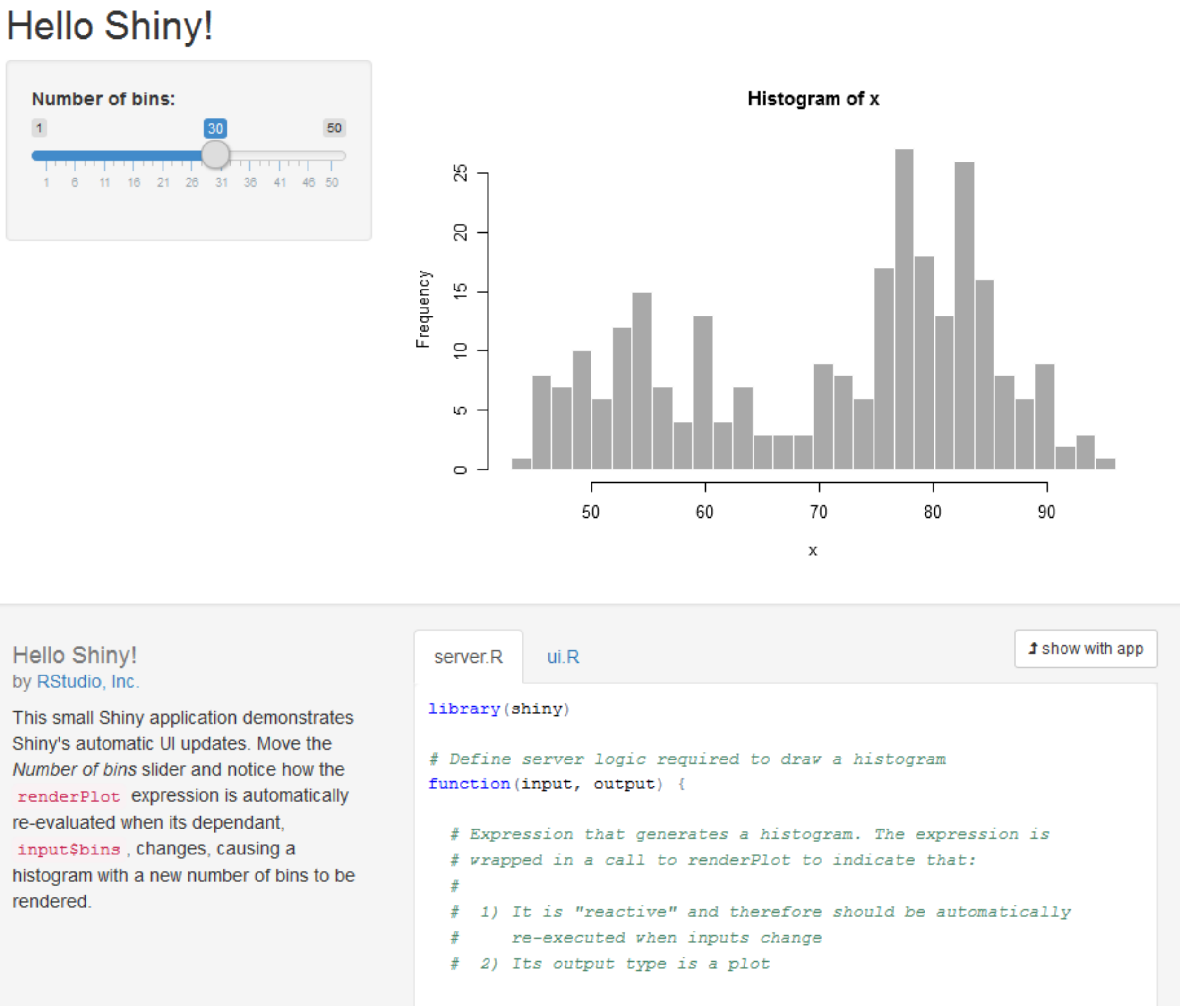
- Das Ergebnis:

Zur Erklärung

- Zumeist arbeitet man mit mindestens zwei Dateien
- Das user interface wird mit einer Datei erzeugt werden, die `ui.R` genannt werden muss
- Für die Server Seite brauchen wir auch ein eigenes File, dieses bennenen wir mit `server.R`

Eine zweite Beispiel App

```r
library(shiny)
runExample("02_text")
```



Hello Shiny!
by RStudio, Inc.

This small Shiny application demonstrates Shiny's automatic UI updates. Move the *Number of bins* slider and notice how the `renderPlot` expression is automatically re-evaluated when its dependant, `input$bins` , changes, causing a histogram with a new number of bins to be rendered.

```
library(shiny)

# Define server logic required to draw a histogram
function(input, output) {

  # Expression that generates a histogram. The expression is
  # wrapped in a call to renderPlot to indicate that:
  #
  #  1) It is "reactive" and therefore should be automatically
  #     re-executed when inputs change
  #  2) Its output type is a plot
```

Figure 17:

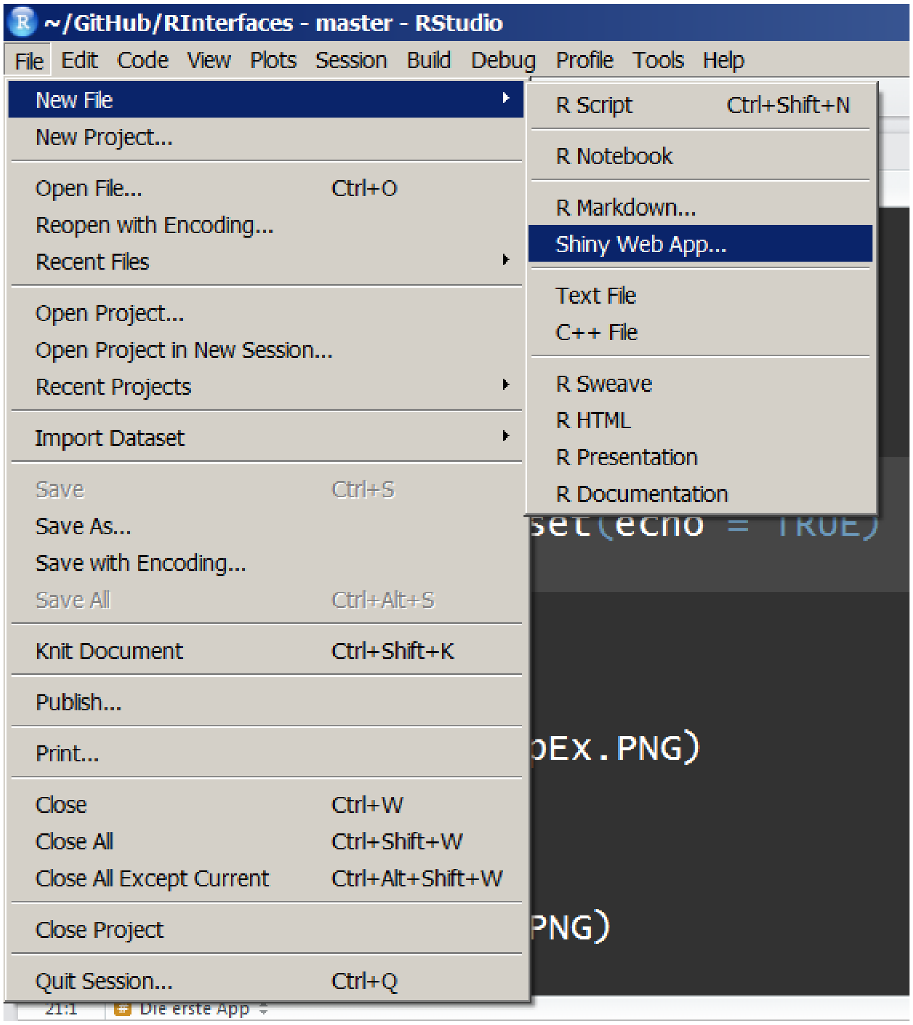
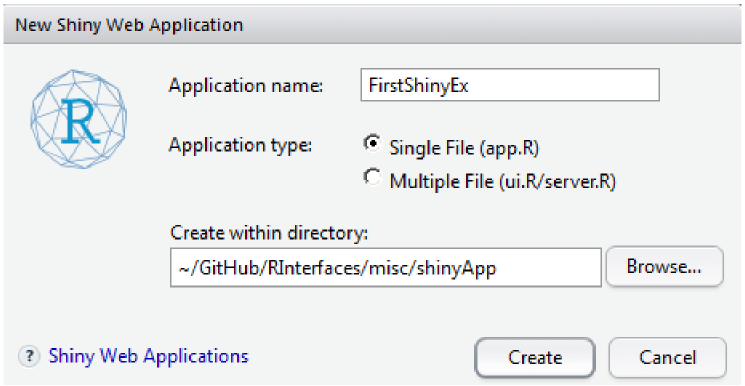


Figure 18:



New Shiny Web Application

Application name: FirstShinyEx

Application type:
● Single File (app.R)
○ Multiple File (ui.R/server.R)

Create within directory:
~/GitHub/RInterfaces/misc/shinyApp

Figure 19:

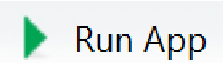
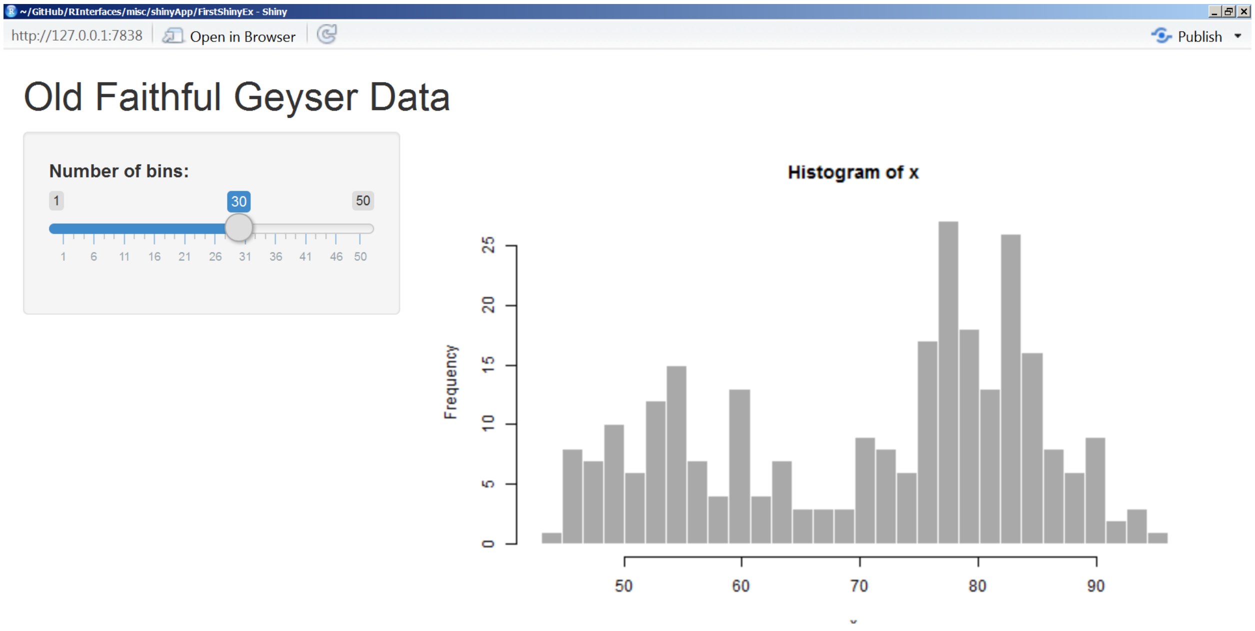


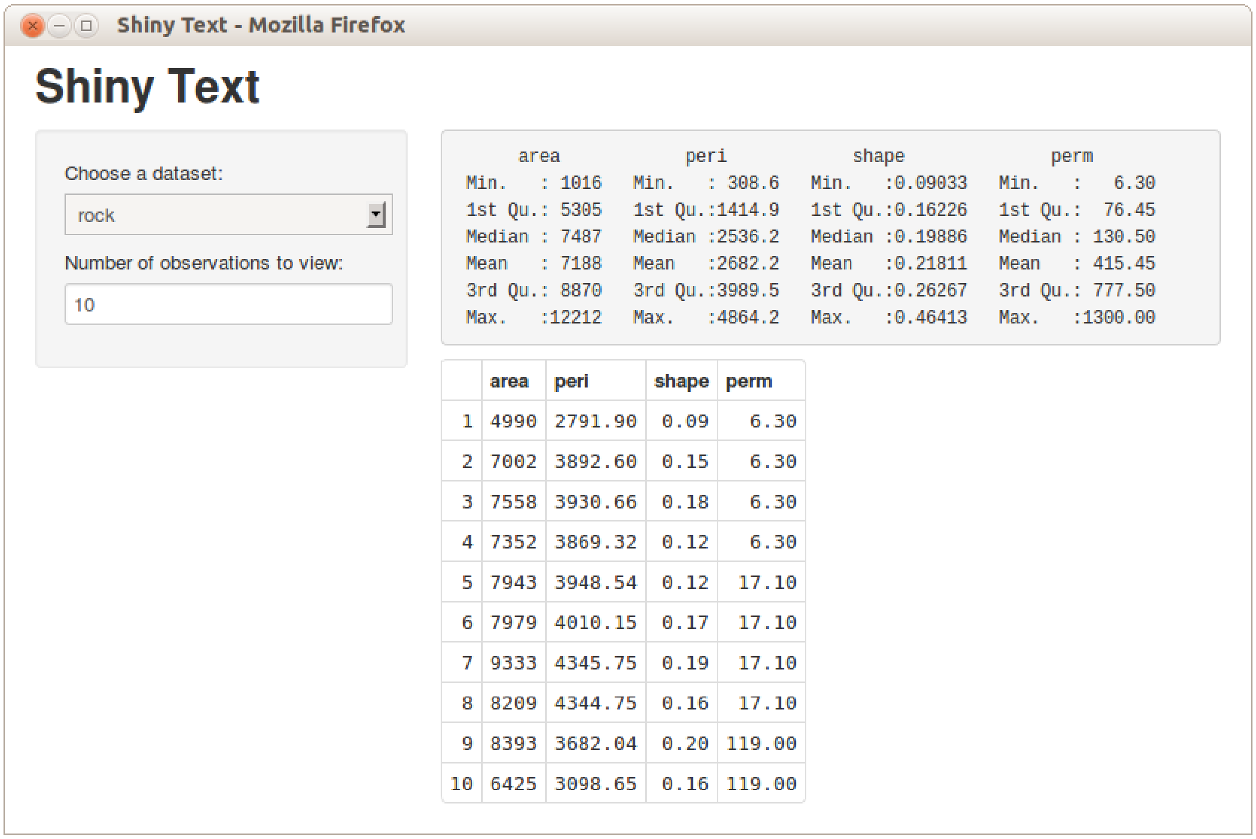
Figure 20:



Old Faithful Geyser Data

Number of bins: 30

Figure 21:



Shiny Text

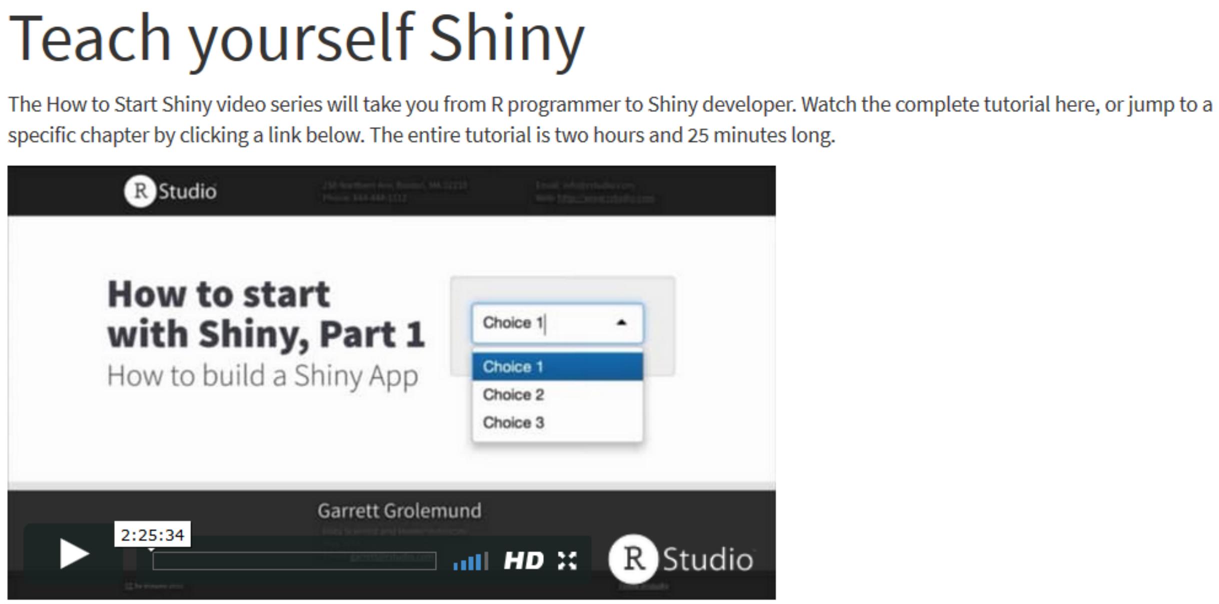
Choose a dataset: rock

Number of observations to view: 10

```
      area            peri            shape              perm
 Min.   : 1016   Min.   : 308.6   Min.   :0.09033   Min.   :   6.30
 1st Qu.: 5305   1st Qu.:1414.9   1st Qu.:0.16226   1st Qu.:  76.45
 Median : 7487   Median :2536.2   Median :0.19886   Median : 130.50
 Mean   : 7188   Mean   :2682.2   Mean   :0.21811   Mean   : 415.45
 3rd Qu.: 8870   3rd Qu.:3989.5   3rd Qu.:0.26267   3rd Qu.: 777.50
 Max.   :12212   Max.   :4864.2   Max.   :0.46413   Max.   :1300.00
```

	area	peri	shape	perm
1	4990	2791.90	0.09	6.30
2	7002	3892.60	0.15	6.30
3	7558	3930.66	0.18	6.30
4	7352	3869.32	0.12	6.30
5	7943	3948.54	0.12	17.10
6	7979	4010.15	0.17	17.10
7	9333	4345.75	0.19	17.10
8	8209	4344.75	0.16	17.10
9	8393	3682.04	0.20	119.00
10	6425	3098.65	0.16	119.00

Figure 22:



Teach yourself Shiny

The How to Start Shiny video series will take you from R programmer to Shiny developer. Watch the complete tutorial here, or jump to a specific chapter by clicking a link below. The entire tutorial is two hours and 25 minutes long.

Figure 23:

Einführung in Shiny

Links

- Eine Dashboard App erzeugen