

rbtl - Data communication

Lars Schöbitz

Global Health Engineering - ETH Zurich

2022-05-31

Today

1. Part 1: Exam advice and practice
 - Programming exercise
2. Part 2: Data communication
 - Live Coding Exercise
3. Part 3: What comes next?
4. Part 4: Evaluation
5. Part 5: Individual work and questions

Learning Objectives

1. Learners can use ~~R-Markdown~~ Quarto and GitHub to publish ~~their group project~~ a report.
2. Learners can use exported references from Zotero in Better BibTeX Format to generate an automated reference list. [Assignment 3 - YouTube Video - 13:58](#)
3. Learners can cross-reference figures and tables within an R Markdown file.

Part 1: Exam advice and practice

Bookmarks



New Tab



Search with Google or enter address



Email



rbtl



rbtl-exam



ae-10



ae-11



ae-12



ae-13



research-project

Open All in Tabs

Timing

- Room: IFW C42 (**not our lecture room**)
- Doors open: 14:30 (also on Zoom)
- Exam start: 15:15
- Exam end: 17:15

Workflow

- Open Projects page on RStudio Cloud rbtl-fs22 Workspace
- Look for 'exam-fs22' assignment
- Click 'Start'

exam-fs22

START



Lars Schöbitz



RStudio Project



Space members

Created May 31, 2022 12:25 PM

Workflow

- Briefly read through each section at the beginning to see what's coming
- 20 tasks coding tasks in four sections
- Points for each task are shown
- Work through the sections

```
.  
├── README.md  
├── data  
│   └── what_a_waste  
├── exam-fs22.Rproj  
├── section-01.qmd  
└── section-02.qmd
```

Workflow

- No cloning repositories in this exam
- No commits during the exam time (one commit after the exam time ends)
- No pushing to GitHub in this exam

Rules

- Headphones (music) allowed
- Stick Notes or raised hand for support (no loud calling)
- No talking with each other
- Individual work (0 points of code is shared)

Practice Exam

ae-15-data-communication

1. Head over to the GitHub Organisation for the course.
2. Find the repo for week 15 that has your GitHub username.
3. Clone the repo with your username to the RStudio Cloud.
4. Open the file: `ae-15a-communicate.qmd`
5. Use your Sticky Notes to let me know when you are ready.

Work through the tasks

```
attachEvent("onreadystatechange",H),e.attachE
boolean Number String Function Array Date RegE
_={};function F(e){var t=_[e]={};return b.ea
t[1])===!1&&e.stopOnFalse){r=!1;break}n=!1,u&
?o=u.length:r&&(s=t,c(r))}return this},remove
nction(){return u=[],this},disable:function()
re:function(){return p.fireWith(this,argument
ending",r={state:function(){return n},always:
romise)?e.promise().done(n.resolve).fail(n.re
dd(function(){n=s},t[1^e][2].disable,t[2][2].
=0,n=h.call(arguments),r=n.length,i=1!==r||e&
(r),l=Array(r);r>t;t++)n[t]&&b.isFunction(n[t
/><table></table><a href='/a'>a</a><input typ
/TagName("input")[0],r.style.cssText="top:1px
test(r.getAttribute("style")),hrefNormalized:
```

25:00

Step-wise points

```
1 ggplot(data = waste_data_long_mean,  
2       mapping = aes(x = mean_percent,  
3                     y = waste_category,  
4                     fill = income_cat)) + # 1  
5   geom_col(position = position_dodge()) + # 1  
6   labs(title = "Waste Composition", # 0.5  
7        subtitle = "Mean percentages ...", # 0.5  
8        x = "mean (percent)", # 0.5  
9        y = "waste category", # 0.5  
10       fill = "Income category", # 0.5  
11       caption = "Data from: ...") + # 0.5  
12   scale_x_continuous(breaks = seq(0, 50, 5)) + # 1  
13   scale_fill_brewer(type = "qual", palette = 3) + # 1  
14   theme_minimal() + # 0.5  
15   theme(panel.grid.minor = element_blank(), # 0.5  
16         panel.grid.major.y = element_blank()) # 0.5
```

What to study?

- Practice writing code
- All tasks are coding tasks and a small set of YAML header tasks
- Nothing Git or GitHub related

Part 2: Data communication

What is Quarto?

- Next generation version of R Markdown from RStudio
- Multi-language (Python, R, Julia, Observable)
- Authoring in plain text markdown or Jupyter notebooks

Editing documents

You're not limited to RStudio for editing Quarto documents...

- [JupyterLab](#)
- [VS Code](#)
- [Text Editors](#)

Authoring

- Technical articles, reports, presentations, websites, blogs, and books in HTML, PDF, MS Word, ePub, and more.
- Author with scientific markdown, including equations, citations, crossrefs, figure panels, callouts, advanced layout, and more.

Documentation

Quarto

quarto.org

quarto

OverviewGet StartedGuideReferenceGalleryBlogHelp

Twitter

GitHub

Search

Welcome to Quarto

Quarto® is an open-source scientific and technical publishing system built on [Pandoc](#)

- Create dynamic documents with Python, R, and JavaScript via integration with [Jupyter](#), [Knitr](#), and [Observable](#)
- Publish high-quality articles, reports, presentations, websites, blogs, and books in HTML, PDF, MS Word, ePub, and more.
- Author with scientific markdown, including equations, citations, crossrefs, figure panels, callouts, advanced layout, and more.

Get Started

Guide

Hello, Quarto

Jupyter

Knitr

Observable

Weave together narrative text and code to produce elegantly formatted output. Quarto documents are fully reproducible. Use

Live Coding Exercise

ae-15-data-communication

1. Back to `ae-15a-communicate.qmd`

Captions and cross-references

- no space between `{r}` and `#|` `tbl-cap: "A table"`
- spelling `tbl` not `tab`
- no spaces (use dashes in `label`)

See [Table 1...](#)

```
1  ```{r}
2  #| tbl-cap: "A table"
3  #| label: tbl-simple-table
4
5  tibble(
6    id = c(1, 2, 3),
7    name = c("X", "Y", "Z")
8  ) %>%
9    knitr::kable()
10  ```
```

Table 1: A
table

<u>id</u>	<u>name</u>
-----------	-------------

id	name
1	X
2	Y
3	Z

Part 3: What comes next?

rbtl community meetup events

- every two months
- ~1 hour code-along, followed by Apéro
- in-person and remote on Zoom
- first topic suggestions:
 - Get out of the Cloud!
 - Dashboards

Part 4: Evaluation

rbtl evaluation

- 5 mins
- anonymous
- after each lecture

kutt.it/rbtl-eval

ETH evaluation

- You received an Email from ETH LET
- Please take 30 minutes now to complete the survey
- If you have completed the survey already, then you can use your time freely now

Part 5: Individual work and questions

Thanks!



Slides created via revealjs and Quarto:

<https://quarto.org/docs/presentations/revealjs/> Access slides as [PDF on GitHub](#)

All material is licensed under [Creative Commons Attribution Share Alike 4.0 International](#).