R-Shiny from scratch

Jakob Willforss

github.com/Jakob37
linkedin.com/in/jakobwillforss

TODO for Jakob here

Maybe start working through the workshop now? Organize it around discrete stages (getting started …). For each of these, I will briefly present basics, share the code, and invite them to do further explorations beyond these.

Maybe I can push the code on the spot to the GitHub repository?

Would be nice to end with deploying, at least showing it!

Also include the bonus sections on the interactivity

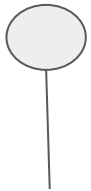
What can R-Shiny do for you

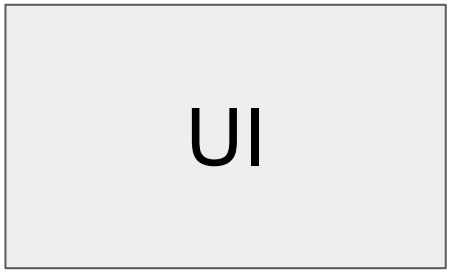
Allow yourself, other someone else interactively draw conclusions independently

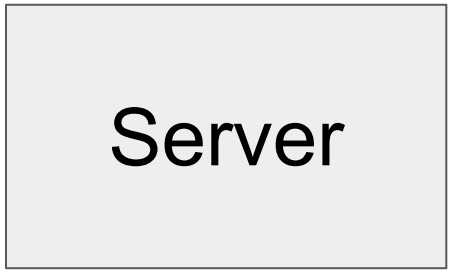
Can be done as a way of presenting a certain dataset, a 'dashboard' providing continuously updating information or even used for software development

Very rapid for prototyping and web deployment

The UI / server structure







Data inputs
User settings
Display points

CSS, Javascript, HTML

Data inputs
User settings
Display of visuals

The UI / server structure - A minimal setup

```
ui <- ….

server <- ....
```

Now we have a minimal viable Shiny-app!

Let's make it more interesting

```
ui <- ….

server <- ....
```

Now we have something runnable!

Deployment

During development - can easily be executed locally

Can deployed with minimal server setup

Can be deployed using web services https://www.shinyapps.io/

A few useful notes before we get started

- {dplyr}
- {ggplot2}
- Reactive programming

A note on … reactive programming

We are used to a linear fashion

UI software often uses reactive

A note on ggplot2

- Highly flexible and widely used visualization package in R (maybe the most popular)
- The basics of the syntax

```
ggplot(data, aes(x=..., y=..., color=...)) + geom_point()
```

-> Output plot

A note on dplyr

- Using the %>% {magrittr} pipeline
- Clear syntax for common data processing operations
- We will use:
  - filter()
  - select()

Hands-on time! The exercise covers:

- Getting a minimal app up and running (15 min)
- Getting in UI controls (15 min)
- Linking these UI controls to plots and data table displays (15 min)
- Using a reactive data component (15 min)
- Deploy your dashboard! (15 min)
- Bonus: Increasing the interactivity using {DT} and {Plotly}

We will see how far we make it here!

I have prepared a dataset from Gapminder but you

We might not make it all the way, you are welcome to email me follow-up questions on ...

Intermediate learning

- Deplying your app to shinyapps.io
- Using Plotly.js for directly interactive plots

Beyond this primer

- Dashboards