RDashboards & Shiny Apps

Julian & Simon

Today's Session

1. About CorrelAid

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2. Examples of R Shiny Apps

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3. Structure of R Shiny Environment

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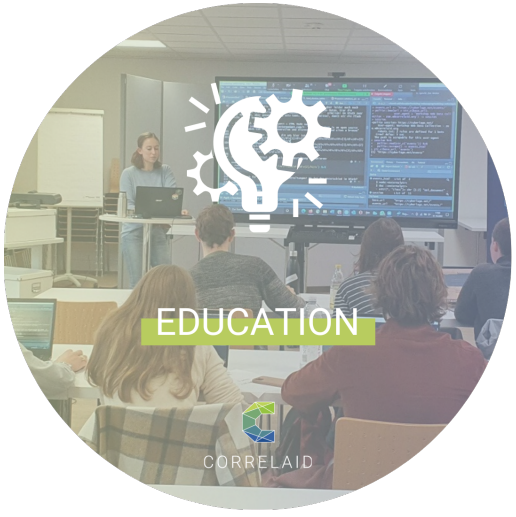
4. Shiny's Heart: Reactivity
5. Further Resources

Correlaid

We are a Europe-wide network of over 2,000 data enthusiasts who want to improve the world through data science. Either fully remote or through our local hubs.

3 pillars of our work

We carry out **pro bono data analysis** for non-profit organizations. These collaborations allow our data analysts to apply and expand their knowledge.



We network committed socially-minded data analysts. **We improve data literacy in society.**

Our volunteers **share their knowledge** and learn with and from each other. Organized into local groups or across groups throughout Europe.

Examples of Shiny Applications

Government / Public sector

Mostly open data

Freedom of Press Index

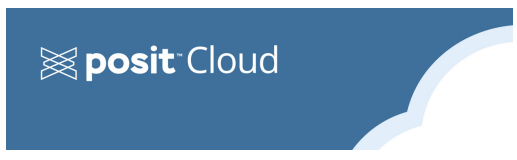
Voronoys - Understanding voters' profile in Brazilian elections

Crime Watch

Pasture Potential Tool for improving dairy farm profitability and environmental impact

https://shiny.rstudio.com/gallery/

Build your own Shiny Environment



GitHub, **posit Cloud** and **shinyapps.io**

Step by Step Instruction

1. Create a **GitHub** account
2. Log in on **posit Cloud** with your GitHub account
3. Create a shiny application
4. Log in on **shinyapps.io** with your GitHub account
5. Create a Token in shinyapps.io and activate it in posit Cloud via *rsconnect::setAccountInfo*
6. Publish Application

R Shiny: Reactivity

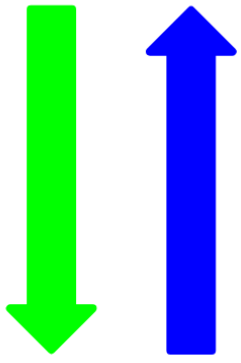
```
library(shiny)

ui <- fluidPage(
  sliderInput(inputId = "num",
    label = "Choose a number",
    value = 25, min = 1, max = 100),
  plotOutput("hist"),
  verbatimTextOutput("stats")
)

server <- function(input, output) {
  output$hist <- renderPlot({
    hist(rnorm(input$num))
  })
  output$stats <- renderPrint({
    summary(rnorm(input$num))
  })
}

shinyApp(ui = ui, server = server)
```

1) Reactive values notify



2) Reactive functions respond

Calling a Reactive Value Outside a Reactive Function

```
library(shiny)

ui <- fluidPage(
  sliderInput(inputId = "num",
    label = "Choose a number",
    value = 25, min = 1, max = 100),
  plotOutput("hist"),
  verbatimTextOutput("stats")
)

server <- function(input, output) {
  output$hist  <- hist(rnorm(input$num))
  output$stats <- summary(rnorm(input$num))
}

shinyApp(ui = ui, server = server)
```

```
> runApp('test')

Listening on http://127.0.0.1:7562
Warning: Error in : Can't access reactive value 'num'
 of reactive consumer.
i Do you need to wrap inside reactive() or observe()?
  55: <Anonymous>
Error : Can't access reactive value 'num' outside of
 consumer.
i Do you need to wrap inside reactive() or observe()?
```

`render` functions

Function	output$counterpart	creates
renderDataTable()	dataTableOutput()	An interactive table
renderImage()	plotOutput()	An image
renderPlot()	plotOutput()	A plot
renderPrint()	verbatimTextOutput()	A code block of printed output
renderTable()	tableOutput()	A table
renderText()	textOutput()	A character string
renderUI()	uiOutput()	A shiny UI element

Further Resources

- R Shiny Tutorial
- More detailed slides can be found here
- More about reactivity
- Customizing appearance
- Create web surveys in Google Docs / SQL