MZES SSDL - Shiny Apps: Development and Deployment

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15 October 2019

Shiny

Shiny from RStudio

- Shiny is a package by RStudio to build interactive web pages...
  - without having any knowledge of web development (HTML/CSS/JavaScript)
- Shiny Apps interact with R
  - Allows for calculations, display of R objects, presentation of results ...

Shiny App Components

1. Front end

- the web page actually shown to the user
- the HTML page written by Shiny
- includes layout, appearance, design features
- in Shiny terminology: `ui` (user interface)

2. Back end

- code running the app, including all functions, data import, etc.
- involves the logic of the app
- responsible for creating objects on the front end
- in Shiny terminology: `server`

Setting up a Shiny App

Shiny Apps can be set up in two different ways:

1. Single file App

- `ui` and `server` are stored in one script
- used when developing very simple Shiny Apps
- name of the file has to be `app.R`!!!

2. Two file App

- `ui` and `server` are stored in separate scripts
- clear separation between front end and back end
- highly preferable when developing more advanced Shiny Apps
- names of the files have to be `ui.R` and `server.R`!!!

$\rightarrow$ We are going to develop Shiny Apps using the Two File method

Developing Shiny Apps - Step by Step

Let's get started!

Workshop materials:
https://github.com/KostaGav/shiny-development-deployment

Features covered in the workshop:

Development:

1. Building a Shiny App from scratch
2. Building the plain UI
3. Getting output objects and control widgets into the UI
4. Implementing the server logic
5. Output/Input Reaction
6. Rendering objects
7. Reactivity

Deployment:

1. Deploy your app using `shinyapps.io`

Building a Shiny App from scratch

```
install.packages("shiny")
library(shiny)
runExample("01_hello")
#To show alternative Apps, please type runExample(NA)
#and choose another example
```

Building a Shiny App from scratch

- Create a new folder with two R scripts:

`ui.R`:

```
library(shiny)
ui <- fluidPage()
```

`server.R`:

```
server <- function(input, output){}
```

- Launch the Shiny App by pressing the 'Run App' button in the top right corner

Building the plain UI

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