How to create a Shiny web app in R

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What is Shiny?

A web page connected to a computer running a live R session - Shiny cheat sheet

And all you need is:

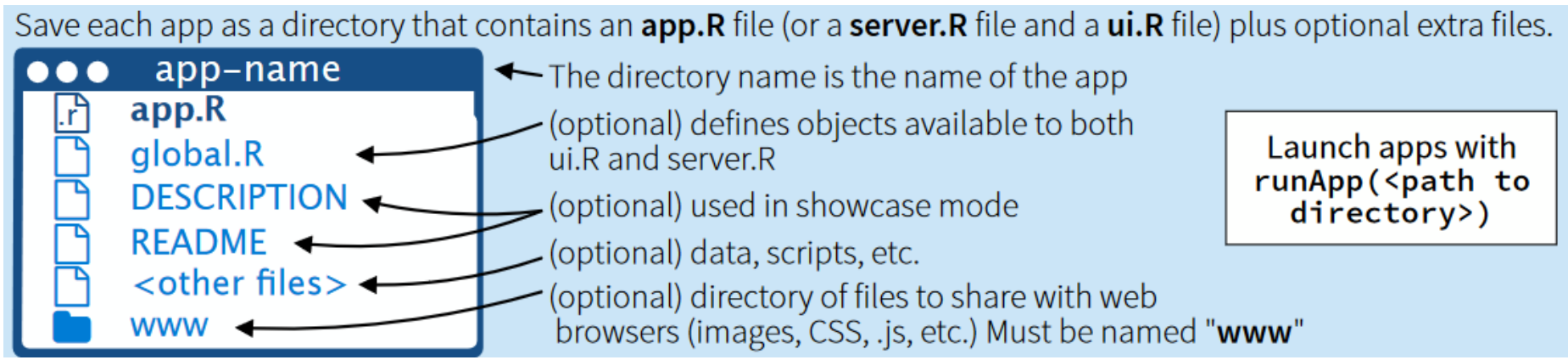
- `R-studio`
- `install.packages("shiny")` and `library(shiny)`
- Basic R knowledge (for using templates) and good R knowledge for doing more tailored apps

Templates

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

Shiny file structure

- `ui.R` define the user interface
- `server.R` compute the function, graph etc. depending on the input from the user
- `global.R` contain all additional code for the app
- All files are saved in a folder with the name of the app



How to learn Shiny (except for this tutorial)

Basic tutorials

https://shiny.rstudio.com/tutorial/

https://www.youtube.com/watch?v=sJl0EE_RE4o&list=PLH6mU1kedUy-aGYi-w1XqSiGtViFK9NpI

https://github.com/aagarw30/R-Shinyapp-Tutorial

Shiny-cheatsheet

http://shiny.rstudio.com/images/shiny-cheatsheet.pdf

Simple example

`https://shiny.rstudio.com/articles/basics.html`

ui.R

```
# UI for app that draws a histogram
ui <- fluidPage(
# App title ----
  titlePanel("Hello Shiny!"),
# Sidebar layout with input
# and output definitions
  sidebarLayout(
# Sidebar panel for inputs
    sidebarPanel(
# Input: Number of bins
  sliderInput(inputId = "bins",
      label = "Number of bins:",
      min = 1,
      max = 50,
      value = 30)
    ),
# Main panel for displaying outputs
    mainPanel(
# Output: Histogram ----
      plotOutput(outputId = "distPlot")
    )
  )
```

ui.R and server.R

ui.R

```
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# Main panel for displaying outputs
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# Output: Histogram ----
      plotOutput(outputId = "distPlot")
    )
  )
)
```

server.R

```
# Server logic to draw a histogram
server <- function(input, output){

output$distPlot <- renderPlot({

x    <- faithful$waiting
bins <- seq(min(x), max(x),
            length.out = input$bins +

hist(x, breaks = bins, col = "#75AA
border = "white",
xlab = "Waiting time to next erupti
main = "Histogram of waiting times"
  })
}
```

Ways to use Shiny

- Visualize a complex function: `https://afheritability.shinyapps.io/afheritability/`
- Create a user interface for an R package: `https://github.com/jstockwin/EpiEstimApp/wiki`
- To collect information and collaborate: `https://daattali.com/shiny/mimic-google-form/`
- Even games!: `https://daattali.com/shiny/lightsout/`

Thank you!