Shiny

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Shiny is an R package that makes it easy to build interactive web apps straight from R.

You can host - standalone apps on a webpage - embed them in R Markdown documents - build dashboards

I highly recommend you to visit https://shiny.rstudio.com/ for the documentation and gallery.

Host

There are multiple way to host a shiny app.

- Install shiny server on a computer that you own
- Upload your app to https://www.shinyapps.io/
  - Each month you have 25 free active hours
  - Maximum 5 apps for free

First Shiny App

There are couple ways to create an shiny app (we are going to focus on RStudio).

- File -> New File -> Shiny Web App
  - Single file
  - Multiple file (essentially the same as single file)
- File -> New File -> R Markdown -> Shiny
- File -> New File -> R Markdown -> From Template -> Flex Dashboard (if `flexdashboard` was installed.)

Basic Struture

```
ui <- fluidPage(
  # controls the layout and content of the application
)


server <- function(input, output) {
  # controls the interaction, modifly output based on user input
}

# run the application
shinyApp(ui = ui, server = server)
```

We are going to use the tutorial in https://github.com/rstudio-education/shiny.rstudio.com-tutorial

Input and Output

Input
checkboxInput
dateInput
dateRangeInput
fileInput
numericInput
selectInput
varSelectInput
sliderInput
textInput
textAreaInput
passwordInput

Output	Render
uiOutput	renderUI
imageOutput	renderImage
plotOutput	renderPlot
tableOutput	renderTable
dataTableOutput	renderDataTable
textOutput/verbatimTextOutput	renderText

Reactivity

Reactivity maybe the most challenging part of learning shiny!

- `reactive()`
- `observe` and `observeEvent()`
- `eventReactive()`
- `isolate()`
- `reactiveVal()` and `reactiveValues`

Basic HTML elements

https://www.learn-html.org/en/Basic_Elements