Let's make a shiny dashboard

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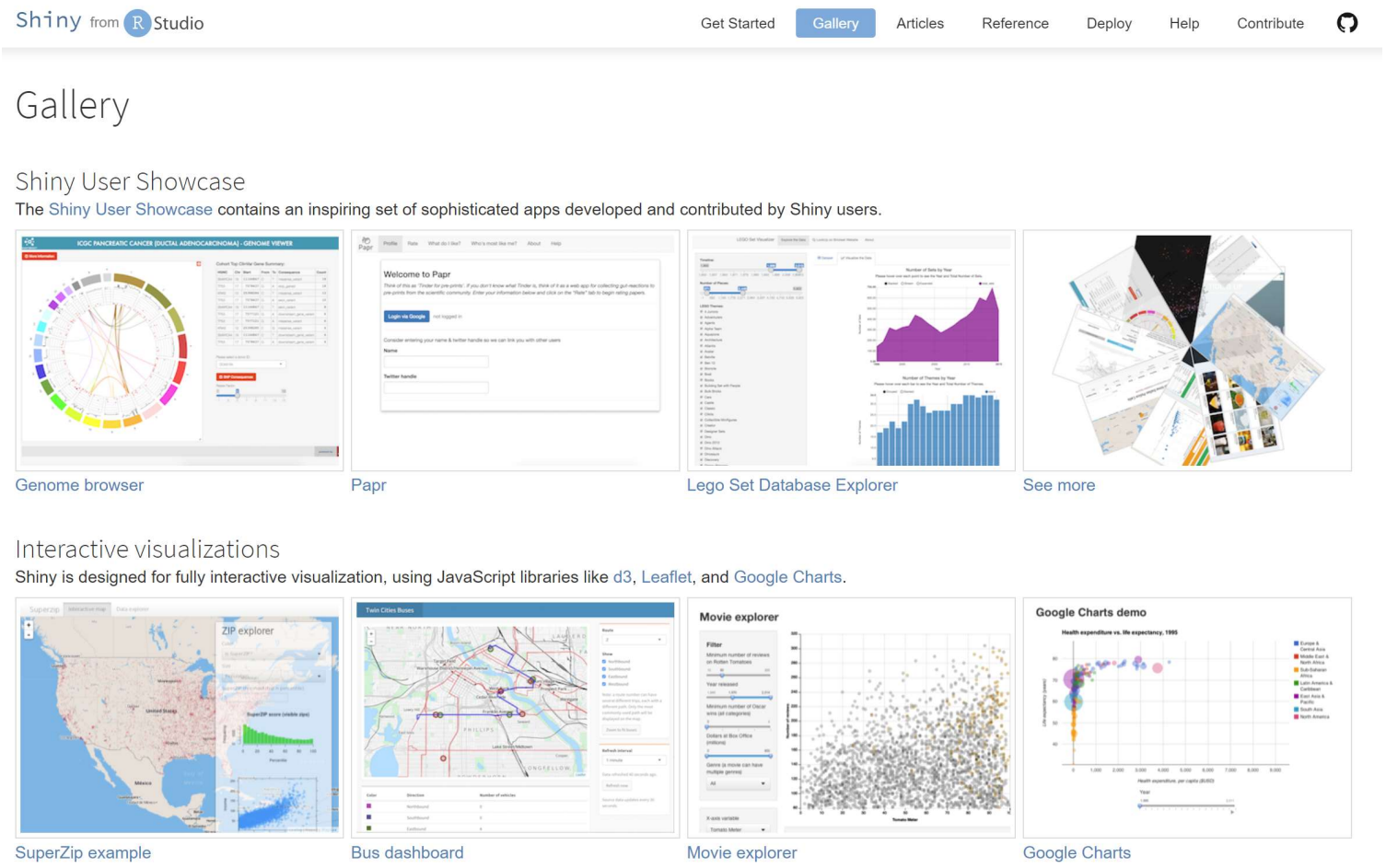
2019-02-04

What is shiny?



https://shiny.rstudio.com

Plan for today:

- Step-by-step creation of a shiny dashboard
- A little bit on how shiny works
- Some nice extra features

Code instructions:

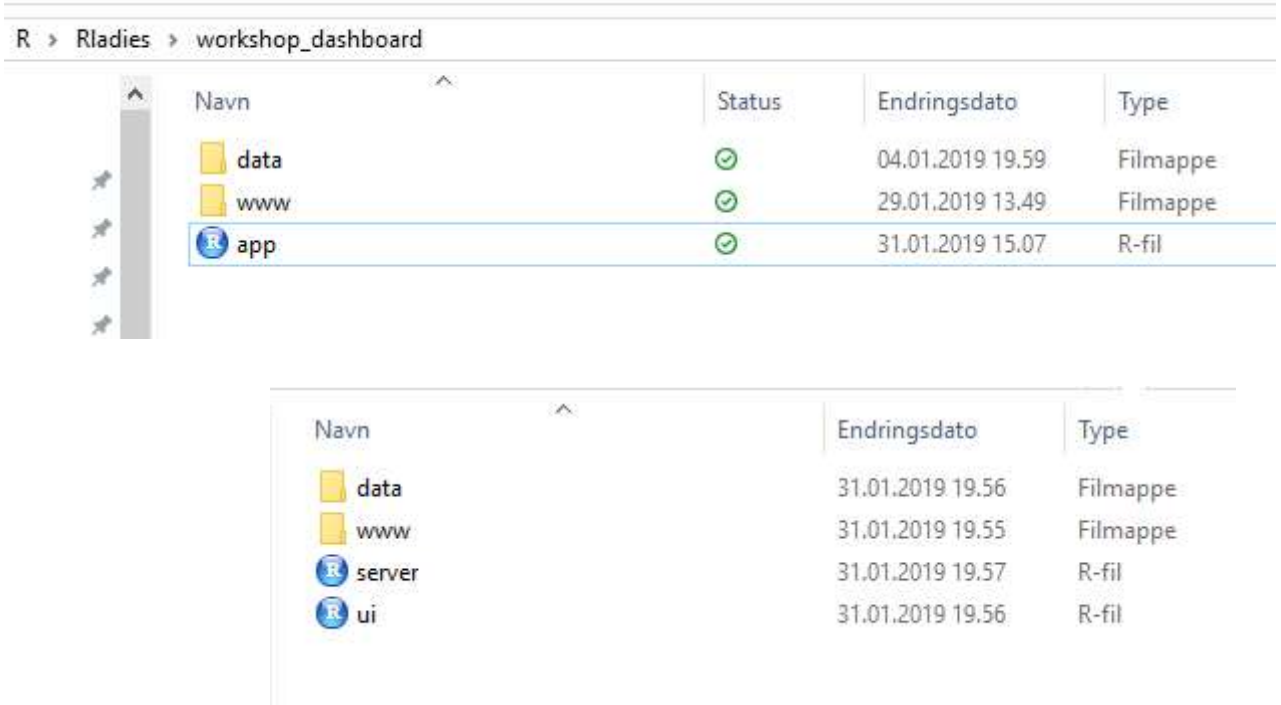
```
```

Setup

We need these packages:

File structure

We will use the upper file structure:



Starter code

- https://rstudio.github.io/shinydashboard/get_started.html or
- https://github.com/rladies/meetup-presentations_oslo -> shiny-workshop/starter_kit

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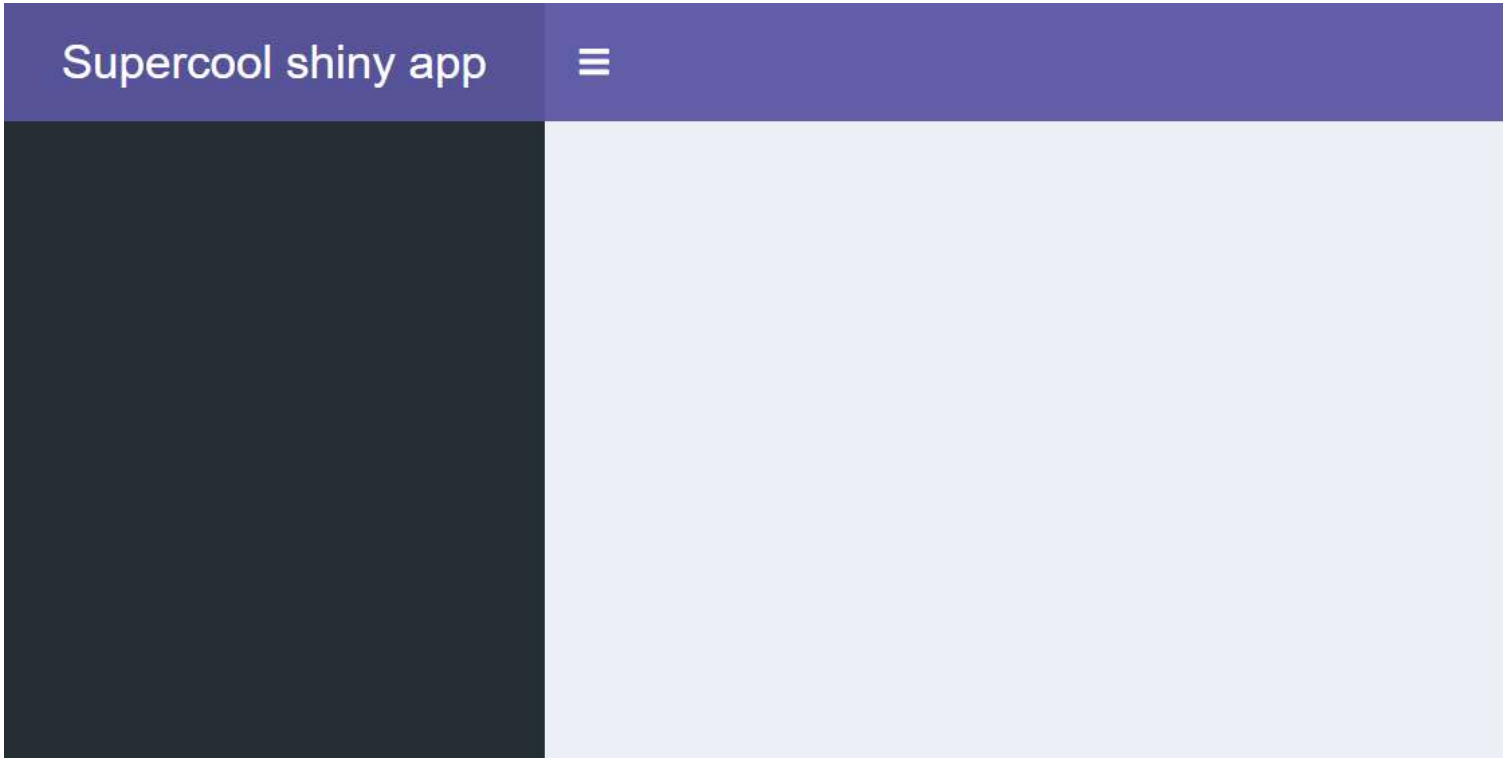
Title and color



Create tabs and menu

Icons: https://shiny.rstudio.com/reference/shiny/0.14/icon.html

Reactivity = magic?

Connect ui and server

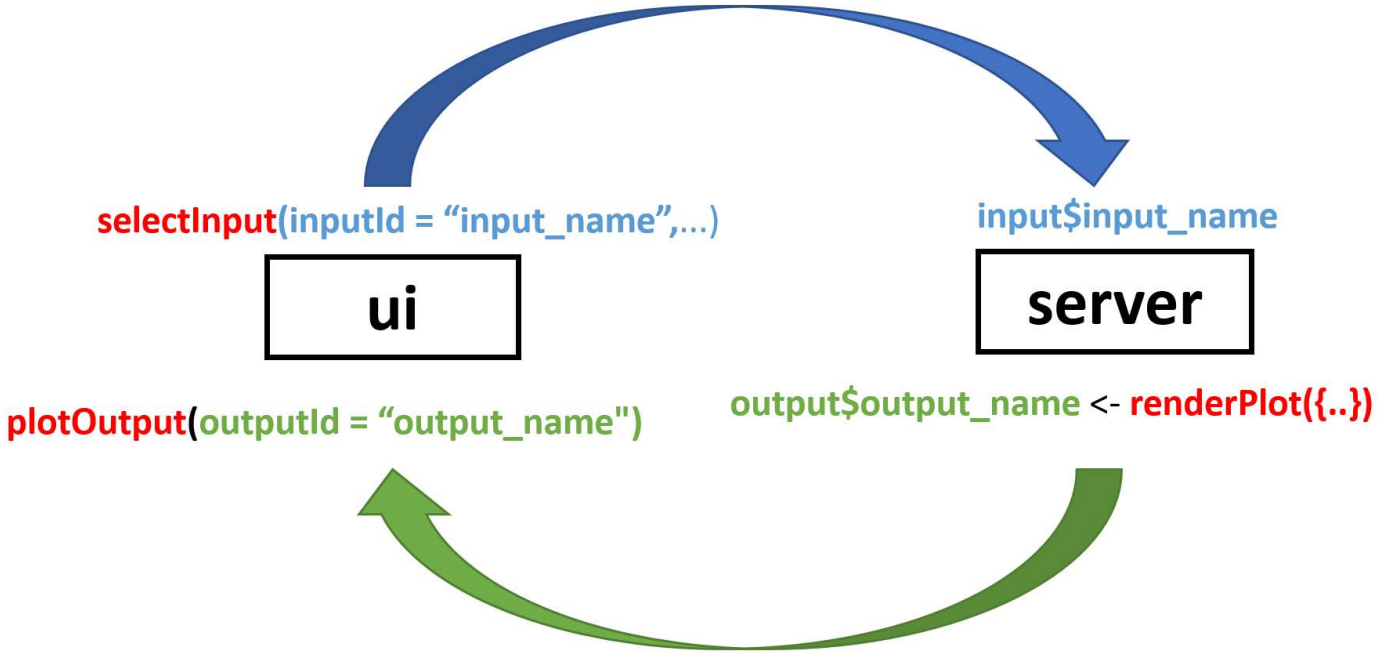
ui: “render” HTML

- Use widgets to create input
- Show output such as text, plots..

server: run R code

Connect ui and server

Connect ui and server

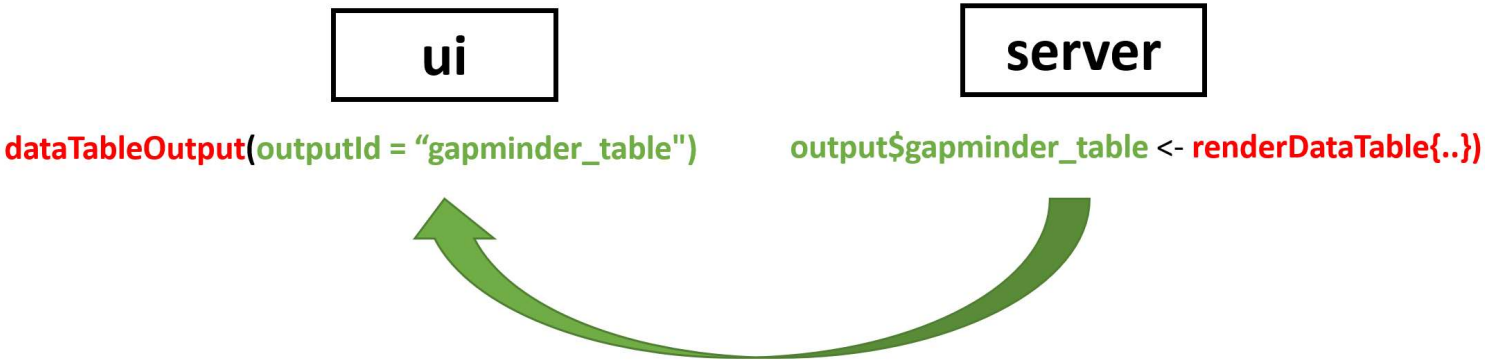


https://shiny.rstudio.com/articles/reactivity-overview.html

Gapminder data

country	continent	year	lifeExp	pop	gdpPercap
Afghanistan	Asia	1952	28.801	8425333	779.4453
Afghanistan	Asia	1957	30.332	9240934	820.8530
Afghanistan	Asia	1962	31.997	10267083	853.1007
Afghanistan	Asia	1967	34.020	11537966	836.1971
Afghanistan	Asia	1972	36.088	13079460	739.9811
Afghanistan	Asia	1977	38.438	14880372	786.1134

First output: Data table



First output: Data table

```
```

Add the output object under the tab in the ui

```
```

Create the table on the server side

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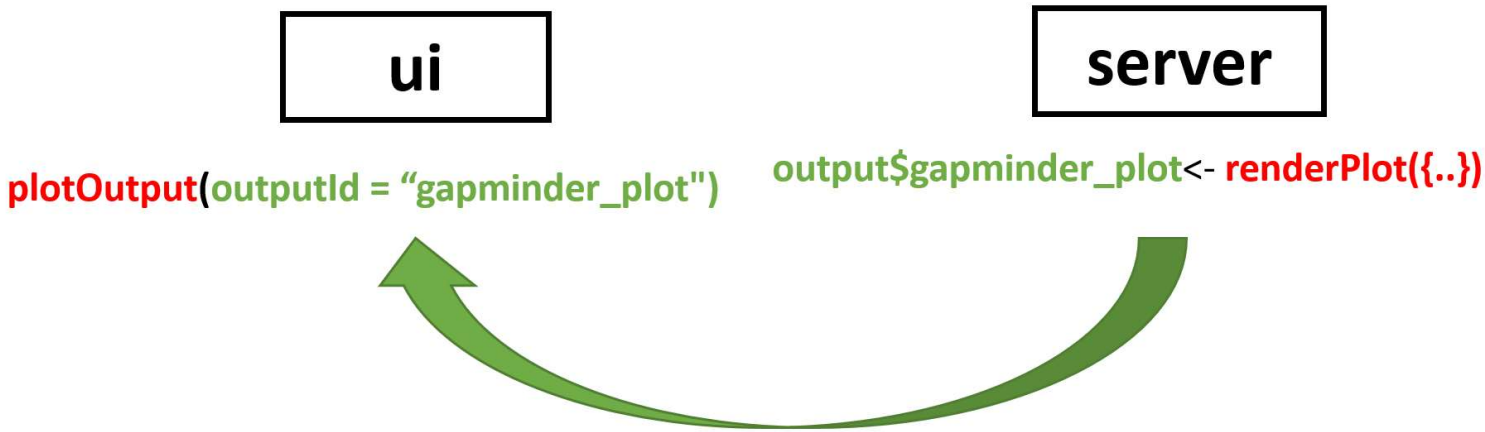
```

Plots: renderPlot and plotOutput

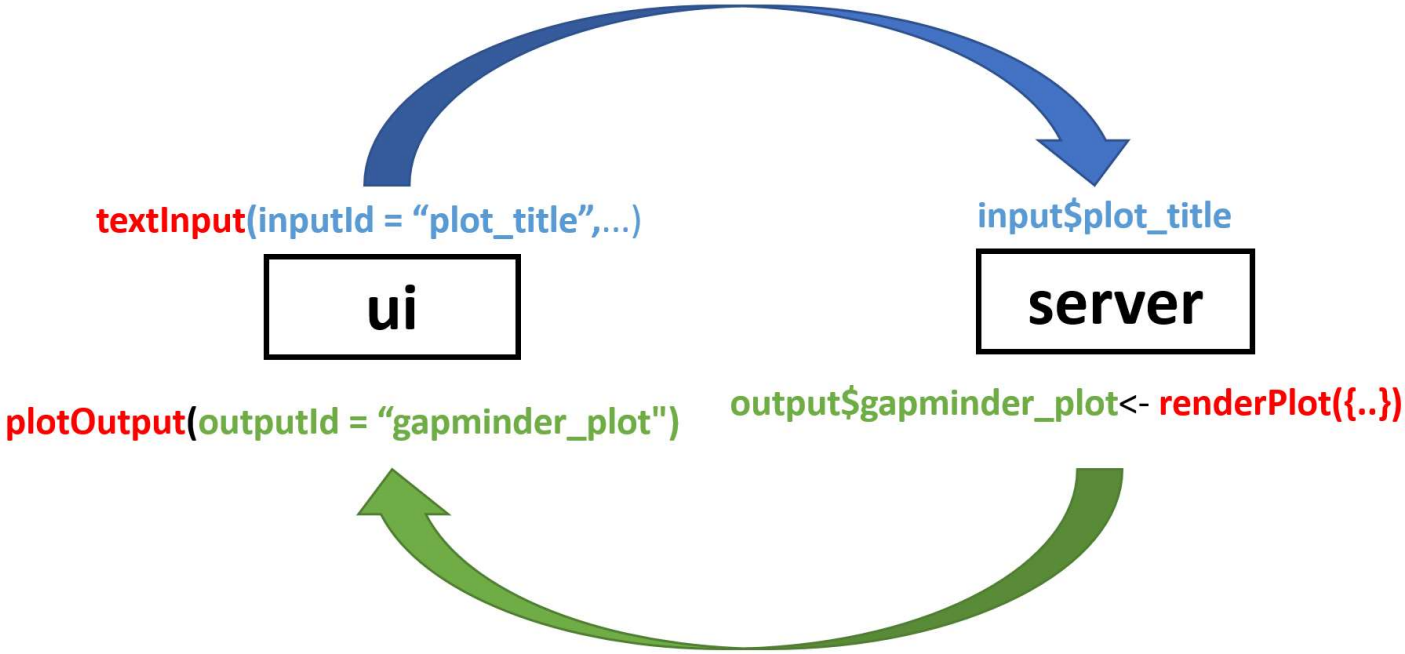


Plots: renderPlot and plotOutput

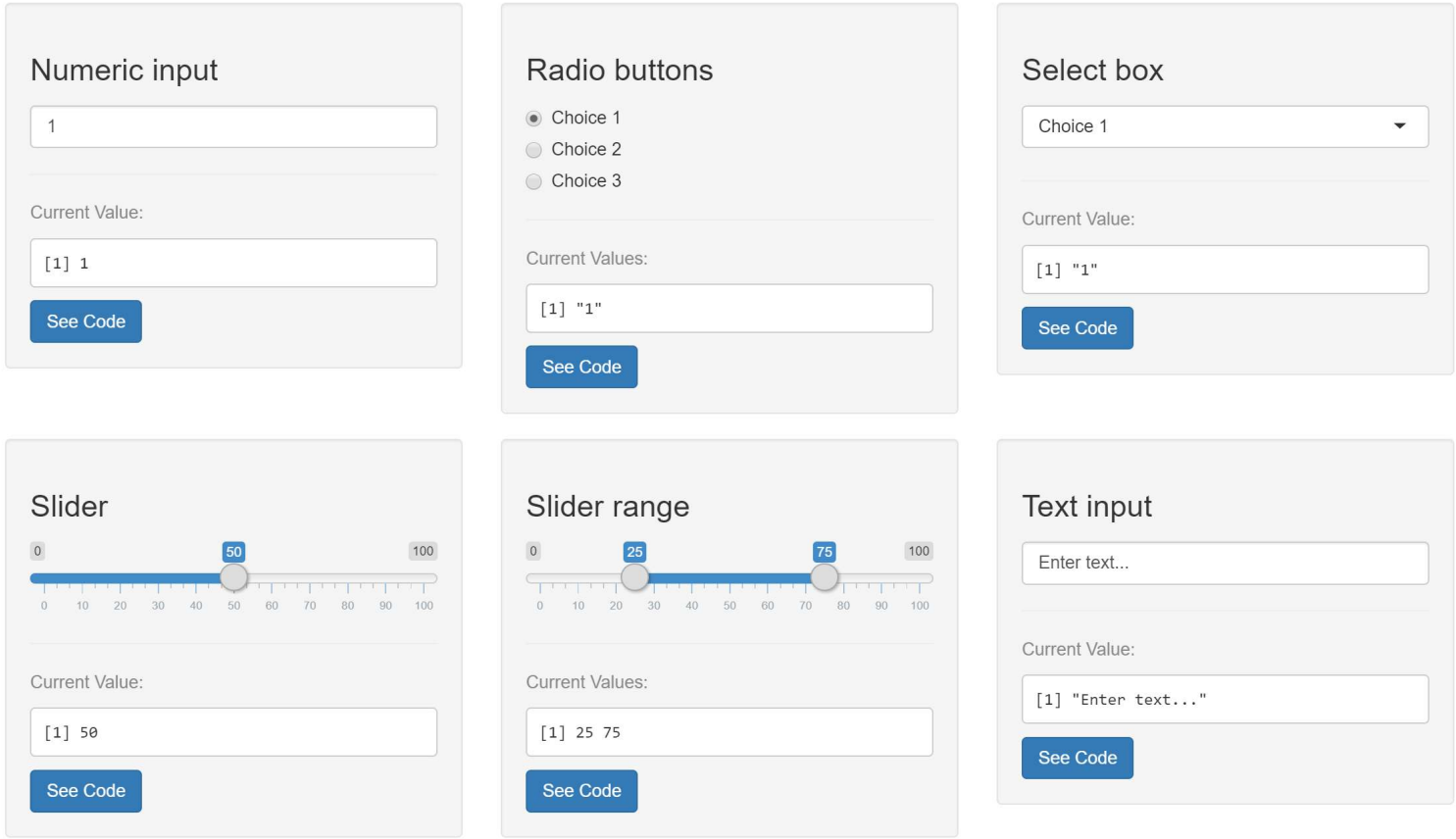
Create a row and a box and a plotOutput in the UI

Generate the plot on the server side

Use widgets to interact with the plot



Input widgets:



https://shiny.rstudio.com/gallery/widget-gallery.html

First widget: TextInput

Add another box for the widgets

First widget: TextInput

Connect the widget to the plot on the server side

Filter the data using a sliderInput

Add the widget in the same box

```

```

Add a filter inside renderPlot on the server side

```

```

Use selectInput widget to pick continents

Add another widget in the same box

```

```

And connect it on the server

```

```

Exercise: create a numeric input widget to set the point size

- inputId = "point_size"
- label = "Point size"
- value = 2

ui inside box:

```
```

server inside renderPlot:

```
```

Exercise: create a numeric input widget to set the point size

The widget goes in the ui

```
```

The input$point_size goes into renderPlot

```
```

Make it pretty using CSS

Cascading Style Sheets - the "makeup" of your app

Create a new file custom.css under www:

```
```

Include it in your app under dashboardBody

```
```

Advanced css: download the Rladies stylesheet we made for you from

https://github.com/rladies/meetup-presentations_oslo/tree/master/shiny-workshop/workshop_dashboard/www

```
```

Rladies logo

Download the logo from

https://github.com/rladies/meetup-presentations_oslo/tree/master/shiny-workshop/workshop_dashboard/www

into your app's www folder and add code.

After dashboard title:

Use plotly for animation

Include plotly

```

```

Create a new menu item

```

```

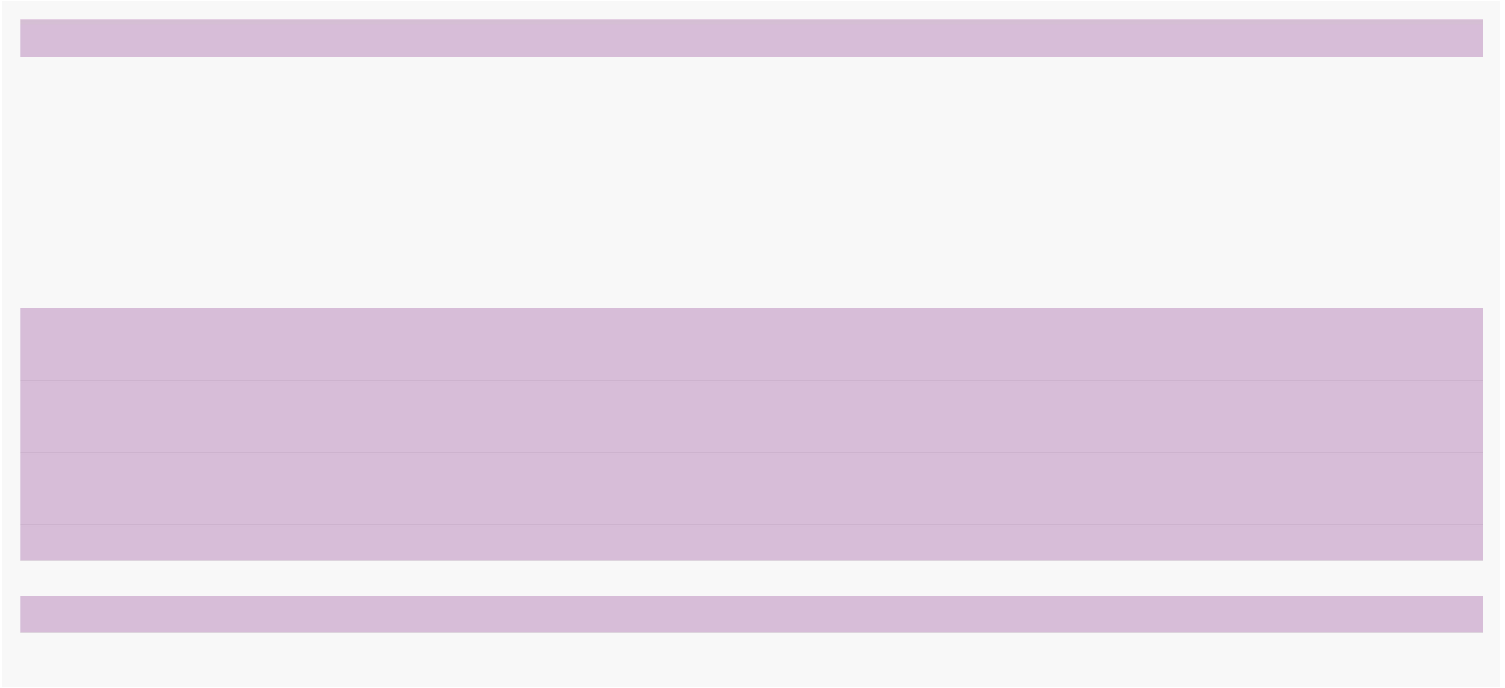
Create a new tab

```

```

Use plotly for animation

Create the plot:



Some cool extras

Actionbuttons can do lot's of things for example change tabs

Add button under the widgets in the plot tab

```

```

Special: To change tabs we need to name the menu

```

```

Actionbuttons can do lot's of things for example change tabs

Inside server: use **observeEvent** to listen to the button

```
```

Special: add **session** to the server arguments

```
```

ColourInput

```

```

ui inside box:

```

```

server inside renderPlot:

```

```

What next - Shiny in production

- Control reactivity: next topic to learn
- Responsivity:
  - Done for you
  - App scales size on any gadget (short demo)
- Scaling to many users:
  - Shinyloadtest - testing synthetic load of many users
  - Profvis - what part of code is slow
  - Keynote talk by Joe Cheng @ rstudioconf:2019: https://resources.rstudio.com/rstudio-conf-2019/shiny-in-production-principles-practices-and-tools-joe-cheng
- Deployment:
  - shiny server: https://www.rstudio.com/products/shiny/shiny-server/
  - shinyapps.io: https://shiny.rstudio.com/articles/shinyapps.html
  - RstudioConnect: https://www.rstudio.com/products/connect/

Next meetup: 18 March!

Bayesian methods for rank and preference data - from recommendation systems to cancer genomics - https://www.meetup.com/rladies-oslo/events/256566088/

See also Oslo useR! on Wednesday: https://www.meetup.com/Oslo-useR-Group/events/256805098/