Build an Alien Sightings Dashboard

BUILDING WEB APPLICATIONS WITH SHINY IN R

Kaelen Medeiros
Data Scientist

datacamp

Alien Sightings Dashboard

UFO Sightings

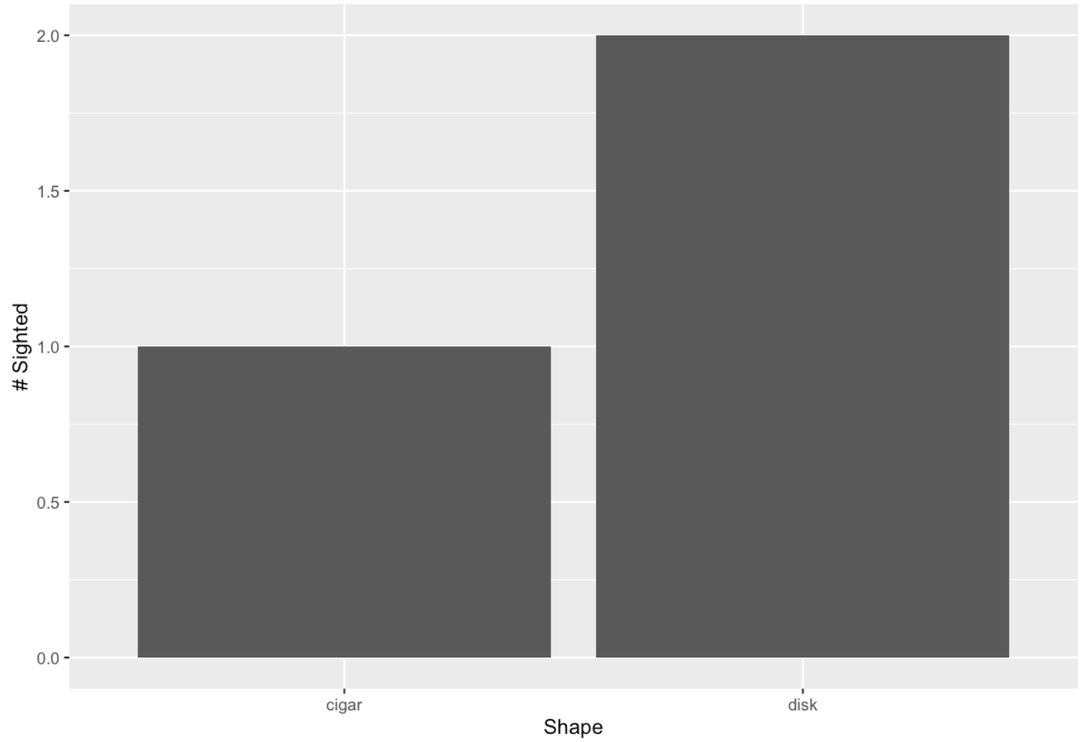
Choose a U.S. state:

AK

Choose a date range:

1920-01-01 to 1950-01-01

Number sighted | Duration table



Choices, choices...

```
ui <- fluidPage(
  selectInput("shape",
    "Choose a shape:",
    choices = unique(usa_ufo_sightings$shape)
  )
)
```

Alien Sightings Dashboard, tab 2

UFO Sightings

Choose a U.S. state:

CA

Choose a date range:

1920-01-01 to 1950-01-01

Number sighted | Duration table

shape	nb_sighted	avg_duration_min	median_duration_min	min_duration_min	max_duration_min
chevron	1	4.00	4.00	4.00	4.00
cigar	1	3.00	3.00	3.00	3.00
circle	2	30.00	30.00	30.00	30.00
disk	2	3.50	3.50	2.00	5.00
light	3	8.67	10.00	1.00	15.00
sphere	2	0.17	0.17	0.17	0.17

Let's practice!

BUILDING WEB APPLICATIONS WITH SHINY IN R

Exploring the 2014 Mental Health in Tech Survey

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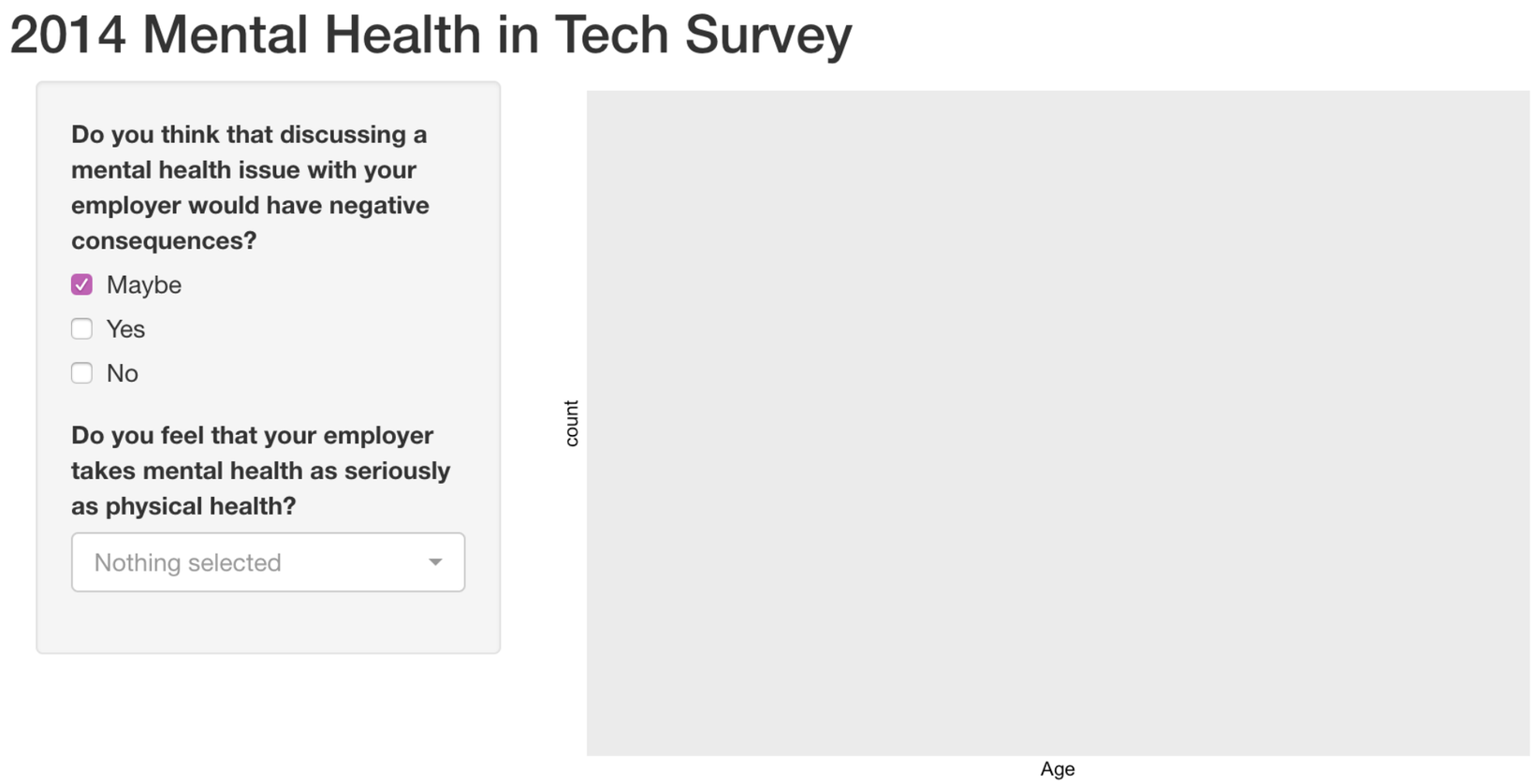
2014 Mental Health in Tech Survey

- Administered by Open Sourcing Mental Illness (OSMI), a non-profit
- OSMI website with survey: **https://osmihelp.org/research**
- Filter for `Age` > 0
- Inputs are questions about mental health consequences and mental vs. physical health

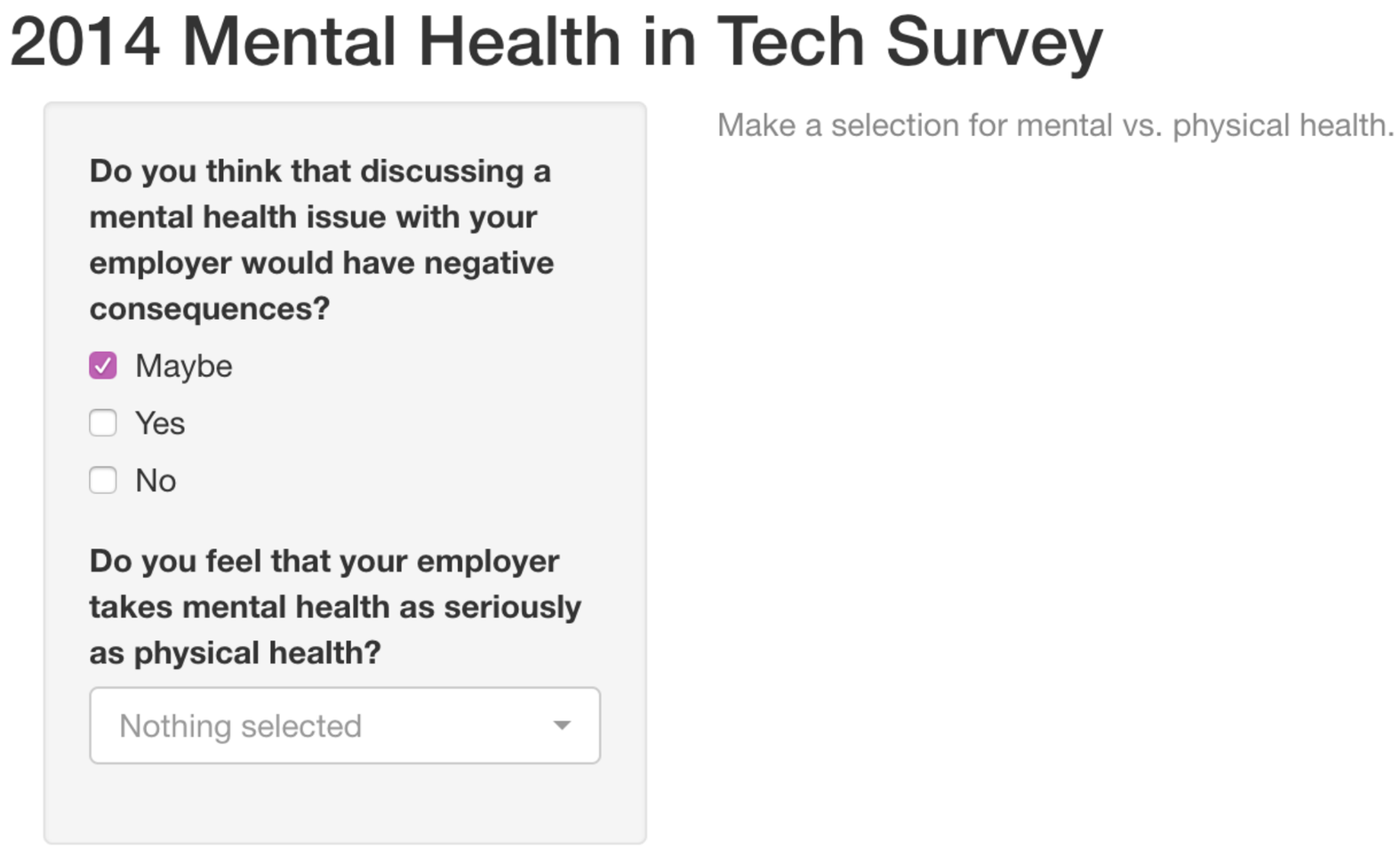
2014 Mental Health in Tech Survey app



Custom error messages

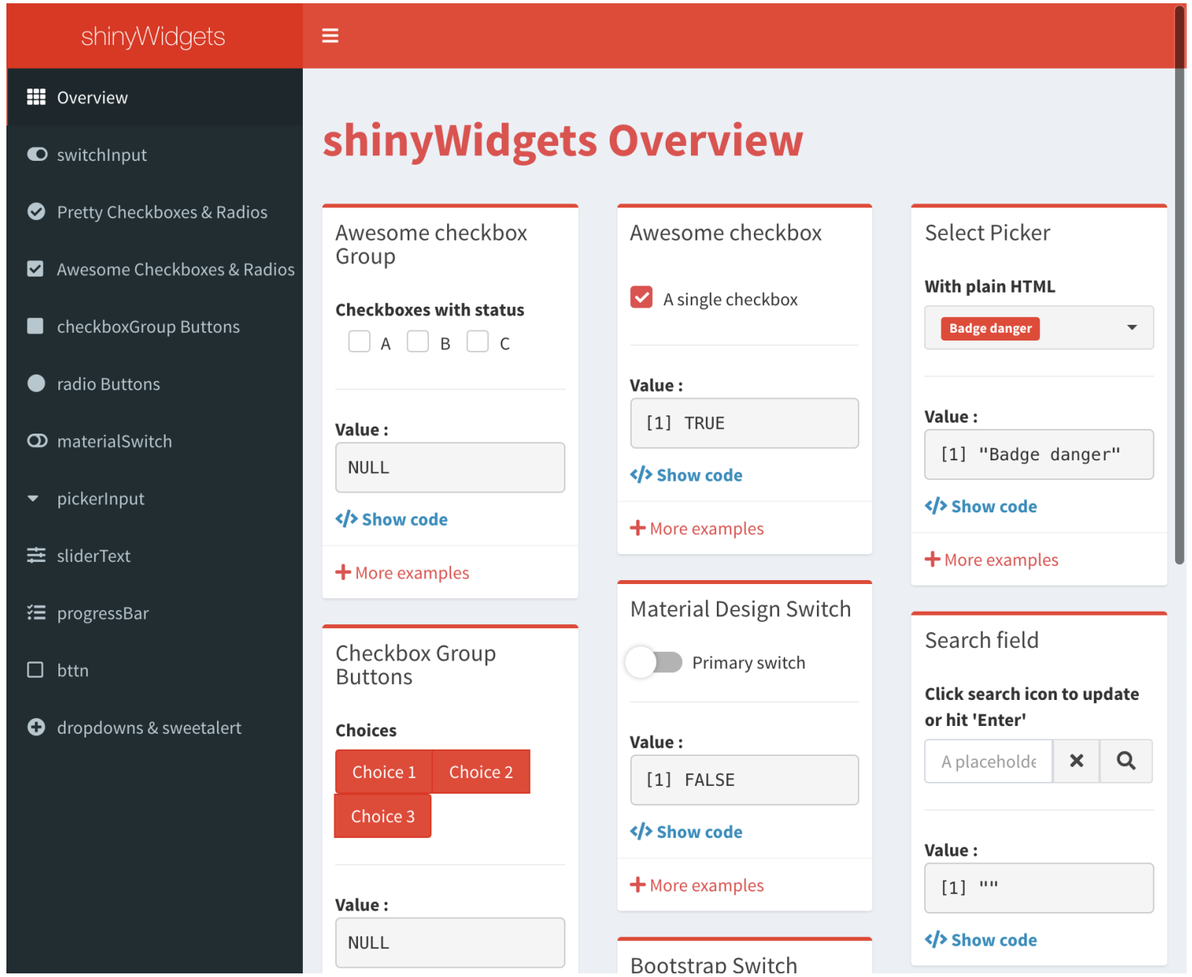
```
server <- function(input, output, session) {
  output$age <- renderTable({
    validate(
      need(input$age != "", "Be sure to select an age.")
    )

    mental_health_survey %>%
      summarize(avg_age = mean(Age))
  })
}
```

Custom error messages



shinyWidgets

```
shinyWidgetsGallery()
```



Let's practice!

BUILDING WEB APPLICATIONS WITH SHINY IN R

Explore cuisines

BUILDING WEB APPLICATIONS WITH SHINY IN R

Ramnath Vaidyanathan
VP of Product Research

Explore data

recipe_id <dbl>	cuisine <chr>	ingredient <chr>
10259	greek	romaine lettuce
10259	greek	black olives
10259	greek	grape tomatoes
10259	greek	garlic
10259	greek	pepper
10259	greek	purple onion
10259	greek	seasoning
10259	greek	garbanzo beans
10259	greek	feta cheese crumbles
25693	southern_us	plain flour

1–10 of 428,275 rows

Previous 1 2 3 4 5 6 ...

Explore Cuisines

Select Cuisine

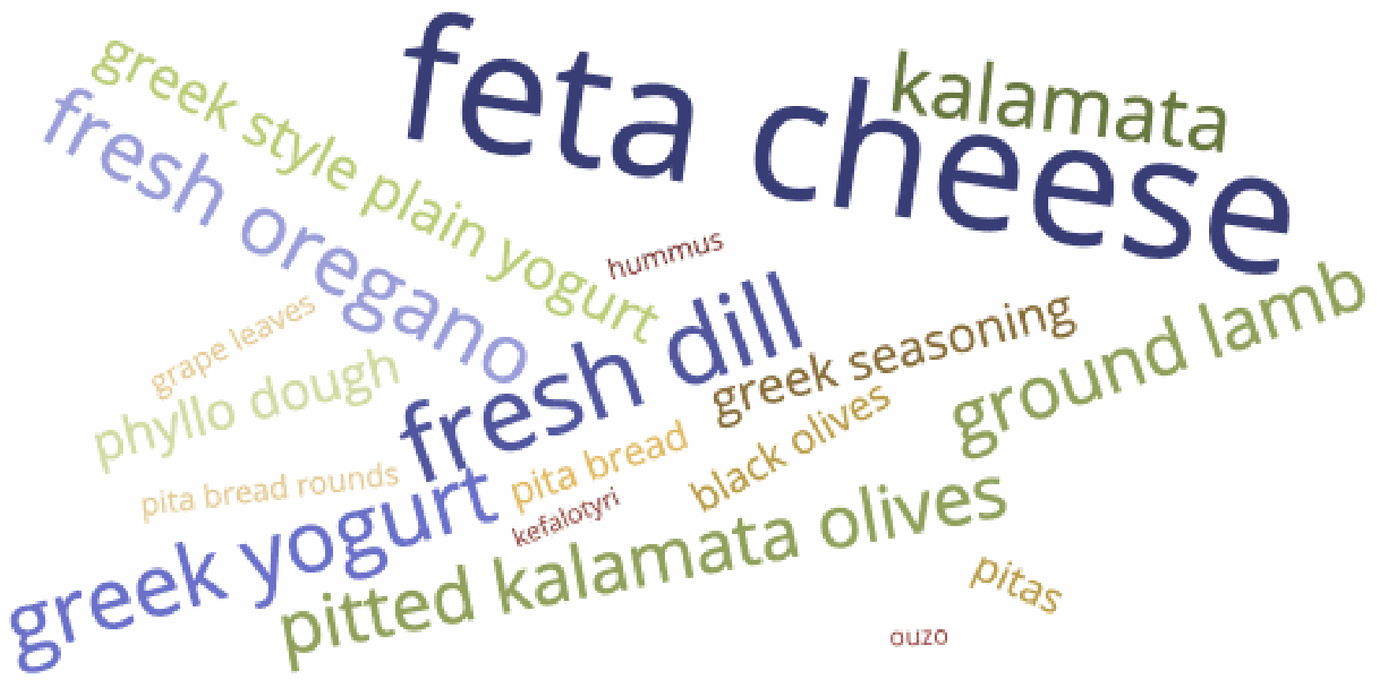
greek

Select No. of Ingredients

5 20 100

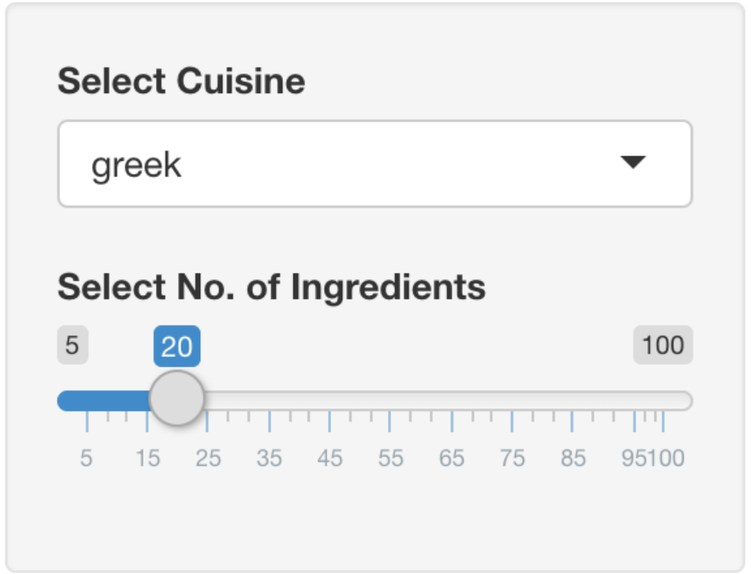
5 15 25 35 45 55 65 75 85 95100

Word Cloud | Plot | Table



```
ui <- fluidPage(
  titlePanel('Explore Cuisines'),
  sidebarLayout(
    sidebarPanel(
      selectInput('cuisine', 'Select Cuisine', unique(recipes$cuisine)),
      sliderInput('nb_ingredients', 'Select No. of Ingredients', 5, 100, 20),
    ),
    mainPanel(
      tabsetPanel(
        tabPanel('Word Cloud', d3wordcloudOutput('wc_ingredients')),
        tabPanel('Plot', plotly::plotlyOutput('plot_top_ingredients')),
        tabPanel('Table', DT::DTOutput('dt_top_ingredients'))
      )
    )
  )
)
```

Explore Cuisines



Word Cloud | Plot | Table

Add output: interactive table

```
output$dt_top_ingredients <- DT::renderDT({
    recipes %>%
      filter(cuisine == input$cuisine) %>%
      count(ingredient, name = 'nb_recipes') %>%
      arrange(desc(nb_recipes)) %>%
      head(input$nb_ingredients)
})
```

Compute TFIDF

cuisine <chr>	ingredient <chr>	nb_recipes <dbl>	tf_idf <dbl>
indian	salt	1934	0.00000000
indian	onions	1195	0.00000000
indian	garam masala	862	0.01565921

```
recipes_enriched <- recipes %>%
  count(cuisine, ingredient, name = 'nb_recipes') %>%
  tidytext::bind_tf_idf(ingredient, cuisine, nb_recipes)
```

cuisine <chr>	ingredient <chr>	nb_recipes <dbl>	tf_idf <dbl>
indian	garam masala	862	0.015659211
indian	curry leaves	208	0.007557114
indian	paneer	102	0.006155354

Add a reactive expression

```
rval_top_ingredients <- reactive({
  recipes_enriched %>%
    filter(cuisine == input$cuisine) %>%
    arrange(desc(tf_idf)) %>%
    head(input$nb_ingredients) %>%
    mutate(ingredient = forcats::fct_reorder(ingredient, tf_idf))
})
```

Add outputs: interactive plot and word cloud

```
output$plot_top_ingredients <- plotly::renderPlotly({
  rval_top_ingredients() %>%
    ggplot(aes(x = ingredient, y = tf_idf)) +
    geom_col() +
    coord_flip()
})
```

```
output$wc_ingredients <- d3wordcloud::renderD3wordcloud({
  d <- rval_top_ingredients()
  d3wordcloud(d$ingredient, d$nb_recipes, tooltip = TRUE)
})
```

Explore Cuisines

Select Cuisine

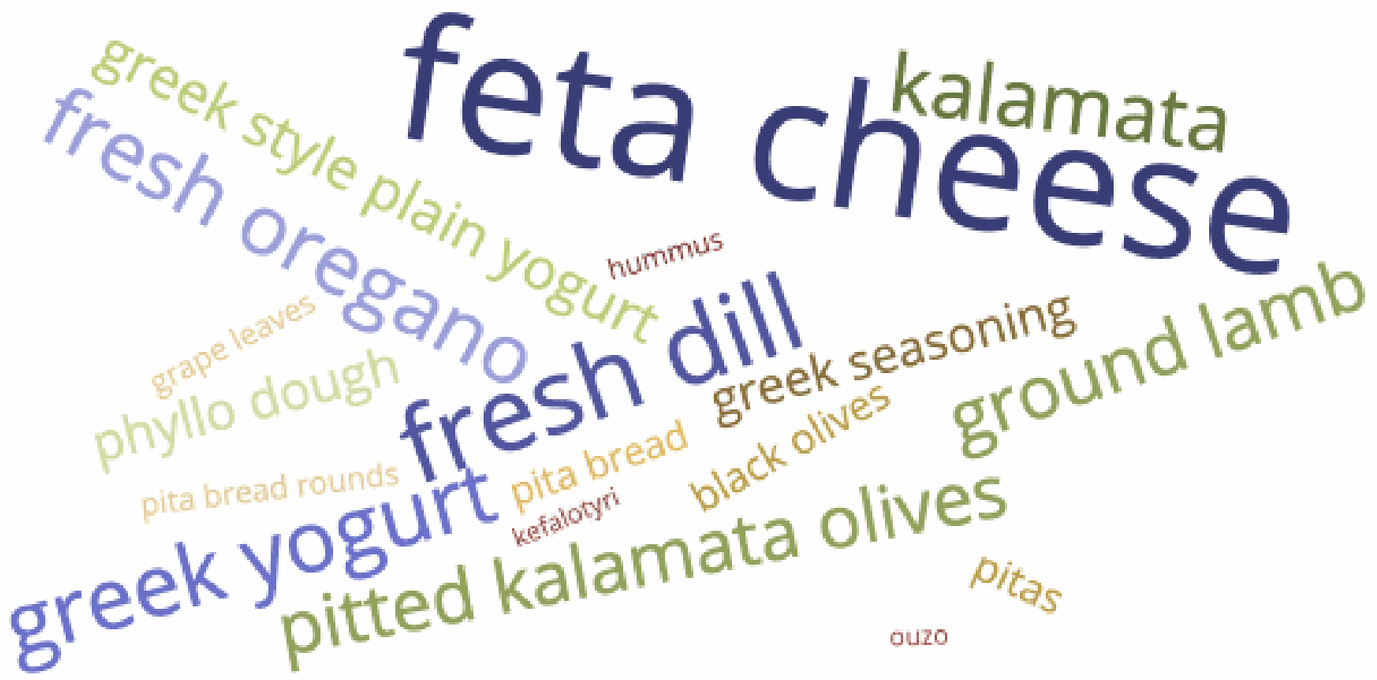
greek

Select No. of Ingredients

5 20 100

5 15 25 35 45 55 65 75 85 95100

Word Cloud | Plot | Table



Let's practice!

BUILDING WEB APPLICATIONS WITH SHINY IN R

Mass shootings

BUILDING WEB APPLICATIONS WITH SHINY IN R

Ramnath Vaidyanathan
VP of Product Research

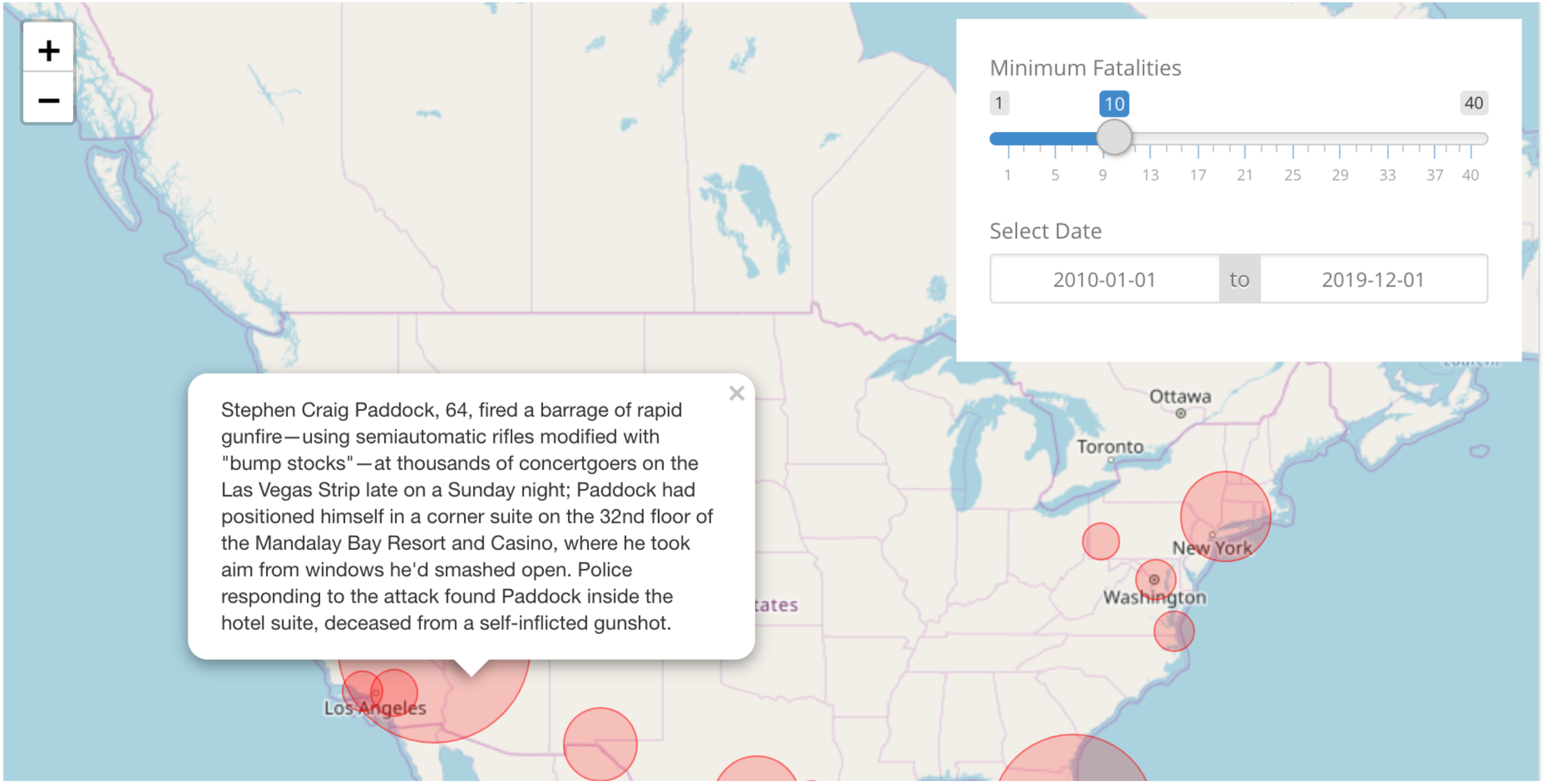
datacamp

Explore data

location <chr>	date <date>	latitude <dbl>	longitude <dbl>	case <chr>
Odessa, Texas	2019-08-31	31.92597	-102.27960	Odessa-Midland shooting spree
Dayton, Ohio	2019-08-04	39.75731	-84.18495	Dayton entertainment district shooting
El Paso, Texas	2019-08-03	31.77107	-106.37565	El Paso Walmart mass shooting
Gilroy, California	2019-07-28	36.99719	-121.58482	Gilroy garlic festival shooting
Virginia Beach, Virginia	2019-05-31	36.75442	-76.06038	Virginia Beach municipal building shooting
Aurora, Illinois	2019-02-15	41.75373	-88.33106	Harry Pratt Co. warehouse shooting
State College, Pennsylvania	2019-01-24	40.78514	-77.83941	Pennsylvania hotel bar shooting
Sebring, Florida	2019-01-23	27.47104	-81.45847	SunTrust bank shooting
Chicago, Illinois	2018-11-19	41.84767	-87.62201	Mercy Hospital shooting
Thousand Oaks, California	2018-11-07	34.17695	-118.87479	Thousand Oaks nightclub shooting

1-10 of 115 rows

Previous 1 2 3 4 5 6 ... 12 Next

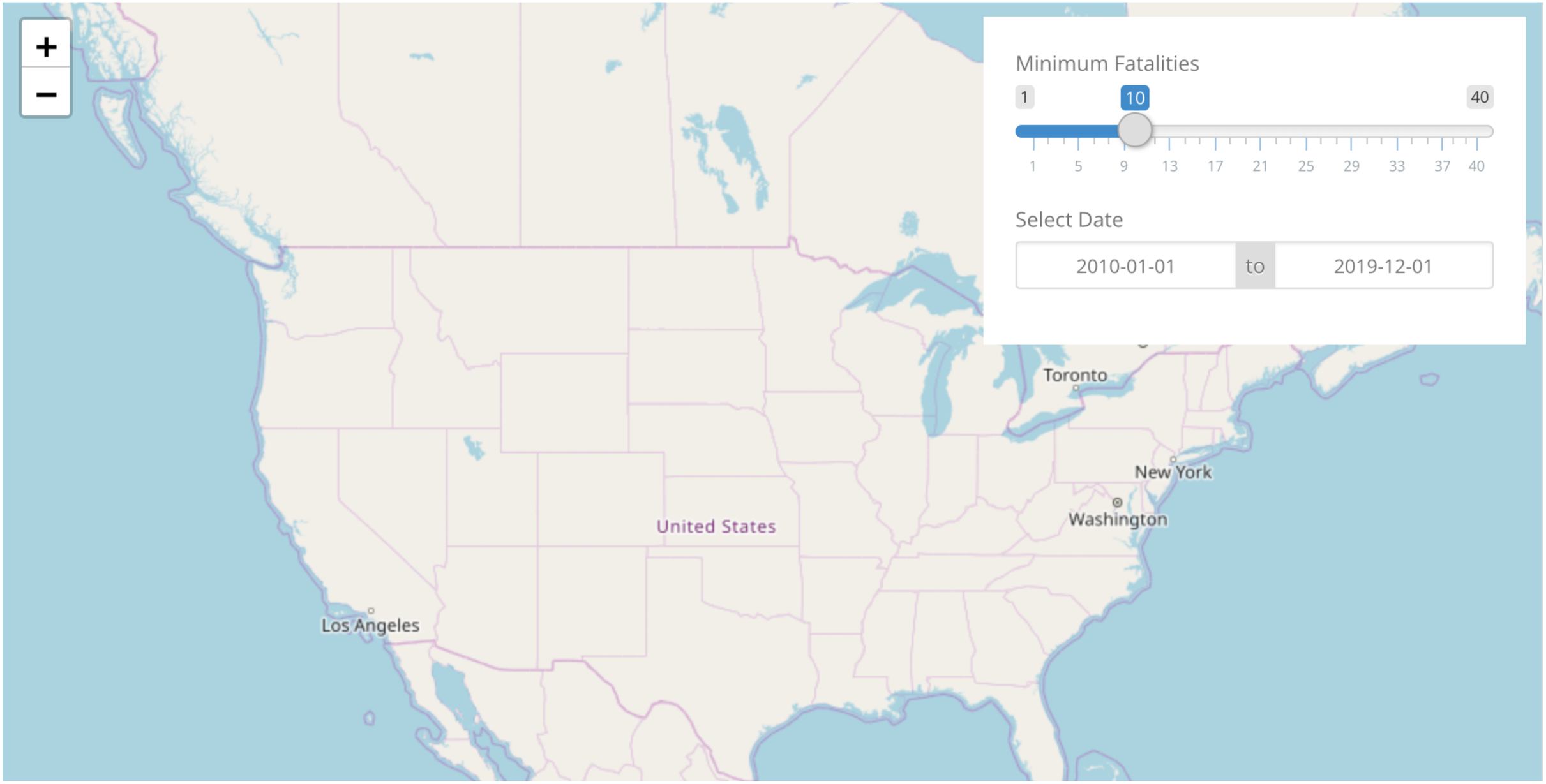

+
−
Minimum Fatalities
1
10
40
1 5 9 13 17 21 25 29 33 37 40
Select Date
2010-01-01
to
2019-12-01
Stephen Craig Paddock, 64, fired a barrage of rapid gunfire—using semiautomatic rifles modified with "bump stocks"—at thousands of concertgoers on the Las Vegas Strip late on a Sunday night; Paddock had positioned himself in a corner suite on the 32nd floor of the Mandalay Bay Resort and Casino, where he took aim from windows he'd smashed open. Police responding to the attack found Paddock inside the hotel suite, deceased from a self-inflicted gunshot.
Ottawa
Toronto
New York
Washington
Los Angeles

Add UI

```
ui <- bootstrapPage(
  theme = shinythemes::shinytheme('simplex'),
  leaflet::leafletOutput('map', width = '100%', height = '100%'),
  absolutePanel(top = 10, right = 10, id = 'controls',
    sliderInput('nb_fatalities', 'Minimum Fatalities', 1, 40, 10),
    dateRangeInput('date_range', 'Select Date', "2010-01-01", "2019-12-01"),
  )
  , tags$style(type = "text/css", "
    html, body {width:100%;height:100%}
    #controls{background-color:white;padding:20px;}
  ")
)
```

Add output: interactive map

```
server <- function(input, output, session){
  output$map <- leaflet::renderLeaflet({
    leaflet() %>%
      addTiles() %>%
      setView( -98.58, 39.82, zoom = 5)
  })
}
```

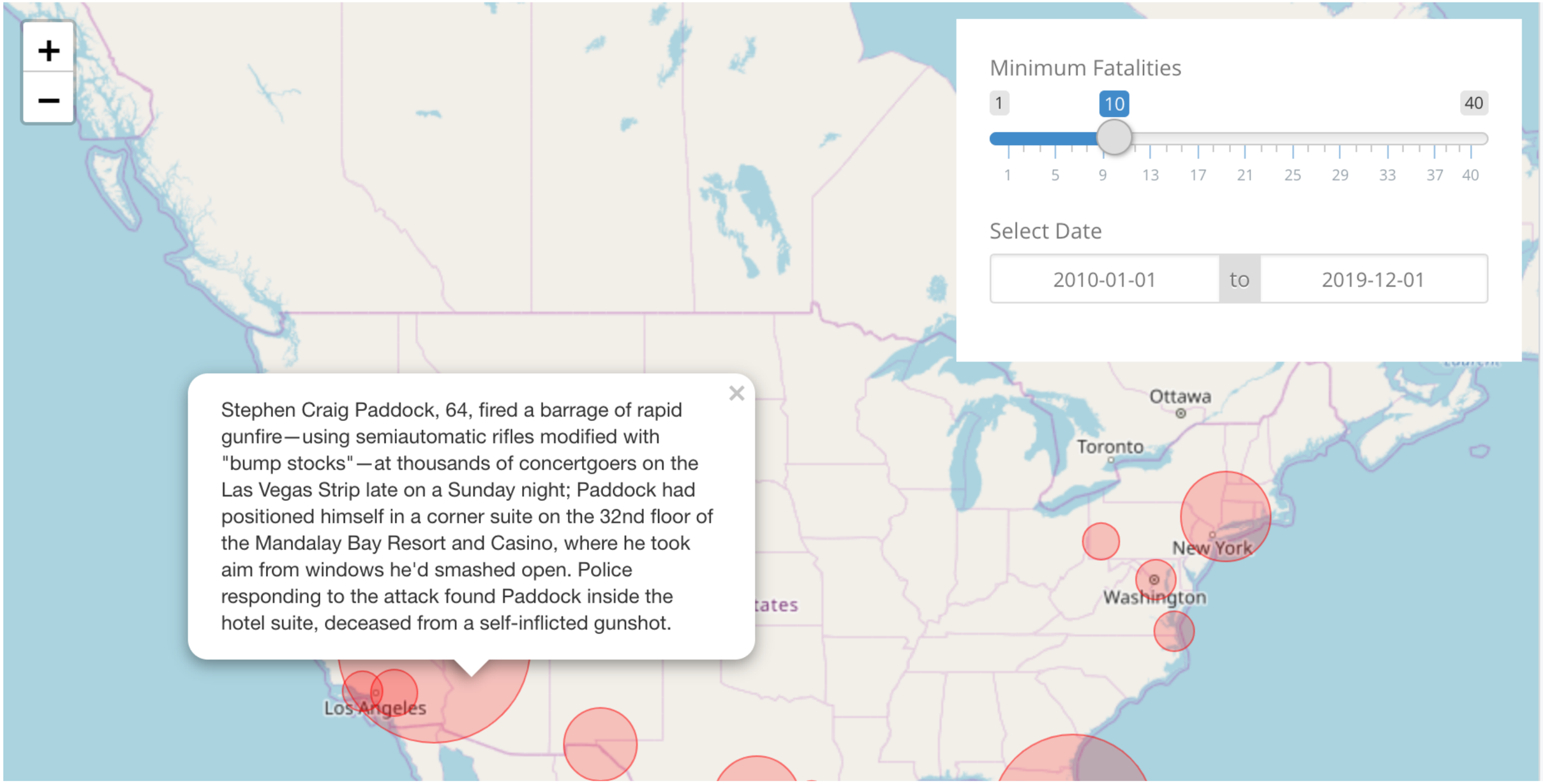

+
−
Minimum Fatalities
1
10
40
1 5 9 13 17 21 25 29 33 37 40
Select Date
2010-01-01
to
2019-12-01
Toronto
New York
Washington
United States
Los Angeles

Add reactive expression

```
rval_mass_shootings <- reactive({
  mass_shootings %>%
    filter(
      date >= input$date_range[1],
      date <= input$date_range[2],
      fatalities >= input$nb_fatalities
    )
})
```

Update output: interactive map

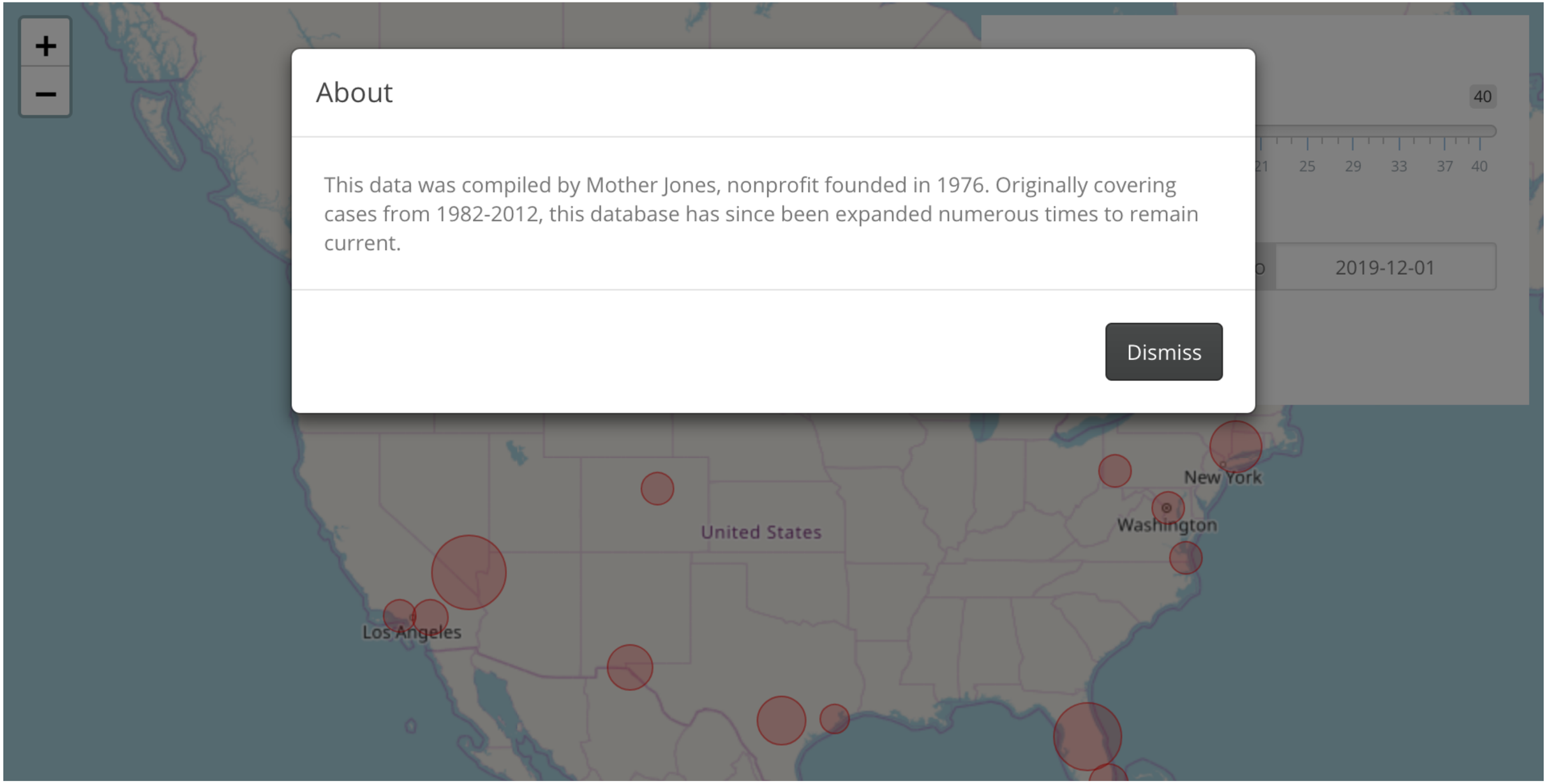
```
output$map <- leaflet::renderLeaflet({
  rval_mass_shootings() %>%
    leaflet() %>%
      addTiles() %>%
      setView( -98.58, 39.82, zoom = 5) %>%
      addCircleMarkers(
        popup = ~ summary,
        radius = ~ fatalities,
        fillColor = 'red', color = 'red', weight = 1
      )
})
```


+
−
Minimum Fatalities
1
10
40
1 5 9 13 17 21 25 29 33 37 40
Select Date
2010-01-01
to
2019-12-01
Stephen Craig Paddock, 64, fired a barrage of rapid gunfire—using semiautomatic rifles modified with "bump stocks"—at thousands of concertgoers on the Las Vegas Strip late on a Sunday night; Paddock had positioned himself in a corner suite on the 32nd floor of the Mandalay Bay Resort and Casino, where he took aim from windows he'd smashed open. Police responding to the attack found Paddock inside the hotel suite, deceased from a self-inflicted gunshot.
Ottawa
Toronto
New York
Washington
Los Angeles

Update app: add action button and modal

```
ui <- bootstrapPage(
  theme = shinythemes::shinytheme('simplex'),
  leaflet::leafletOutput('map', width = '100%', height = '100%'),
  absolutePanel(top = 10, right = 10, id = 'controls',
    sliderInput('nb_fatalities', 'Minimum Fatalities', 1, 40, 10),
    dateRangeInput('date_range', 'Select Date', "2010-01-01", "2019-12-01"),
    actionButton('show_about', 'About')
  )
)
```

```
server <- function(input, output, session){
  observeEvent(input$show_about, {
    showModal(modalDialog(text_about, title = 'About'))
  })
}
```


+
−
About
This data was compiled by Mother Jones, nonprofit founded in 1976. Originally covering cases from 1982-2012, this database has since been expanded numerous times to remain current.
Dismiss
40
21
25
29
33
37
40
2019-12-01
New York
Washington
United States
Los Angeles

Let's practice!

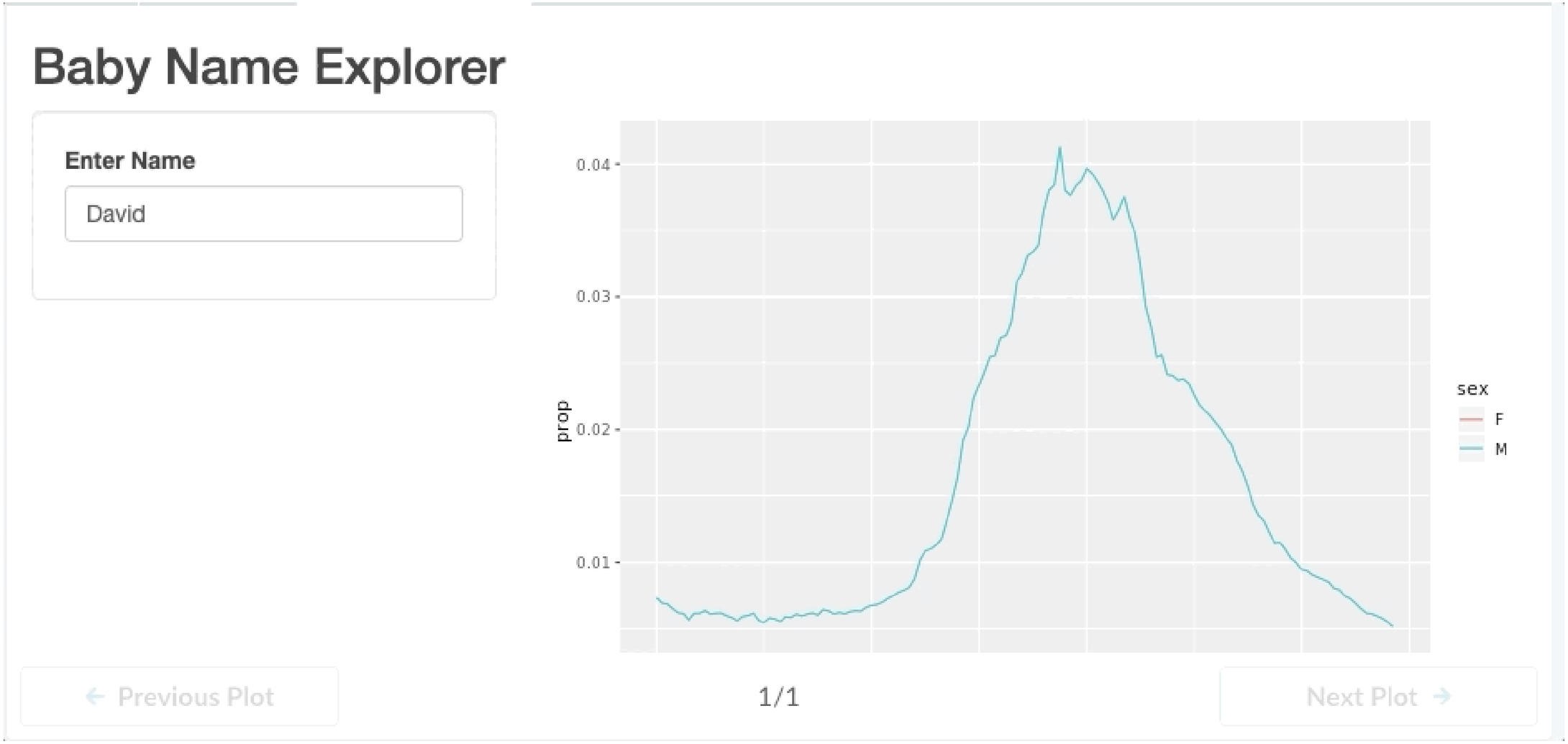
BUILDING WEB APPLICATIONS WITH SHINY IN R

Wrap up video

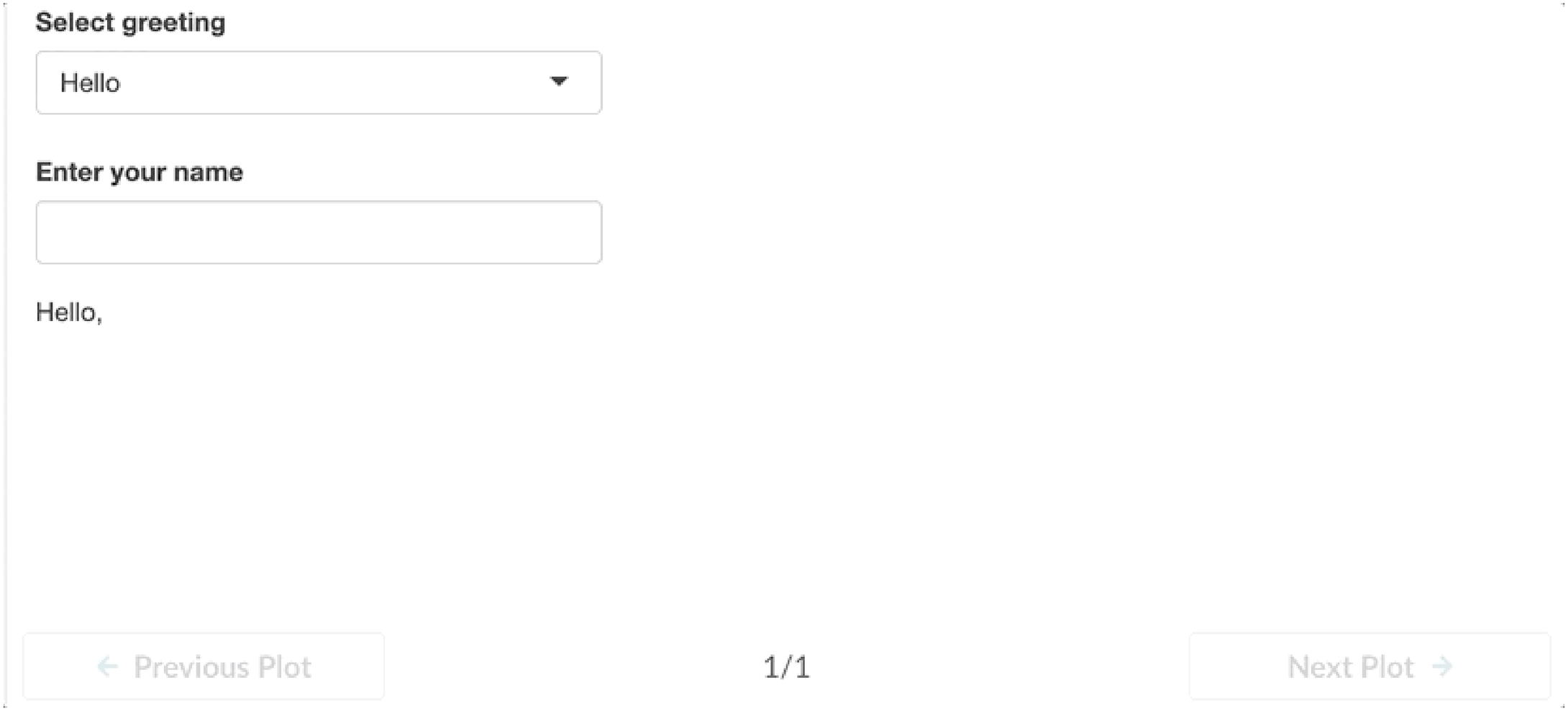
BUILDING WEB APPLICATIONS WITH SHINY IN R

Kaelen Medeiros & Ramnath Vaid...
Instructors

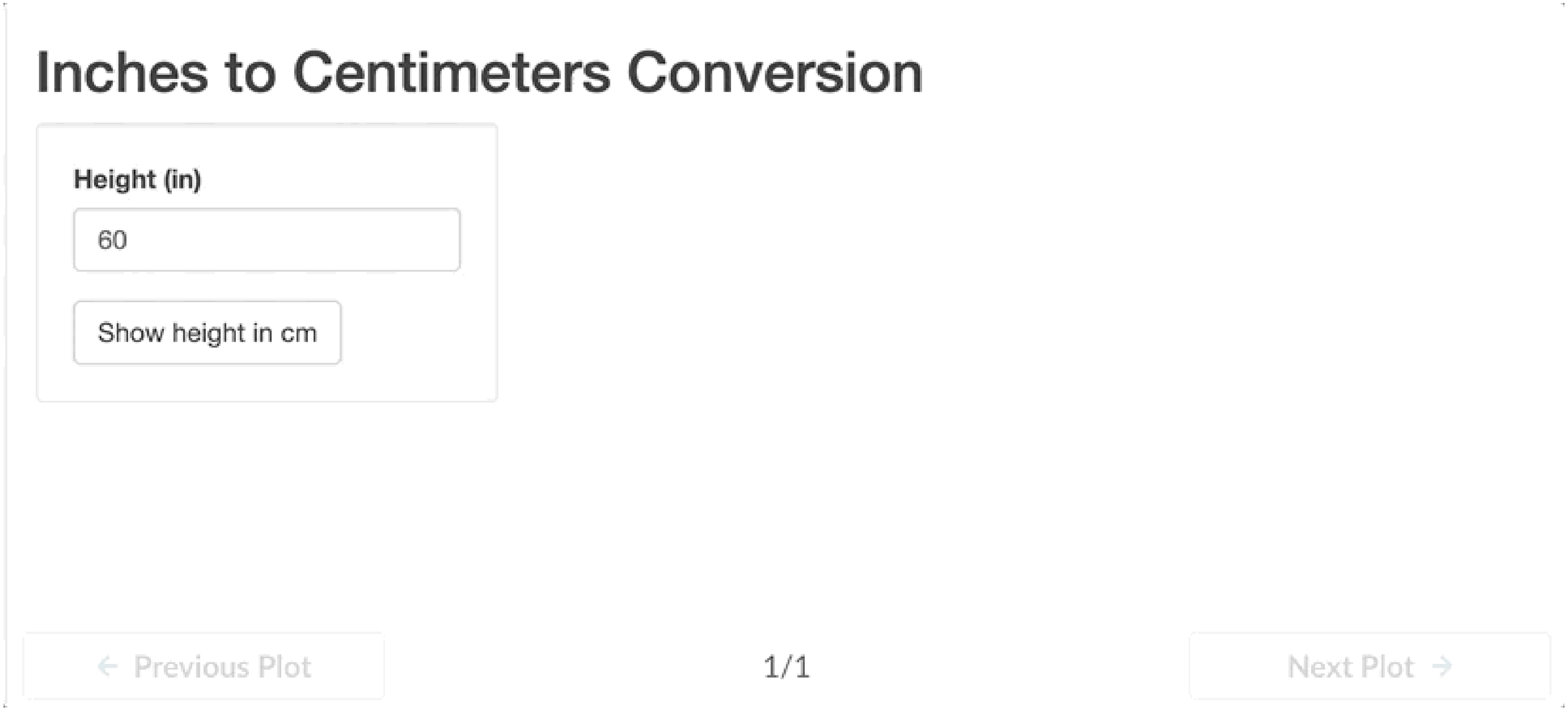
Chapter 1


Baby Name Explorer
Enter Name
David
0.04
0.03
0.02
0.01
prop
sex
F
M
Previous Plot
1/1
Next Plot

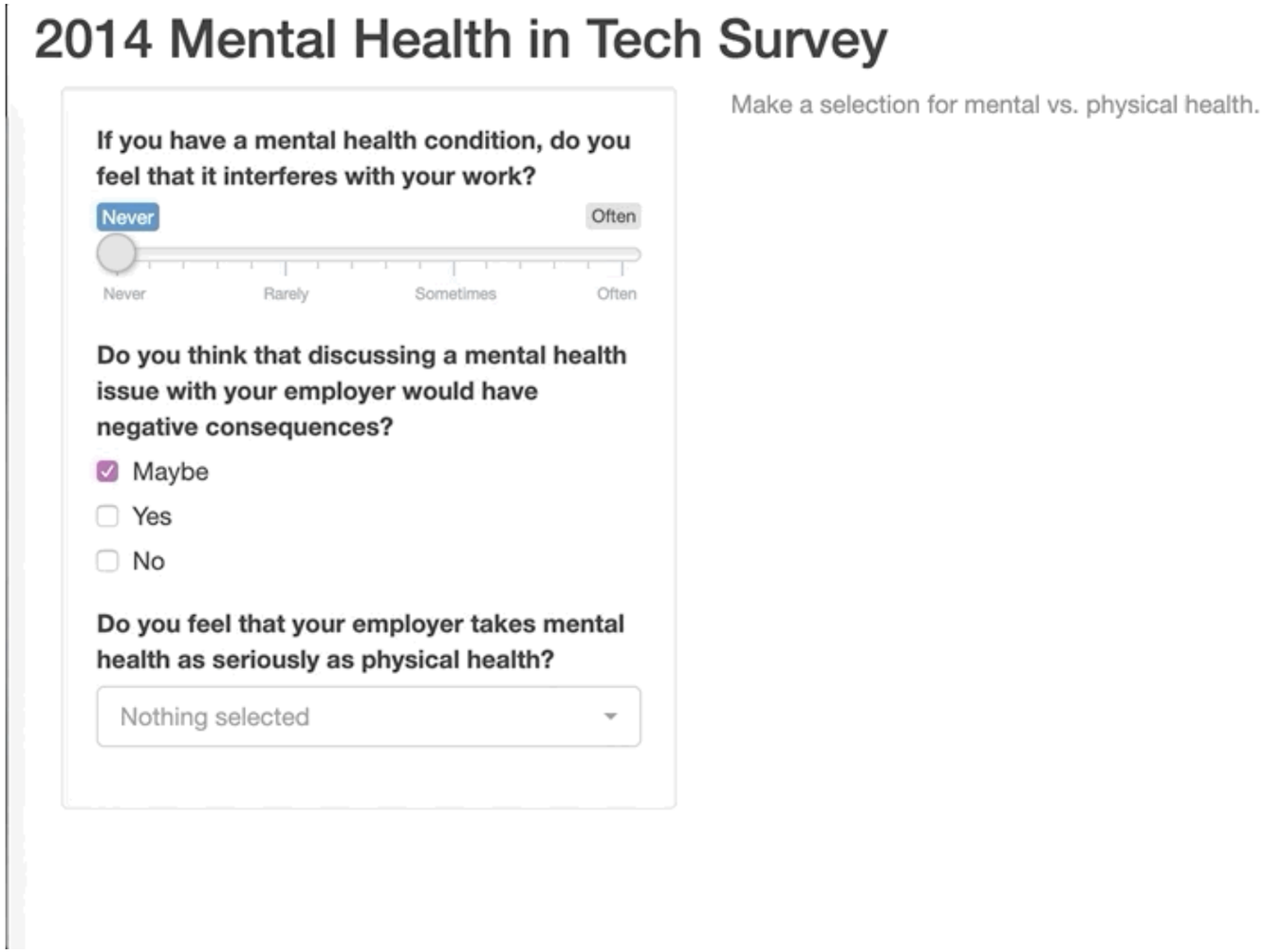
Chapter 2


Select greeting
Hello
Enter your name
Hello,
Previous Plot
1/1
Next Plot

Chapter 3


Inches to Centimeters Conversion
Height (in)
60
Show height in cm
← Previous Plot
1/1
Next Plot →

Chapter 4


2014 Mental Health in Tech Survey
If you have a mental health condition, do you feel that it interferes with your work?
Never
Often
Never
Rarely
Sometimes
Often
Do you think that discussing a mental health issue with your employer would have negative consequences?
Maybe
Yes
No
Do you feel that your employer takes mental health as seriously as physical health?
Nothing selected
Make a selection for mental vs. physical health.

Congratulations!

BUILDING WEB APPLICATIONS WITH SHINY IN R