

# Build an Alien Sightings Dashboard

BUILDING WEB APPLICATIONS WITH SHINY IN R



**Kaelen Medeiros**

Data Scientist

# Alien Sightings Dashboard

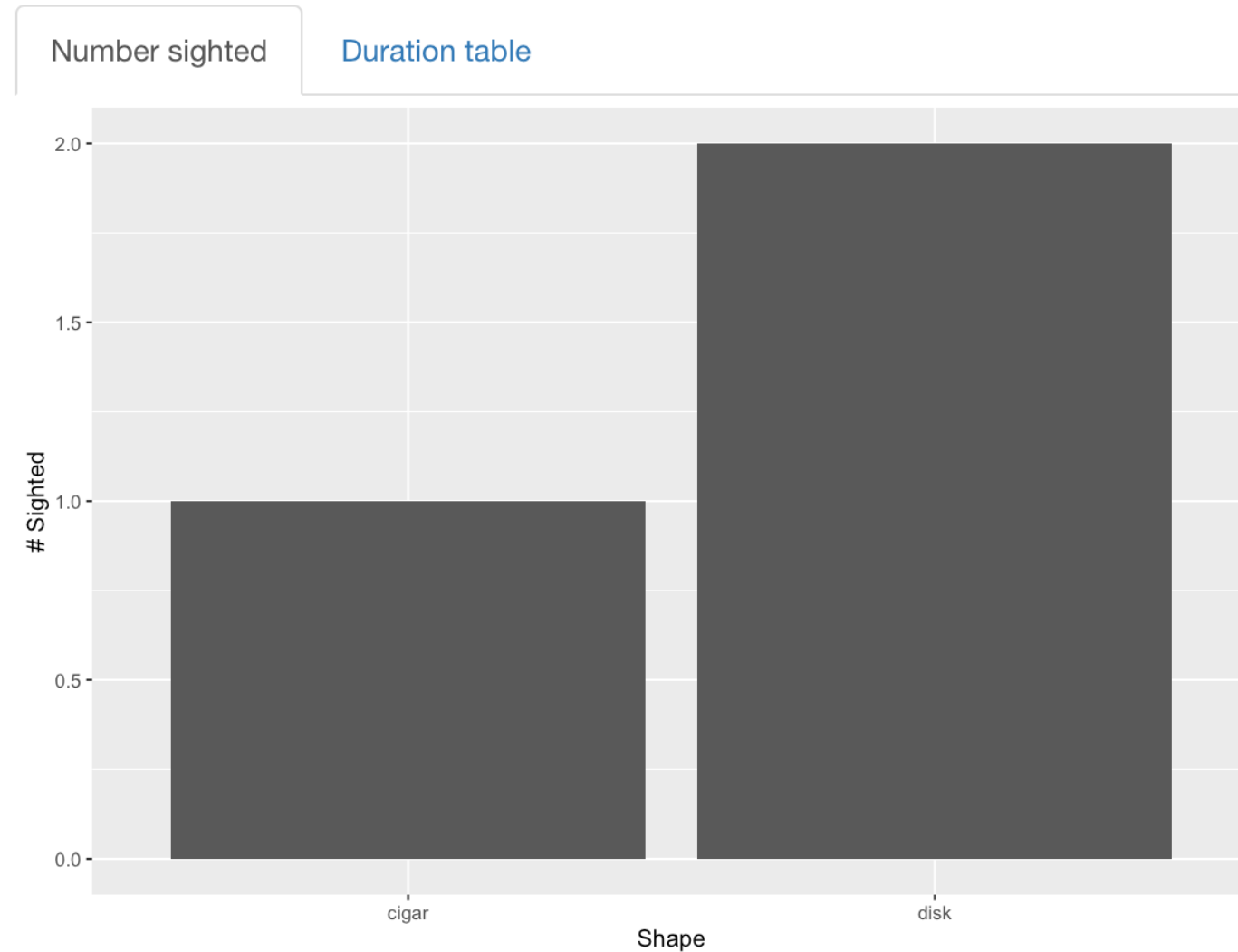
## UFO Sightings

**Choose a U.S. state:**

AK ▼

**Choose a date range:**

1920-01-01 to 1950-01-01



# 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!

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# Exploring the 2014 Mental Health in Tech Survey

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**Kaelen Medeiros**  
Data Scientist

# 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

## 2014 Mental Health in Tech Survey





# 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

## 2014 Mental Health in Tech Survey

**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.

# shinyWidgets

```
shinyWidgetsGallery()
```

The screenshot displays the 'shinyWidgets Overview' gallery. It features a dark sidebar on the left with a list of widget categories: Overview, switchInput, Pretty Checkboxes & Radios, Awesome Checkboxes & Radios, checkboxGroup Buttons, radio Buttons, materialSwitch, pickerInput, sliderText, progressBar, btnn, and dropdowns & sweetalert. The main content area is titled 'shinyWidgets Overview' and contains several widget examples, each with a title, a visual demonstration, a 'Value' field, and a 'Show code' link. The examples include: 'Awesome checkbox Group' (with status checkboxes A, B, C), 'Awesome checkbox' (a single checked checkbox), 'Select Picker' (with plain HTML and a 'Badge danger' button), 'Material Design Switch' (a primary switch), 'Search field' (with a search icon and placeholder), and 'Bootstrap Switch' (partially visible at the bottom).

# 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

95

100

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

Select Cuisine

greek ▼

Select No. of Ingredients

5 20 100

5 15 25 35 45 55 65 75 85 95 100

## 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	0.000000000
indian	onions	1195	0.000000000
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

520100

51525354555657585960616263646566676869707172737475767778798081828384858687888990919293949596979899100

Word Cloud

Plot

Table



# Let's practice!

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# Mass shootings

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**Ramnath Vaidyanathan**

VP of Product Research



# 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

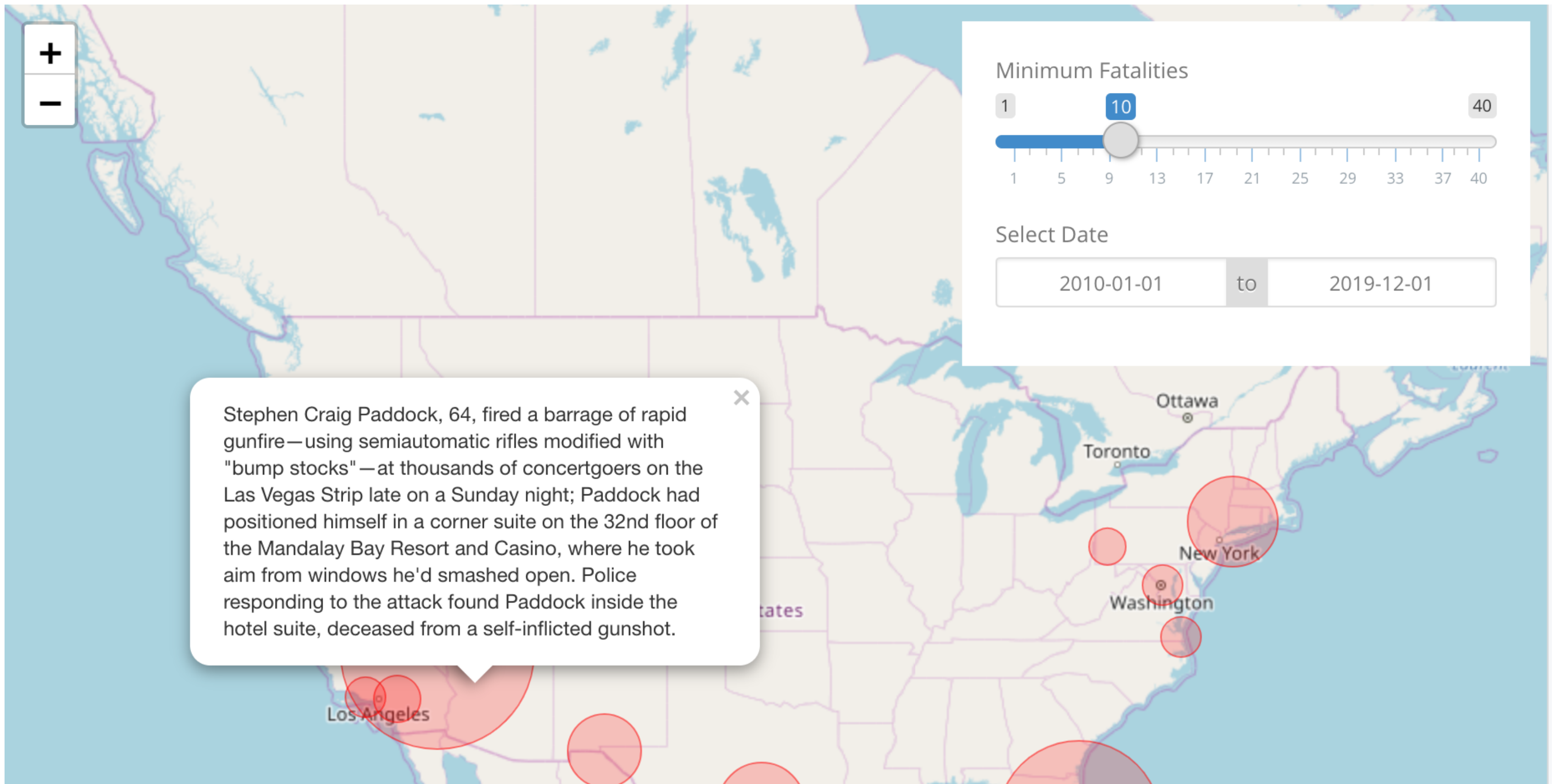
5

6

...

12

Next

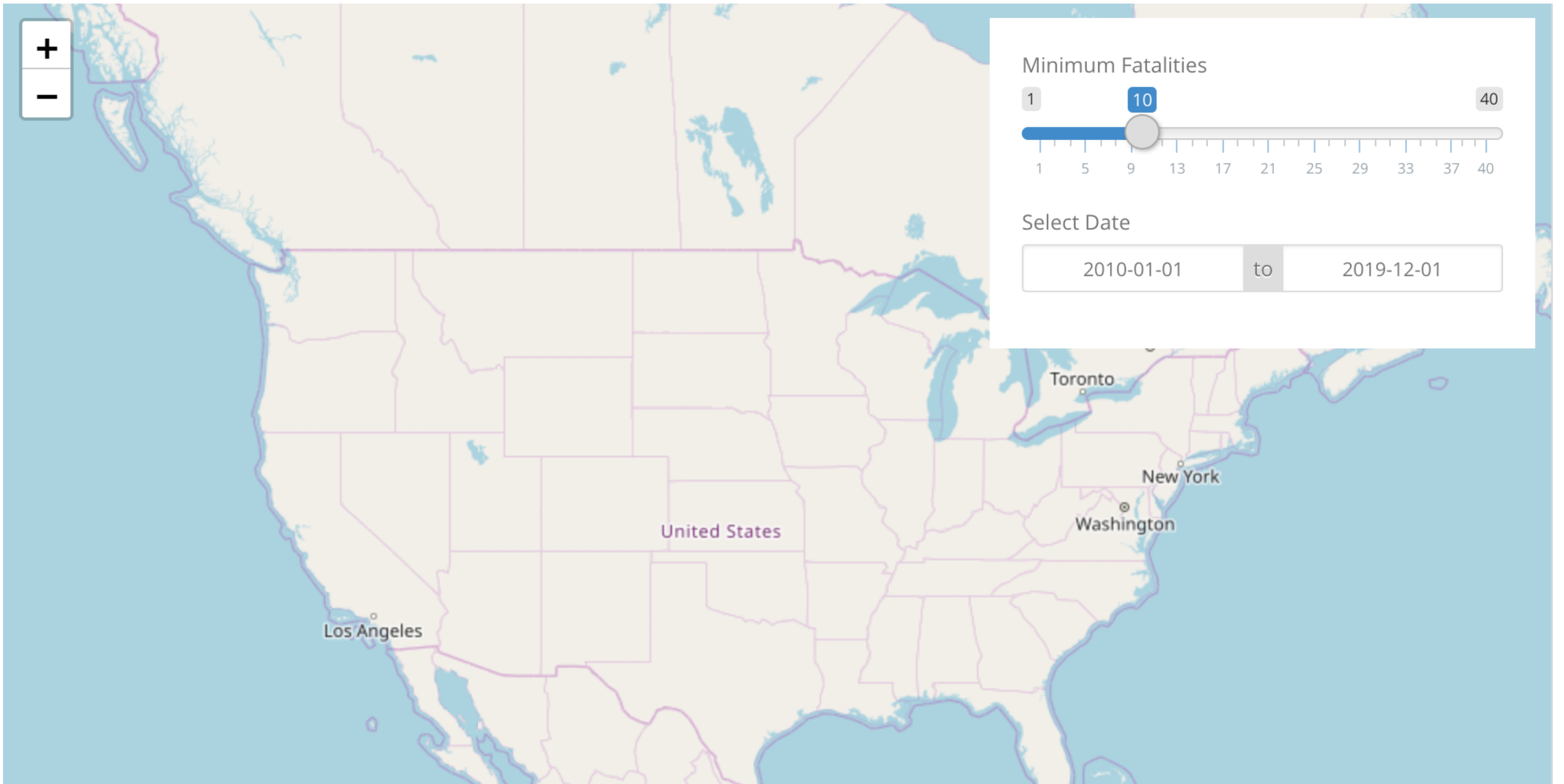


# Add UI

```
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)  
  })  
}
```

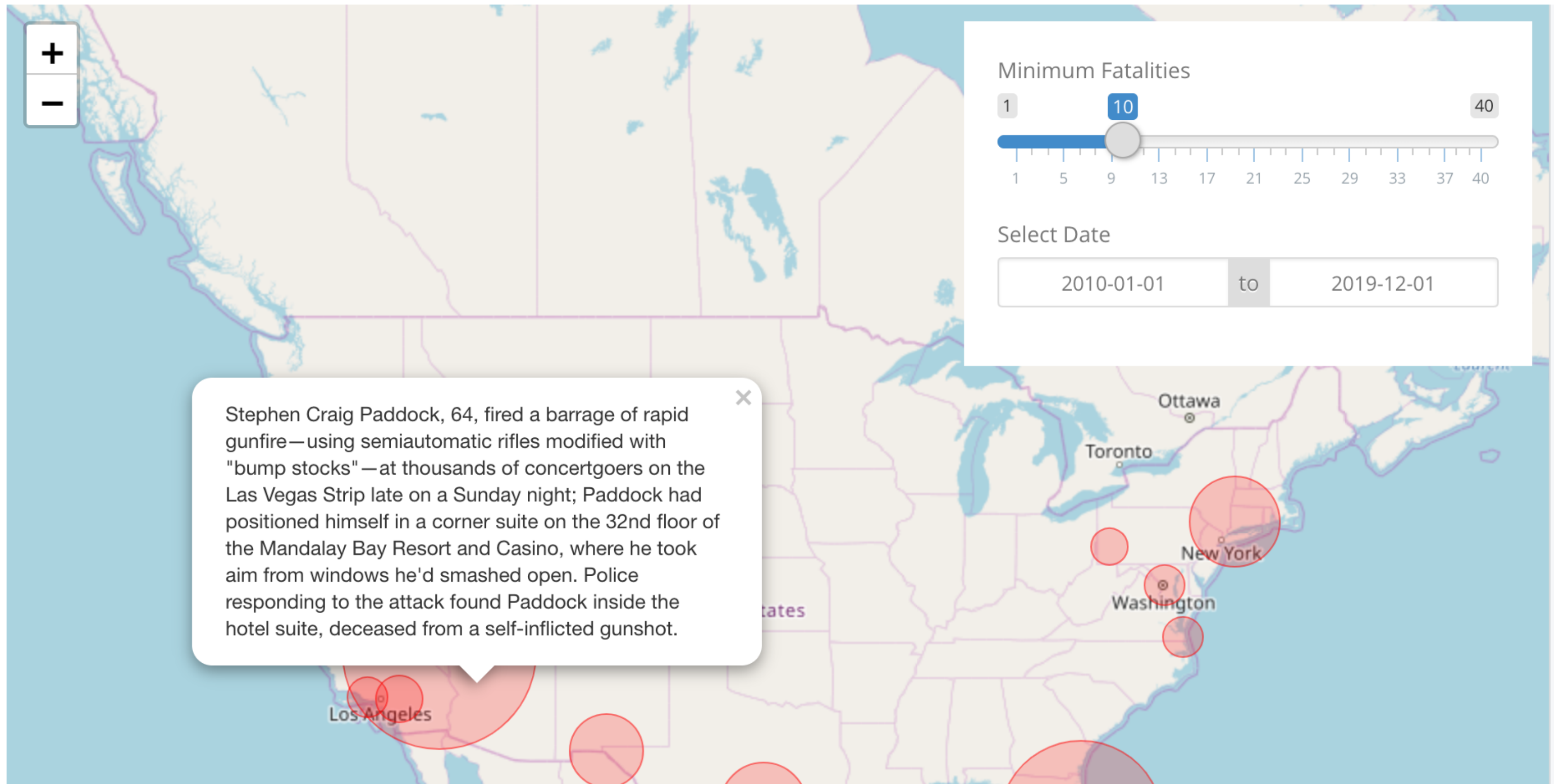


# Add reactive expression

```
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  
      )  
})
```





# 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

# Let's practice!

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# Wrap up video

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**Kaelen Medeiros & Ramnath Vaid...**

Instructors

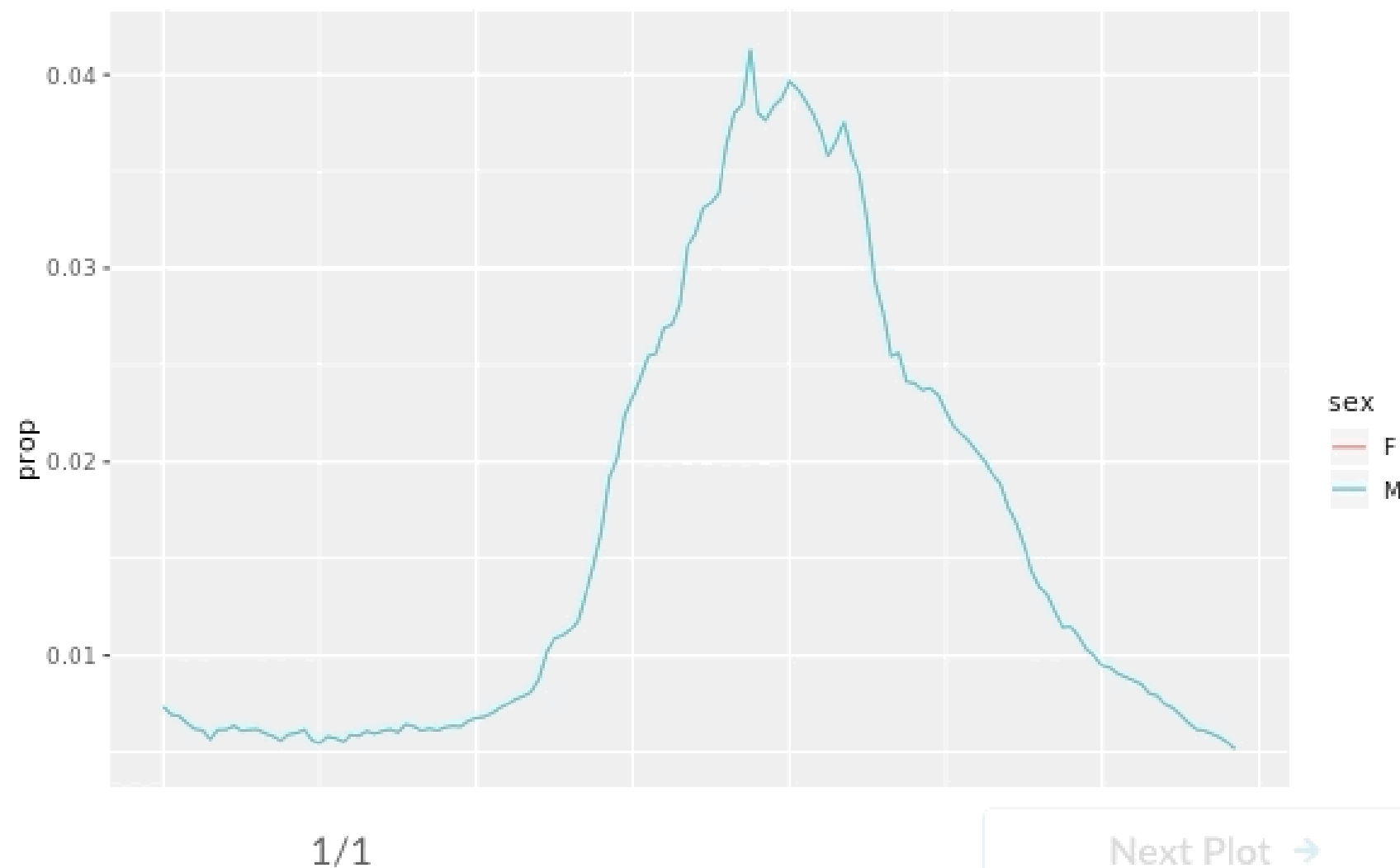
# Chapter 1

## Baby Name Explorer

Enter Name

David

← Previous 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

Make a selection for mental vs. physical health.

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



# Congratulations!

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