BUILDING DASHBOARDS WITH FLEXDASHBOARD

Incorporating Shiny into Dashboards

Elaine McVey
Director of Quantitative Mobility
TransLoc

Why should I add Shiny? Or not?

Why

- **Interactivity**
- Lightweight

Why not

- Complication
- Hosting

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- **Hosting**

If not a Shiny app, then what?

A flexdashboard with Shiny is an *interactive RMarkdown document*

Making it shiny

runtime: shiny

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Let's practice!

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The Reactive Dataframe Pattern

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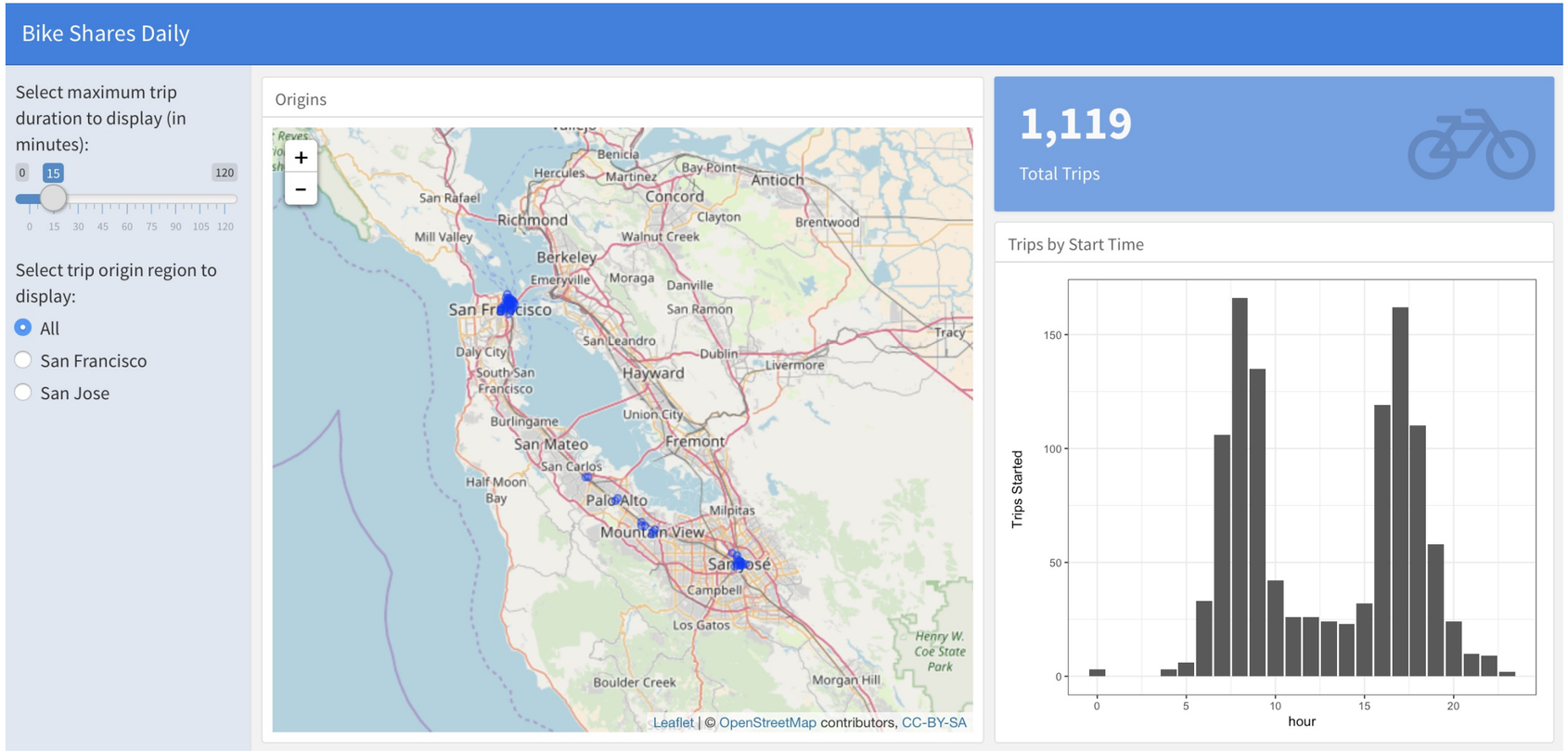
Creating a sidebar

Column {data-width=200 .sidebar}

Creating a sidebar



Adding user inputs

````
Column {data-width=200 .sidebar}
-----------------------------------------------------------------------

```{r}
sliderInput("duration_slider",
            label = "Select maximum trip duration to display (in minutes):",
            min = 0,
            max = 120,
            value = 15,
            step = 5,
            dragRange = TRUE)
```
````

Making our dataframe reactive

```
```{r}
sliderInput("duration_slider",
            label = "Select maximum trip duration to display (in minutes):",
            min = 0,
            max = 120,
            value = 15,
            step = 5,
            dragRange = TRUE)

show_trips_df <- reactive({

  trips_df %>%
    filter(duration_sec <= input$duration_slider * 60)

})
```
```

Using the reactive dataframe

````
Column {data-width=450}
-----------------------------------------------------------------------

### Origins

```{r}

  trips_df %>%
    rename(latitude = start_latitude,
           longitude = start_longitude) %>%
    group_by(start_station_id, latitude, longitude) %>%
    count() %>%
    leaflet() %>%
    addTiles() %>%
    addCircles(radius = ~n)

```
````

````
Column {data-width=450}
-----------------------------------------------------------------------

### Origins

```{r}

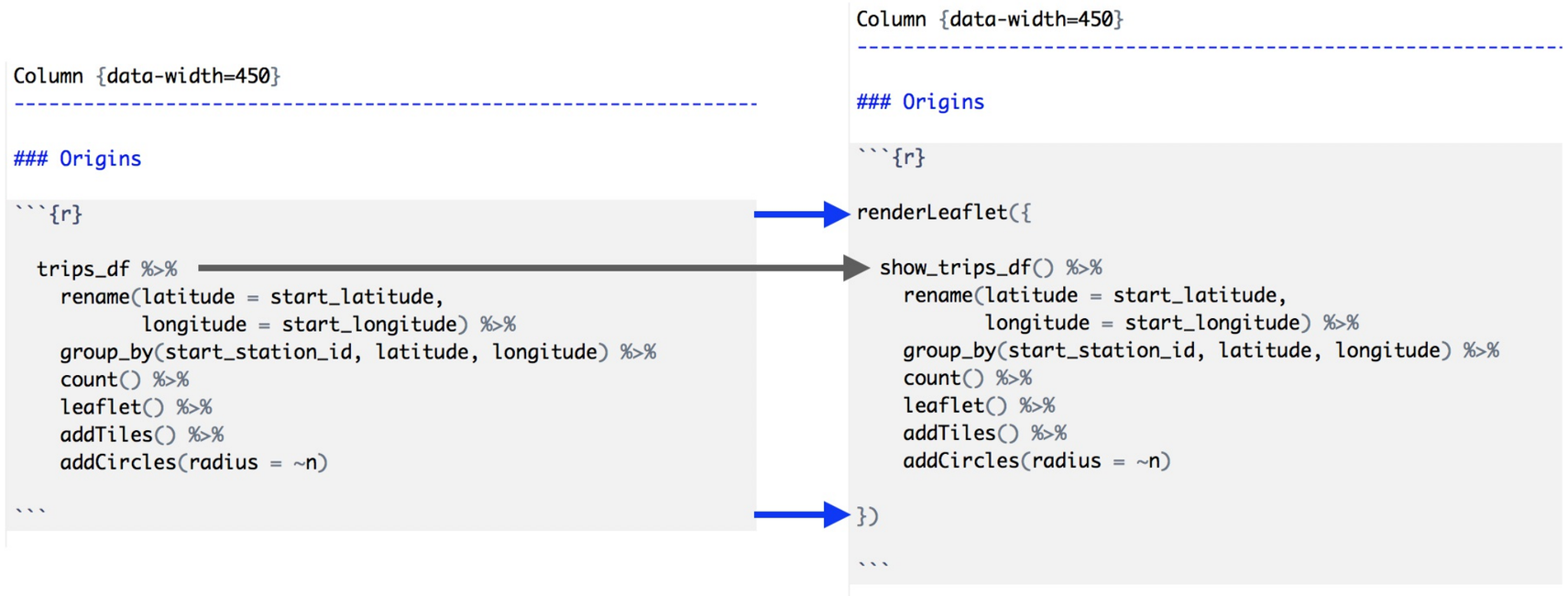
renderLeaflet({

  show_trips_df() %>%
    rename(latitude = start_latitude,
           longitude = start_longitude) %>%
    group_by(start_station_id, latitude, longitude) %>%
    count() %>%
    leaflet() %>%
    addTiles() %>%
    addCircles(radius = ~n)

})

```
````

Making dashboard components reactive



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Steps to the reactive dataframe pattern

1. Create a sidebar column (using .sidebar).
2. Add user inputs to the sidebar (using xyzInput() Shiny widgets).
3. Make a "dataframe" that reacts to user inputs (using reactive()).
4. Replace the dataframe in the dashboard component code with the reactive version.
5. Wrap each dashboard output with the appropriate Shiny version (renderXyz()).

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Customized Inputs for Charts

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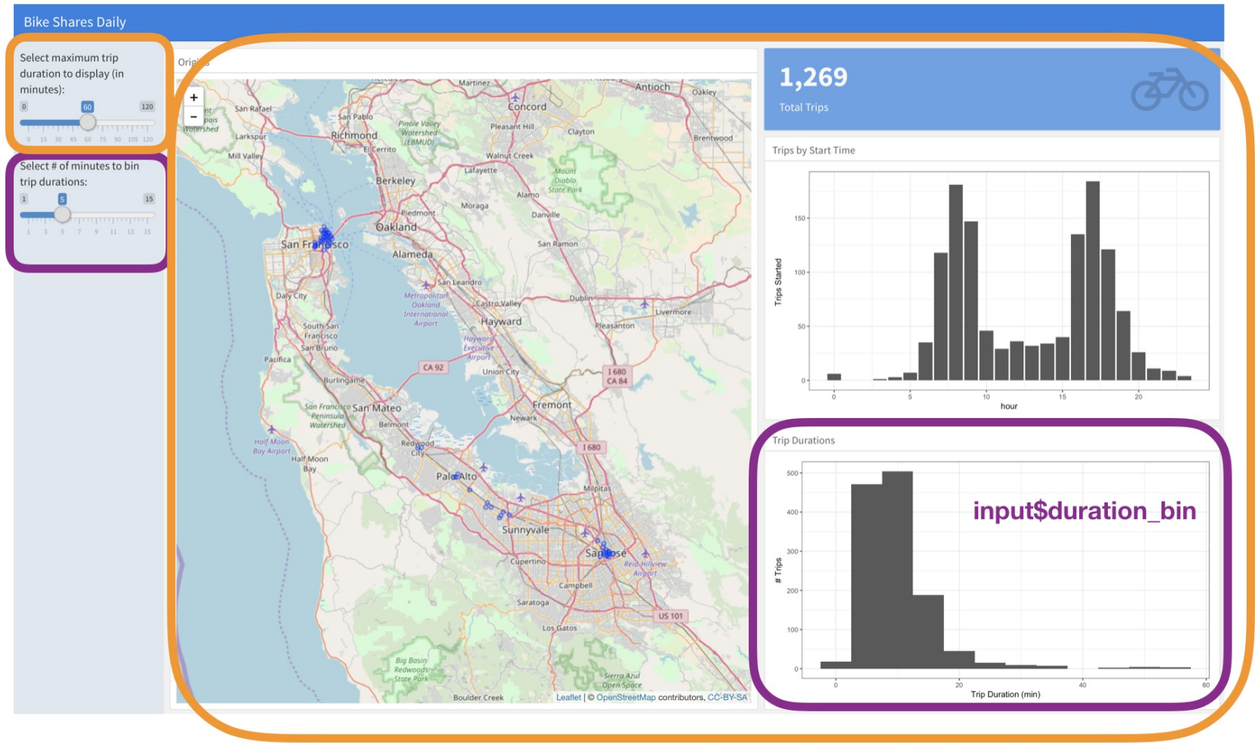
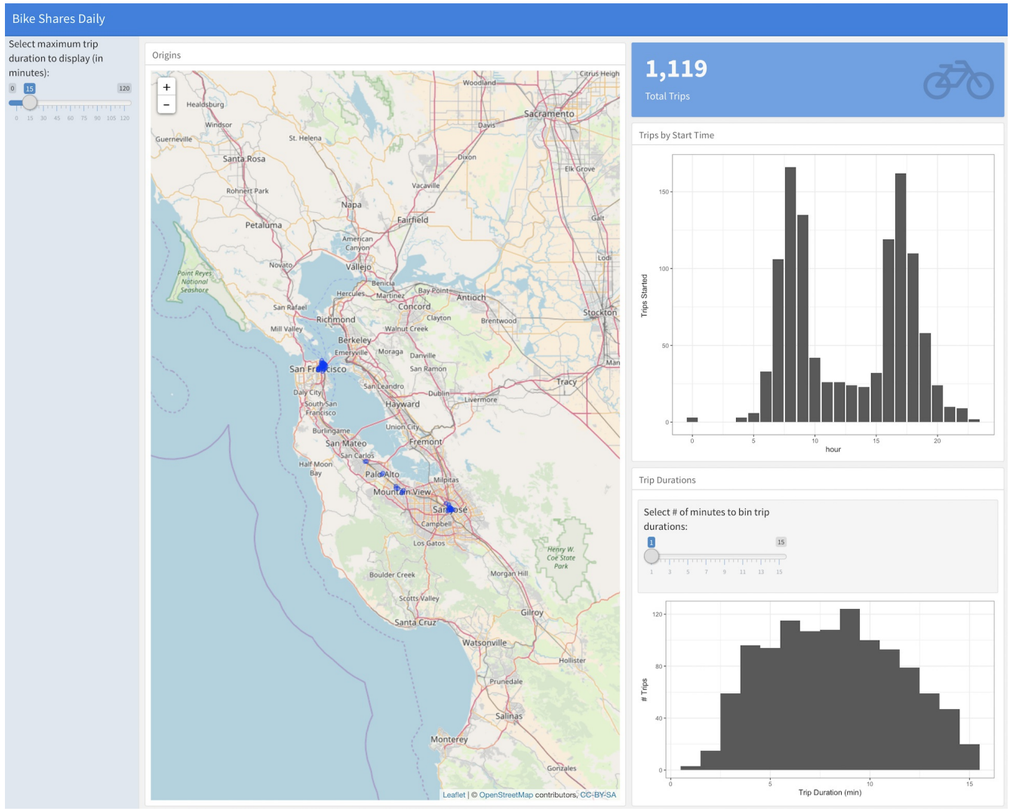
Chart-Specific Effects



Moving Inputs Into Charts



Moving Inputs Into Charts

```
```{r}

fillCol(height = 600, flex = c(NA, 1),
  inputPanel(
    sliderInput("xyz_input", ...)
  ),
  plotOutput("xyzPlot", height = "100%")
)

output$xyzPlot <- renderPlot({

})

```
```

Moving Inputs Into Charts

```
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)

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})

```
```

A Shortcut

```
Global Sidebar {.sidebar}
=====================================

```{r}

```

Overview
=====================================

Column {data-width=650 .tabset}

Origins
```

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Course Recap

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Resources

- https://rmarkdown.rstudio.com/flexdashboard/
- https://www.htmlwidgets.org/

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- https://rmarkdown.rstudio.com/flexdashboard/
- **https://www.htmlwidgets.org/**
  - leaflet
  - DT (datatable)
  - plotly
  - highcharter

shinydashboard

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Thank you!