

INTRO TO FLEXDASHBOARD

with penguins

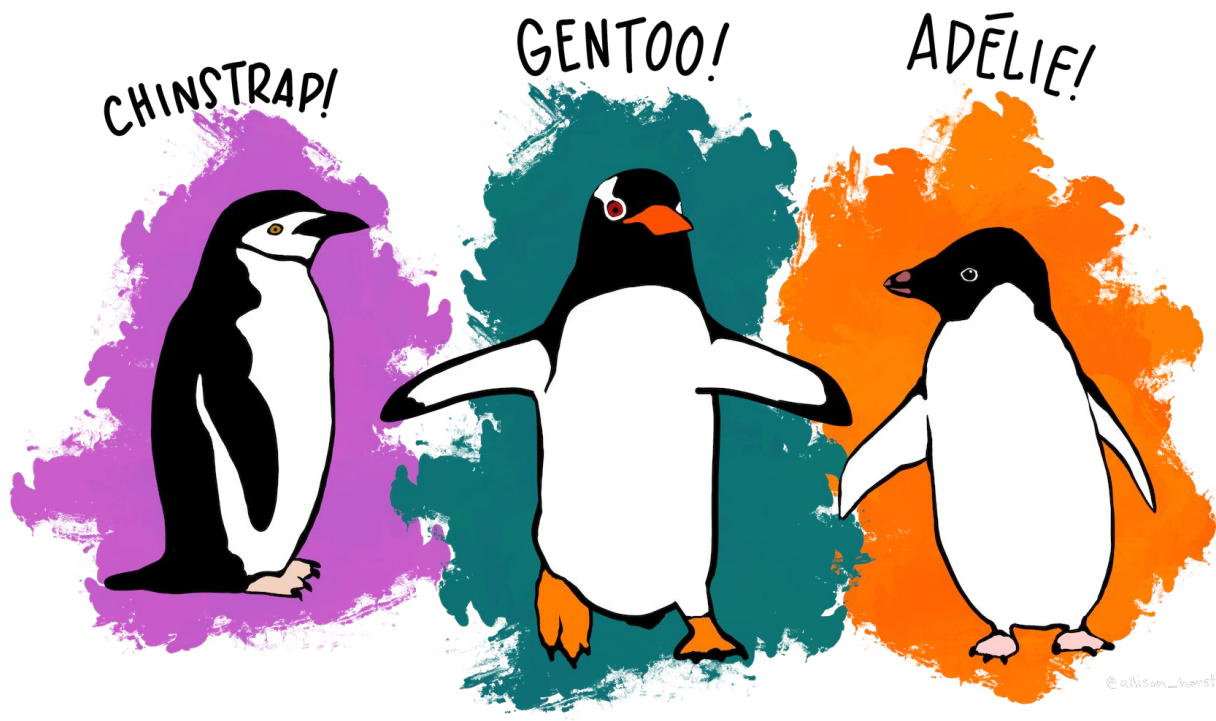
@Samantha_Toet
RLadies Charlottesville
6_16_2020

HELLO WORLD

- Partner Marketing @ RStudio
- Founder @ RLadies Charlottesville
- Slides and more will be available at samtoet.cool



```
REMOTES::INSTALL_GITHUB("ALLISONHORST/PALMERPENGUINS")
```



344

Penguins measured



44 mm

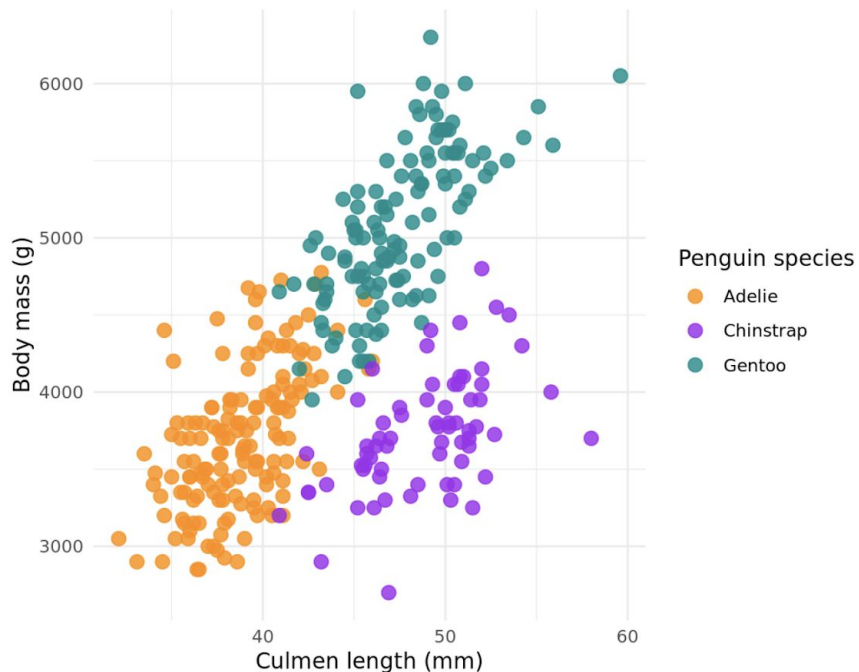
Average culmen length



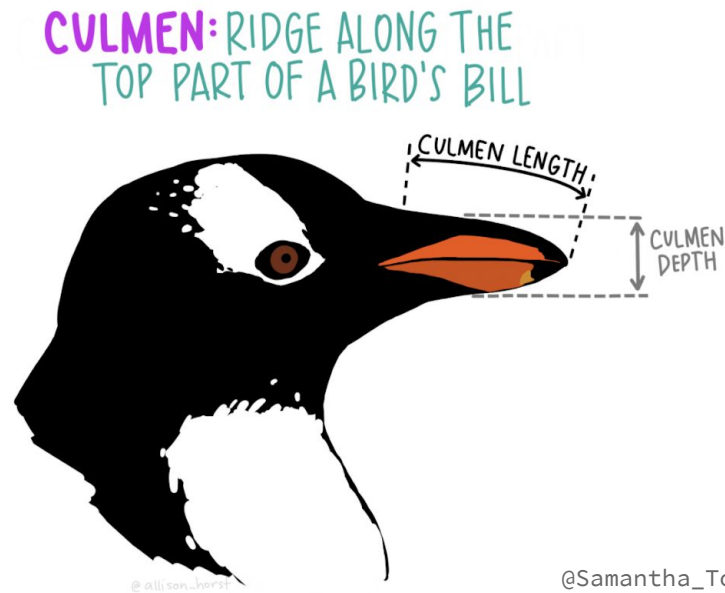
Average body mass



Culmen Length vs. Body Mass



What are we measuring?



CONNECT.RSTUDIOSERVICES.COM/PENGUINS/

YOUR TURN



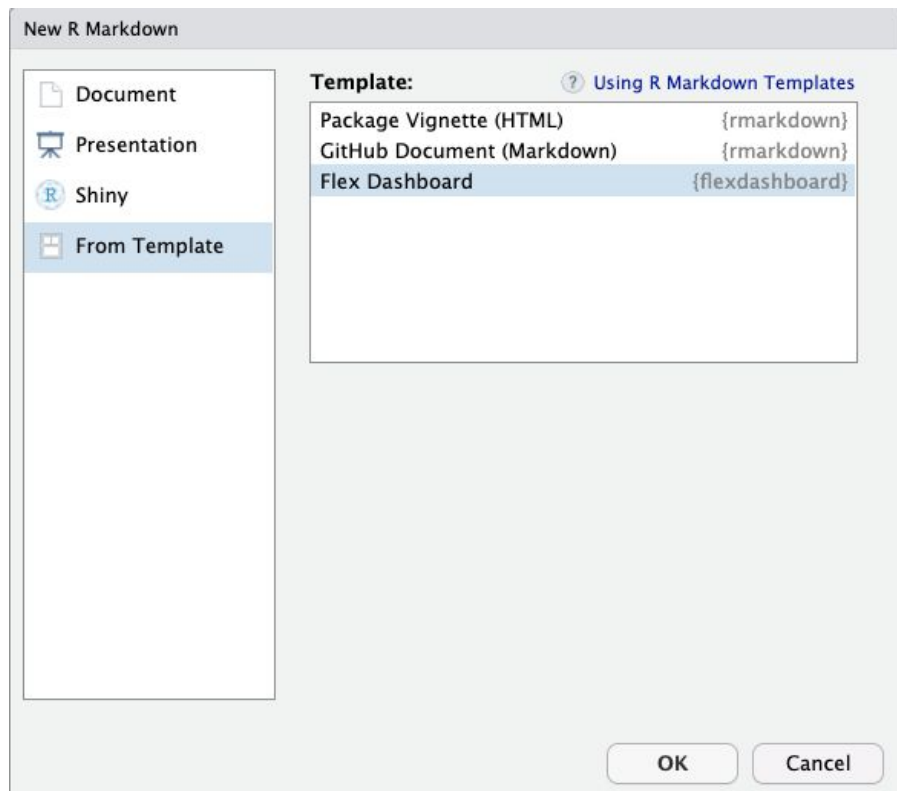
BUILD

Build your own template dashboard locally and play around with the different outputs and orientations.

EXPLORE

Go to <https://rstudio.cloud/project/1389836> to explore the source code of the Penguins dashboard.

INSTALL.PACKAGES("FLEXDASHBOARD")



WHAT IS FLEXDASHBOARD?

Interactive dashboards made up of:

- YAML header
- Rmarkdown layout
- Components (boxes)

YAML HEADER

```
1 ---
2 title: "Penguins"
3 output:
4   flexdashboard::flex_dashboard:
5     orientation: rows
6     social: [ "twitter" ]
7     source_code: https://github.com/SamanthaToet/intro-to-flexdashboard
8 date: "`r Sys.Date()`"
9 runtime: shiny
10 ---
```

Penguins 2020-06-15

Analysis

Raw Data

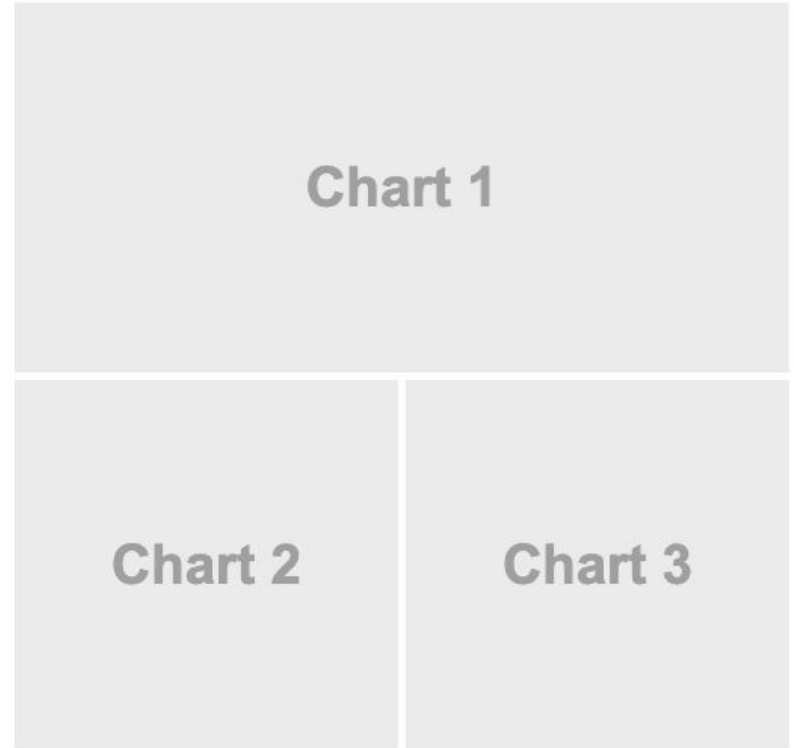


Source Code

COLUMN ORIENTED



ROW ORIENTED



BUILD A DASHBOARD IN 3 STEPS

Add a new page with level 1 headers (===)



Raw Data

=====

Row

Data Table of Raw Data

```
```{r table}
DT::datatable(penguins, options = list(
 pageLength = 25,
 height = "600px"
))
```
```

Penguins 2020-06-16 Analysis **Raw Data** [Source Code](#)

Data Table of Raw Data

Show entries Search:

| | species | island | bill_length_mm | bill_depth_mm | flipper_length_mm | body_mass_g | sex |
|---|---------|-----------|----------------|---------------|-------------------|-------------|--------|
| 1 | Adelie | Torgersen | 39.1 | 18.7 | 181 | 3750 | male |
| 2 | Adelie | Torgersen | 39.5 | 17.4 | 186 | 3800 | female |
| 3 | Adelie | Torgersen | 40.3 | 18 | 195 | 3250 | female |
| 4 | Adelie | Torgersen | | | | | |
| 5 | Adelie | Torgersen | 36.7 | 19.3 | 193 | 3450 | female |
| 6 | Adelie | Torgersen | 39.3 | 20.6 | 190 | 3650 | male |

Showing 1 to 25 of 344 entries

Previous 2 3 4 5 ... 14 Next

Add a new row (or column) with level 2 headers (---)

Raw Data

=====

Row

Data Table of Raw Data

```
```{r table}  
DT::datatable(penguins, options = list(
 pageLength = 25,
 height = "600px"
))
```
```

Penguins 2020-06-16 Analysis Raw Data [Source Code](#)

Data Table of Raw Data

Show entries Search:

| | species | island | bill_length_mm | bill_depth_mm | flipper_length_mm | body_mass_g | sex |
|---|---------|-----------|----------------|---------------|-------------------|-------------|--------|
| 1 | Adelie | Torgersen | 39.1 | 18.7 | 181 | 3750 | male |
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| 6 | Adelie | Torgersen | 39.3 | 20.6 | 190 | 3650 | male |

Showing 1 to 25 of 344 entries

Previous 2 3 4 5 ... 14 Next

Add boxes in rows (or columns) with level 3 headers (###)

Raw Data

=====

Row

Data Table of Raw Data

```
```{r table}  
DT::datatable(penguins, options = list(
 pageLength = 25,
 height = "600px"
))
```
```

Penguins 2020-06-16 Analysis Raw Data [Source Code](#)

Data Table of Raw Data

Show entries Search:

| | species | island | bill_length_mm | bill_depth_mm | flipper_length_mm | body_mass_g | sex |
|---|---------|-----------|----------------|---------------|-------------------|-------------|--------|
| 1 | Adelie | Torgersen | 39.1 | 18.7 | 181 | 3750 | male |
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| 3 | Adelie | Torgersen | 40.3 | 18 | 195 | 3250 | female |
| 4 | Adelie | Torgersen | | | | | |
| 5 | Adelie | Torgersen | 36.7 | 19.3 | 193 | 3450 | female |
| 6 | Adelie | Torgersen | 39.3 | 20.6 | 190 | 3650 | male |
| | | | | | | | |

Showing 1 to 25 of 344 entries

Previous 2 3 4 5 ... 14 Next

Row

Penguins measured

```
```{r n_penguins}  
n_penguins <- nrow(penguins)
valueBox(n_penguins, icon = "fa-pencil", color = "#fa7404")
```
```

Average culmen length

```
```{r cul_length}  
cul_length <- paste0(round(mean(penguins$culmen_length_mm,
 na.rm = TRUE)), " mm")
valueBox(cul_length,
 icon = "fa-ruler", color = "#fa7404")
```
```

344

Penguins measured



44 mm

Average culmen length



WHAT CAN GO IN A BOX?

TEXT

About the penguins dataset

Data were collected and made available by Dr. Kristen Gorman and the Palmer Station, Antarctica LTER, a member of the Long Term Ecological Research Network.

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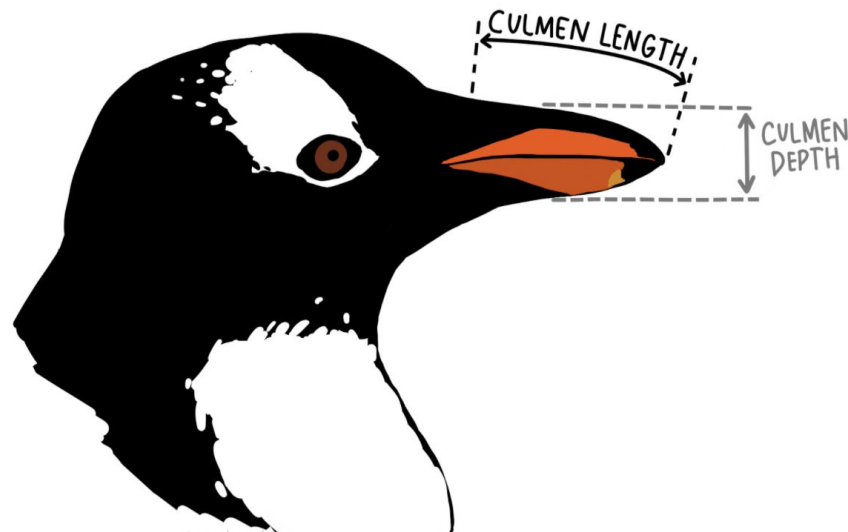
IMAGES

```
### What are we measuring?
```

```
```{r image}  
knitr::include_graphics("culmen_depth.png")
```
```

What are we measuring?

CULMEN: RIDGE ALONG THE
TOP PART OF A BIRD'S BILL



VALUEBOXES

```
### Average culmen length

```{r cul_length}
cul_length <- paste0(round(mean(penguins$culmen_length_mm,
 na.rm = TRUE)), " mm")
valueBox(cul_length,
 icon = "fa-ruler",
 color = "#fa7404")
```
```

44 mm

Average culmen length



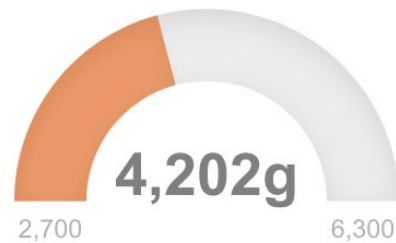
GAUGES

Average body mass

```
```{r mass}
mass <- round(mean(penguins$body_mass_g, na.rm = TRUE))

gauge(mass, min = min(penguins$body_mass_g, na.rm = TRUE),
 max = max(penguins$body_mass_g, na.rm = TRUE),
 symbol = 'g',
 gaugeSectors(
 success = c(6000, 6300),
 warning = c(3000, 5999),
 danger = c(2700, 2999)),
 abbreviate = FALSE
)
```
```

Average body mass



R GRAPHICS

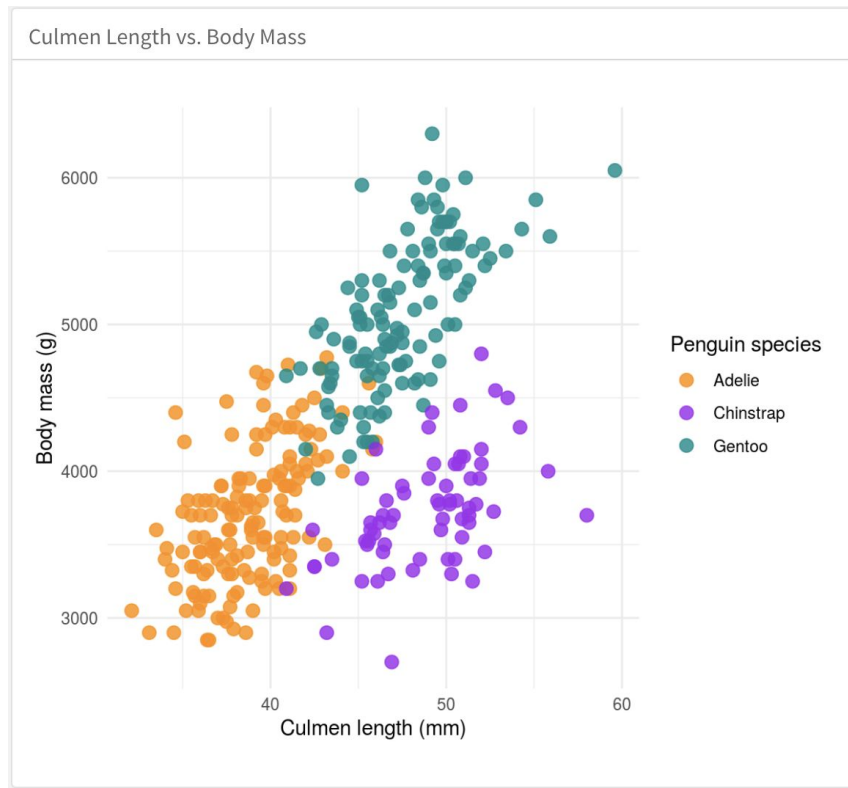
Row

Culmen Length vs. Body Mass

```
```{r plot, echo = FALSE}

ggplot(penguins, aes(culmen_length_mm, body_mass_g)) +
 geom_point(aes(color = species), size = 3, alpha = 0.8) +
 theme_minimal() +
 scale_color_manual(values = c("darkorange", "purple", "cyan4")) +
 labs(x = "Culmen length (mm)",
 y = "Body mass (g)",
 color = "Penguin species")

```
```



COMPONENT RECAP

- Text
- Images
- Valueboxes
- Gauges
- R Graphics (code output, plots, tables, etc.)
- **HTML Widgets**

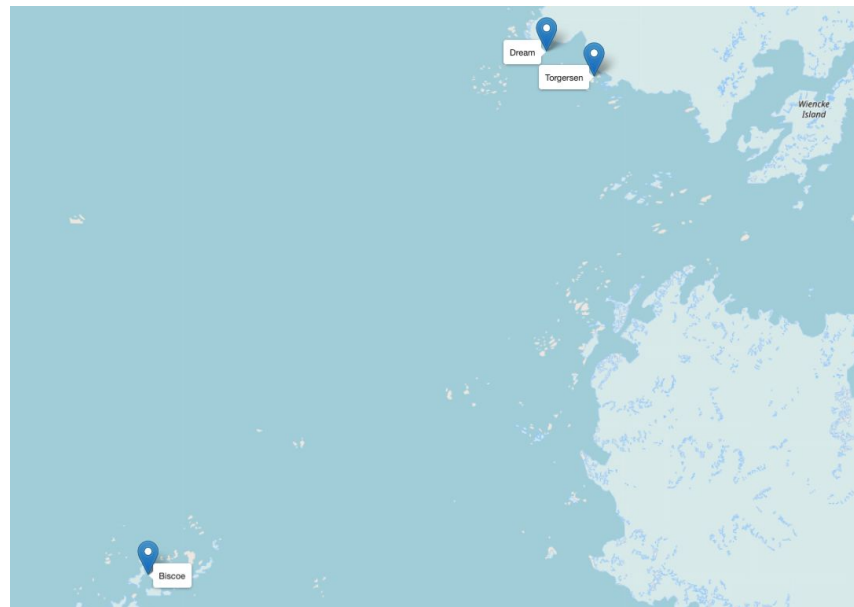
HTMLWIDGETS EXAMPLES

LEAFLET MAPS

Leaflet

```
```{r leaflet}
library(leaflet)
islands <- data.frame(names = c("Biscoe", "Dream", "Torgersen"),
 lat = c(-65.4333, -64.7333, -64.7667),
 lon = c(-65.5000, -64.2333, -64.0833))

leaflet(islands) %>%
 addTiles() %>%
 addMarkers(label = ~names, lat = ~lat, lng = ~lon,
 labelOptions = labelOptions(noHide = T))
```
```



DATATABLES

Datatables

```
```{r dt}  
penguins %>%
 DT::datatable()
```
```

Show entries

Search:

| | species | island | culmen_length_mm | culmen_depth_mm | flipper_length_mm | body_mass_g | sex |
|----|---------|-----------|------------------|-----------------|-------------------|-------------|--------|
| 1 | Adelie | Torgersen | 39.1 | 18.7 | 181 | 3750 | MALE |
| 2 | Adelie | Torgersen | 39.5 | 17.4 | 186 | 3800 | FEMALE |
| 3 | Adelie | Torgersen | 40.3 | 18 | 195 | 3250 | FEMALE |
| 4 | Adelie | Torgersen | | | | | |
| 5 | Adelie | Torgersen | 36.7 | 19.3 | 193 | 3450 | FEMALE |
| 6 | Adelie | Torgersen | 39.3 | 20.6 | 190 | 3650 | MALE |
| 7 | Adelie | Torgersen | 38.9 | 17.8 | 181 | 3625 | FEMALE |
| 8 | Adelie | Torgersen | 39.2 | 19.6 | 195 | 4675 | MALE |
| 9 | Adelie | Torgersen | 34.1 | 18.1 | 193 | 3475 | |
| 10 | Adelie | Torgersen | 42 | 20.2 | 190 | 4250 | |

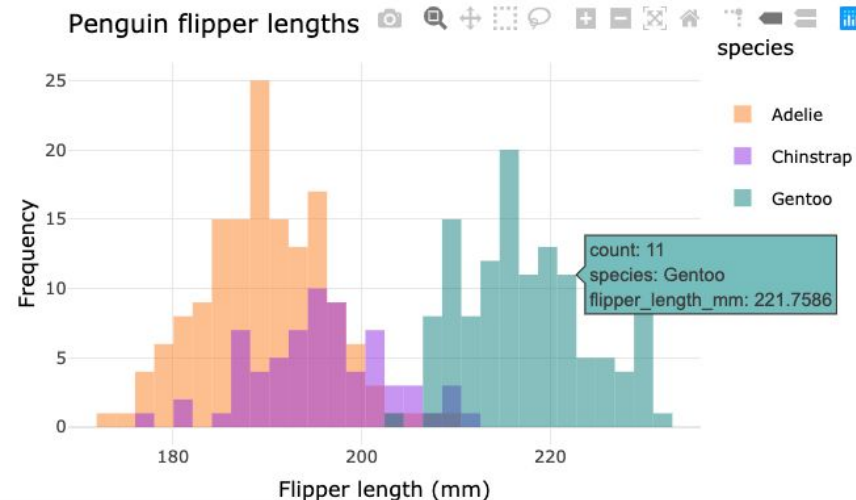
Showing 1 to 10 of 344 entries

Previous 2 3 4 5 ... 35 Next

PLOTLY GRAPHS

Plotly graphs

```
```{r plotly}
library(plotly)
flipper_hist <- ggplot(penguins, aes(flipper_length_mm)) +
 geom_histogram(aes(fill = species),
 alpha = 0.5,
 position = "identity") +
 scale_fill_manual(values = c("darkorange", "purple", "cyan4")) +
 theme_minimal() +
 labs(x = "Flipper length (mm)",
 y = "Frequency",
 title = "Penguin flipper lengths")
ggplotly(flipper_hist)
```
```



RUNTIME: SHINY

EX. DOWNLOAD DATA BUTTON

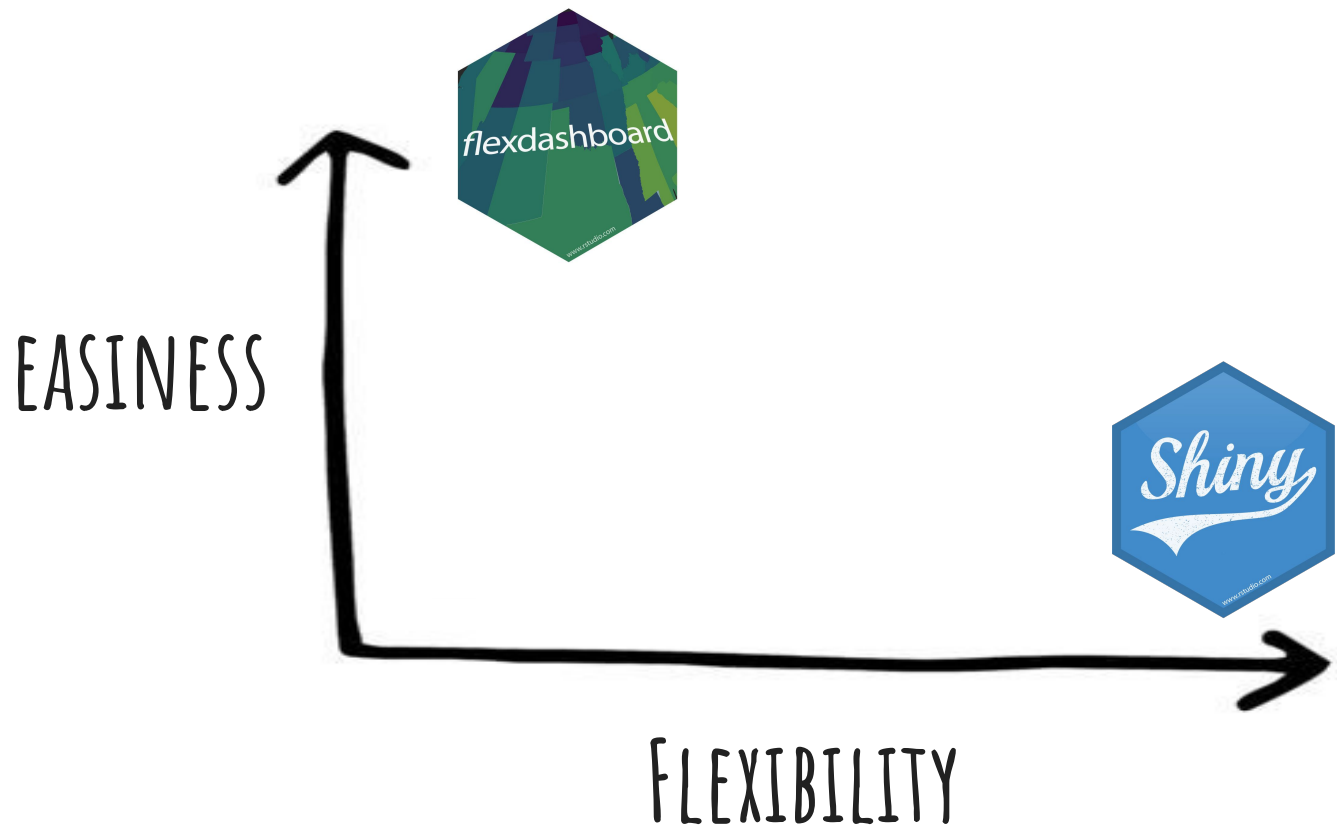
```
Row {data-height=100}
```

```
```{r download}  
library(shiny)
fluidRow(
 downloadHandler(filename = function() {
 return("penguins.csv")
 }, content = function(file) {
 write.csv(penguins, file)
 })
)
```
```



Download

FLEXDASHBOARD VS. SHINYDASHBOARD



FLEXDASHBOARD

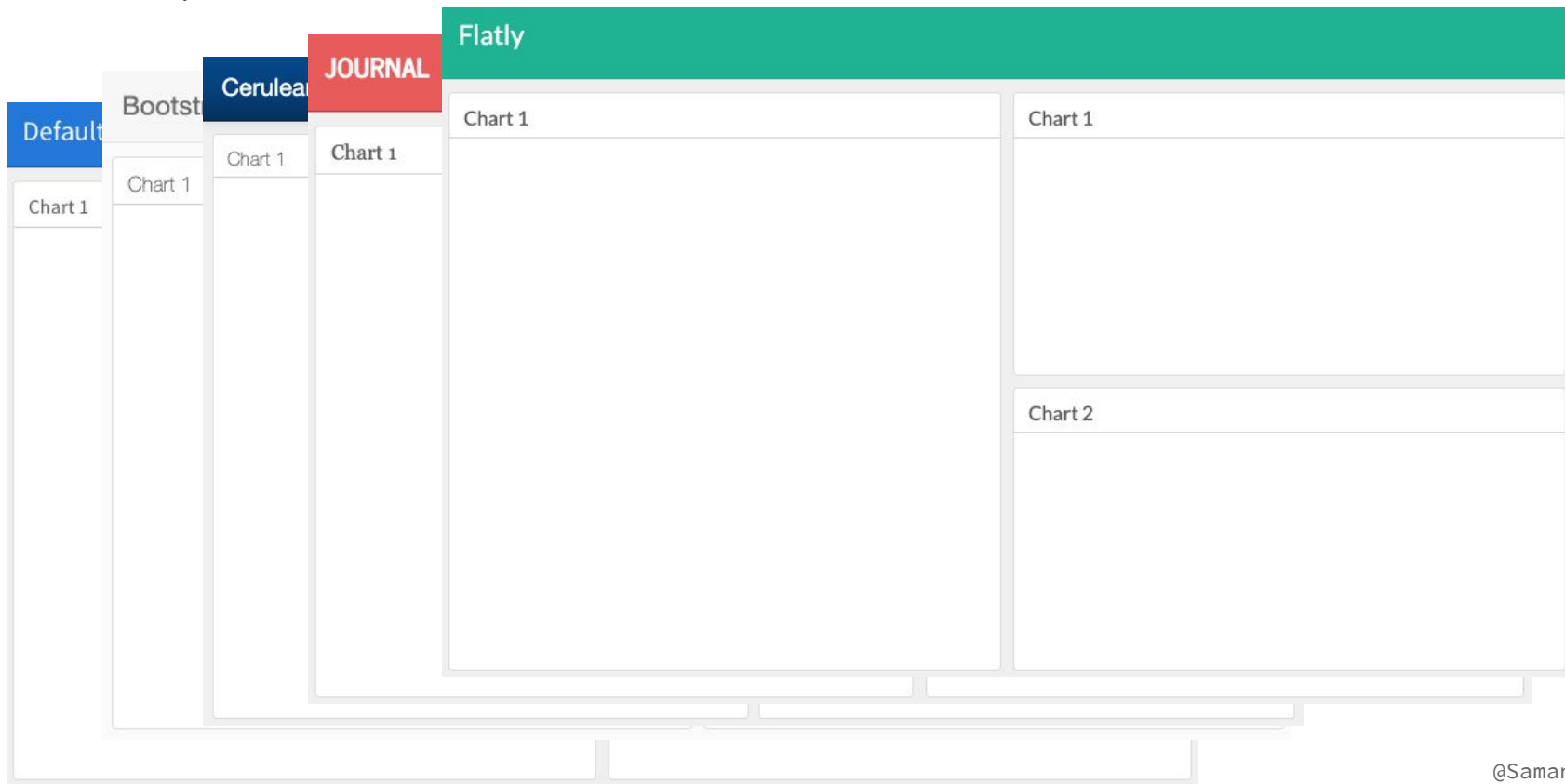
- R Markdown
- Easy & intuitive
- Static or dynamic
- CSS flex layout

SHINYDASHBOARD

- Shiny UI code
- Not very easy
- Always dynamic
- Bootstrap grid layout

HOW DID YOU MAKE IT PRETTY?

THEMES



CSS (DANGER ZONE)

```
<style>
.navbar {
  background-color: #15dcb2ff;
  border-color: #15dcb2ff
}

.navbar-inverse .navbar-nav > li > a:hover,
.navbar-inverse .navbar-nav > li > a:focus {
  background-color: #c35dca;
  color: white;
}

.navbar-inverse .navbar-nav > .active > a,
.navbar-inverse .navbar-nav > .active > a:hover,
.navbar-inverse .navbar-nav > .active > a:focus {
  color: white;
  background-color: #c35dca;
}

.navbar-inverse .navbar-toggle:hover,
.navbar-inverse .navbar-toggle:focus {
  background-color: #c35dca;
}

.navbar-inverse .navbar-collapse,
.navbar-inverse .navbar-form {
  border-color: #c35dca;
}
</style>
```



H/T [IMAGECOLORPICKER.COM](https://imagecolorpicker.com)

THANKS!

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Samtoet.cool

Samantha@rstudio.com