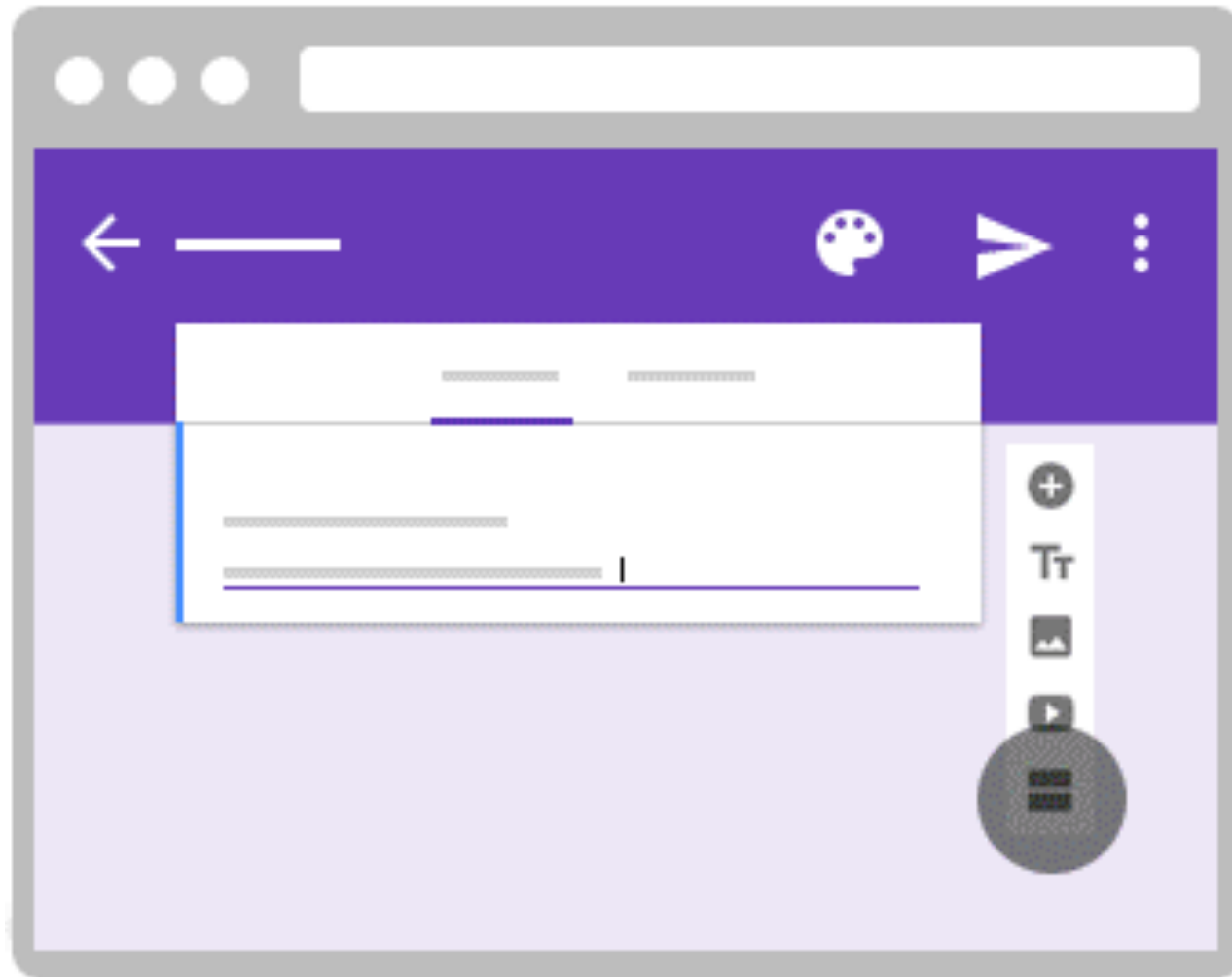


# **surveydown:** An Open-Source, Markdown-Based Platform for Interactive and Reproducible Surveys

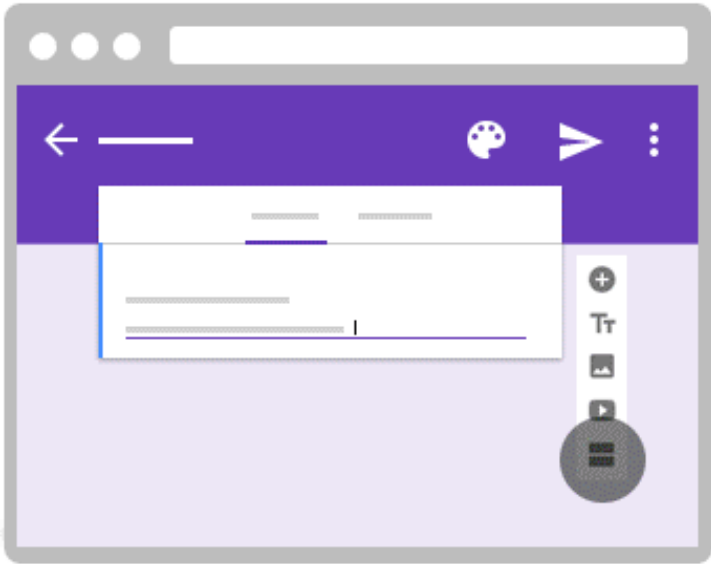
Pingfan Hu, Bogdan Bunea, John Paul Helveston



# Typical experience making a survey



## Typical experience making a survey



✗ Reproducible

✗ Data Control

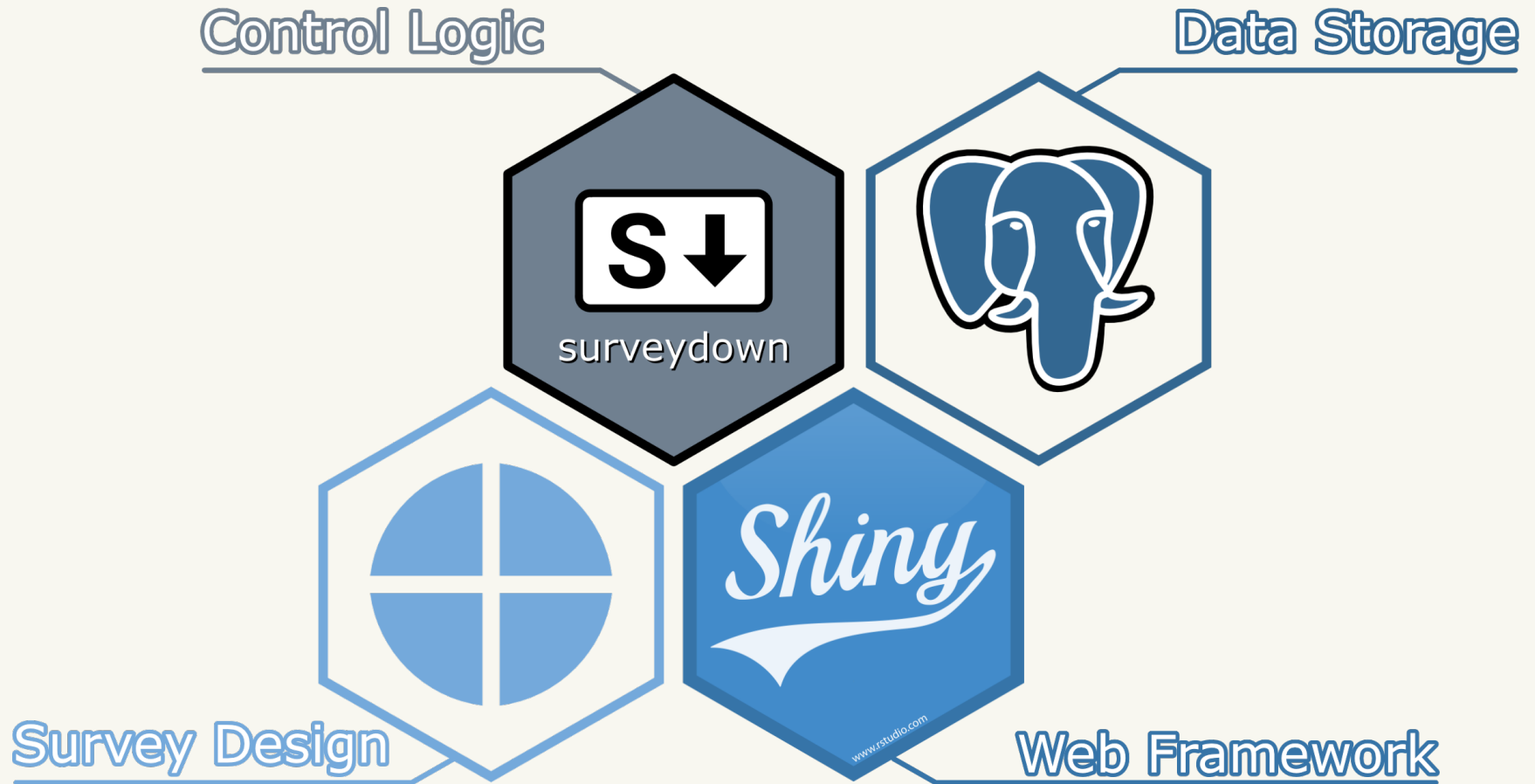
⚠ Free to Use

⚠ Open Source

⚠ Easy Collaboration

⚠ Feature Packed

# Introducing surveydown



# Components

## `survey.qmd`

A **Quarto doc** defining the main survey content (pages, text, images, questions, etc).

## `app.R`

An **R script** defining the survey Shiny app. It sets up the database and server, and launches the survey.

## survey.qmd

```
---
format: html
echo: false
warning: false
---

```{r}
library(surveydown)

::: {#welcome .sd-page}

# Welcome to our survey!

```{r}
sd_question(
  type = "mc",
  id = "penguins",
  label = "What's your favorite penguin?",
  option = c(
    "Adélie" = "adelie",
    "Chinstrap" = "chinstrap",
    "Gentoo" = "gentoo"
  )
)

sd_next()

:::

::: {#end .sd-page}

This is the last page of the survey.

```{r}
sd_close()
```

:::
```

## survey.qmd

```
1 ---
2 format: html
3 echo: false
4 warning: false
5 ---
6
7 ```{r}
8 library(surveydown)
9 ```
10
11 ::: {#welcome .sd-page}
12
13 # Welcome to our survey!
14
15 ```{r}
16 sd_question(
17   type = "mc",
18   id    = "penguins",
19   label = "What's your favorite penguin?",
20   option = c(
21     "Adélie"    = "adelie",
22     "Chinstrap" = "chinstrap",
23     "Gentoo"    = "gentoo"
24   )
25 )
26
27 sd_next()
28 ```
29
30 :::
31
32 ::: {#end .sd-page}
33
34 This is the last page of the survey.
35
36 ```{r}
37 sd_close()
38 ```
39
40 :::
```

YAML Header

Load Package

## survey.qmd

```
1 ---
2 format: html
3 echo: false
4 warning: false
5 ---
6
7 ```{r}
8 library(surveydown)
9 ```
10
11 ::: {#welcome .sd-page}
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13 # Welcome to our survey!
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15 ```{r}
16 sd_question(
17   type = "mc",
18   id    = "penguins",
19   label = "What's your favorite penguin?",
20   option = c(
21     "Adélie"      = "adelie",
22     "Chinstrap"   = "chinstrap",
23     "Gentoo"      = "gentoo"
24   )
25 )
26
27 sd_next()
28 ```
29
30 :::
31
32 ::: {#end .sd-page}
33
34 This is the last page of the survey.
35
36 ```{r}
37 sd_close()
38 ```
39
40 :::
```

Define pages using “fences”:

```
::: {#id .sd-page}
:::
```

Page 1 (Welcome)

Page 2 (End)



## survey.qmd

```
1 ---
2 format: html
3 echo: false
4 warning: false
5 ---
6
7 ```{r}
8 library(surveydown)
9 ```
10
11 ::: {#welcome .sd-page}
12
13 # Welcome to our survey!
14
15 ```{r}
16 sd_question(
17   type = "mc",
18   id    = "penguins",
19   label = "What's your favorite penguin?",
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21     "Adélie"    = "adelie",
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23     "Gentoo"    = "gentoo"
24   )
25 )
26
27 sd_next()
28 ```
29
30 :::
31
32 ::: {#end .sd-page}
33
34 This is the last page of the survey.
35
36 ```{r}
37 sd_close()
38 ```
39
40 :::
```

### Contents of Page 1

## survey.qmd

```
1 ---
2 format: html
3 echo: false
4 warning: false
5 ---
6
7 ```{r}
8 library(surveydown)
9 ```
10
11 ::: {#welcome .sd-page}
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13 # Welcome to our survey!
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15 ```{r}
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17   type = "mc",
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25 )
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27 sd_next()
28 ```
29
30 :::
31
32 ::: {#end .sd-page}
33
34 This is the last page of the survey.
35
36 ```{r}
37 sd_close()
38 ```
39
40 :::
```

### Question Definition

## app.R

```
# Load Package
library(surveydown)

# Database Credentials
sd_db_config()

# Connect to Database
db <- sd_db_connect()

# Server Setup
server <- function(input, output, session) {

  # Skip logic
  sd_skip_forward(...)

  # Conditional display
  sd_show_if(...)

  # Server settings
  sd_server(
    db = db,
    ...
  )
}

# Launch Survey
shiny::shinyApp(ui = sd_ui(), server = server)
```

## app.R

```
1 # Load Package
2 library(surveydown)
3
4 # Database Credentials
5 sd_db_config()
6
7 # Connect to Database
8 db <- sd_db_connect()
9
10 # Server Setup
11 server <- function(input, output, session) {
12
13   # Skip logic
14   sd_skip_forward(...)
15
16   # Conditional display
17   sd_show_if(...)
18
19   # Server settings
20   sd_server(
21     db = db,
22     ...
23   )
24 }
25
26 # Launch Survey
27 shiny::shinyApp(ui = sd_ui(), server = server)
```

Load Package

```
1 # Load Package
2 library(surveydown)
3
4 # Database Credentials
5 sd_db_config()
6
7 # Connect to Database
8 db <- sd_db_connect()
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10 # Server Setup
11 server <- function(input, output, session) {
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13   # Skip logic
14   sd_skip_forward(...)
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16   # Conditional display
17   sd_show_if(...)
18
19   # Server settings
20   sd_server(
21     db = db,
22     ...
23   )
24 }
25
26 # Launch Survey
27 shiny::shinyApp(ui = sd_ui(), server = server)
```

## Database Setup

We recommend using **Supabase** or any **PostgreSQL** database for the database setup.

## app.R

```
1 # Load Package
2 library(surveydown)
3
4 # Database Credentials
5 sd_db_config()
6
7 # Connect to Database
8 db <- sd_db_connect()
9
10 # Server Setup
11 server <- function(input, output, session) {
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13   # Skip logic
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20   sd_server(
21     db = db,
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24 }
25
26 # Launch Survey
27 shiny::shinyApp(ui = sd_ui(), server = server)
```

### Server Setup

## app.R

```
1 # Load Package
2 library(surveydown)
3
4 # Database Credentials
5 sd_db_config()
6
7 # Connect to Database
8 db <- sd_db_connect()
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11 server <- function(input, output, session) {
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14   sd_skip_forward(...)
15
16   # Conditional display
17   sd_show_if(...)
18
19   # Server settings
20   sd_server(
21     db = db,
22     ...
23   )
24 }
25
26 # Launch Survey
27 shiny::shinyApp(ui = sd_ui(), server = server)
```

Launch Survey

# Locally running the survey



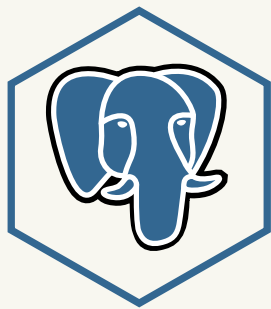
Data saved locally in csv for previewing purposes.



# Online Deployment

## Data Storage

- Any PostgreSQL database
- Recommend **Supabase** (Free)
- Use `sd_db_config()` to set up



PostgreSQL



Supabase

## Deploy

- Recommend **shinyapps.io** (Free):

```
rsconnect::deployApp(appName = "my_survey")
```

- Other Platforms:
  - Posit Connect Cloud
  - Hugging Face
  - Heroku

Online Data Storage + Online Survey URL

# Local Dashboard App



Templates and demos are provided on  
[surveydown.org](https://surveydown.org) for an easy start.

# Summary of Features

Reactivity and randomization

Dashboard for survey data

Cookies for restoration

URL parameters for redirection

Ability to start from selected page

Custom interactive questions

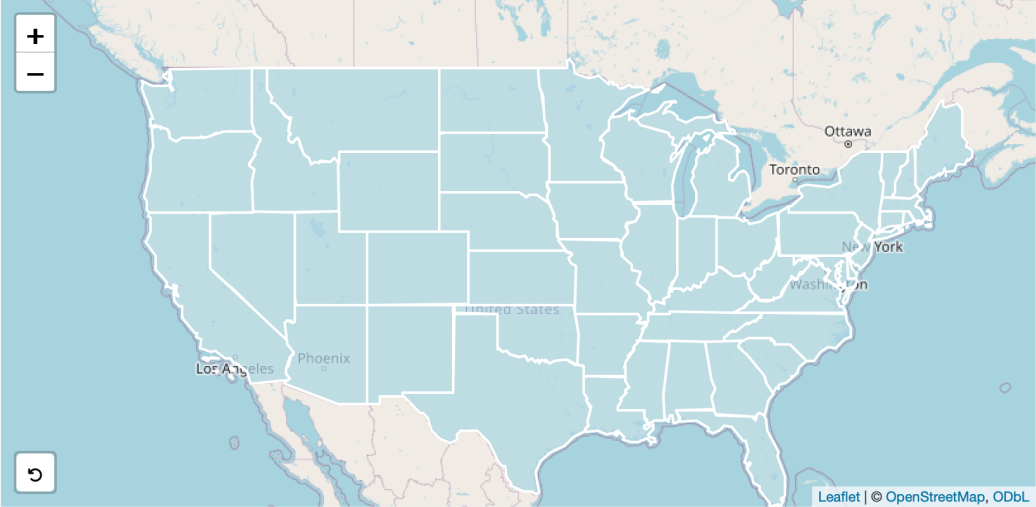
# Example of custom interactive question

## Demo - Custom Leaflet Map

Click on the state you live in:

+

-



↺

Leaflet | © OpenStreetMap, ODbL

**You live in:**

Next

Made with [surveydown](#)[Source Code](#)

# Map Question Showcase



Source: Dr. Selena Hinojos, GWU

# Future Work

GUI for defining surveys

More question types

...and more!

**You can contribute!**

Check out [surveydown.org](https://surveydown.org) for more!