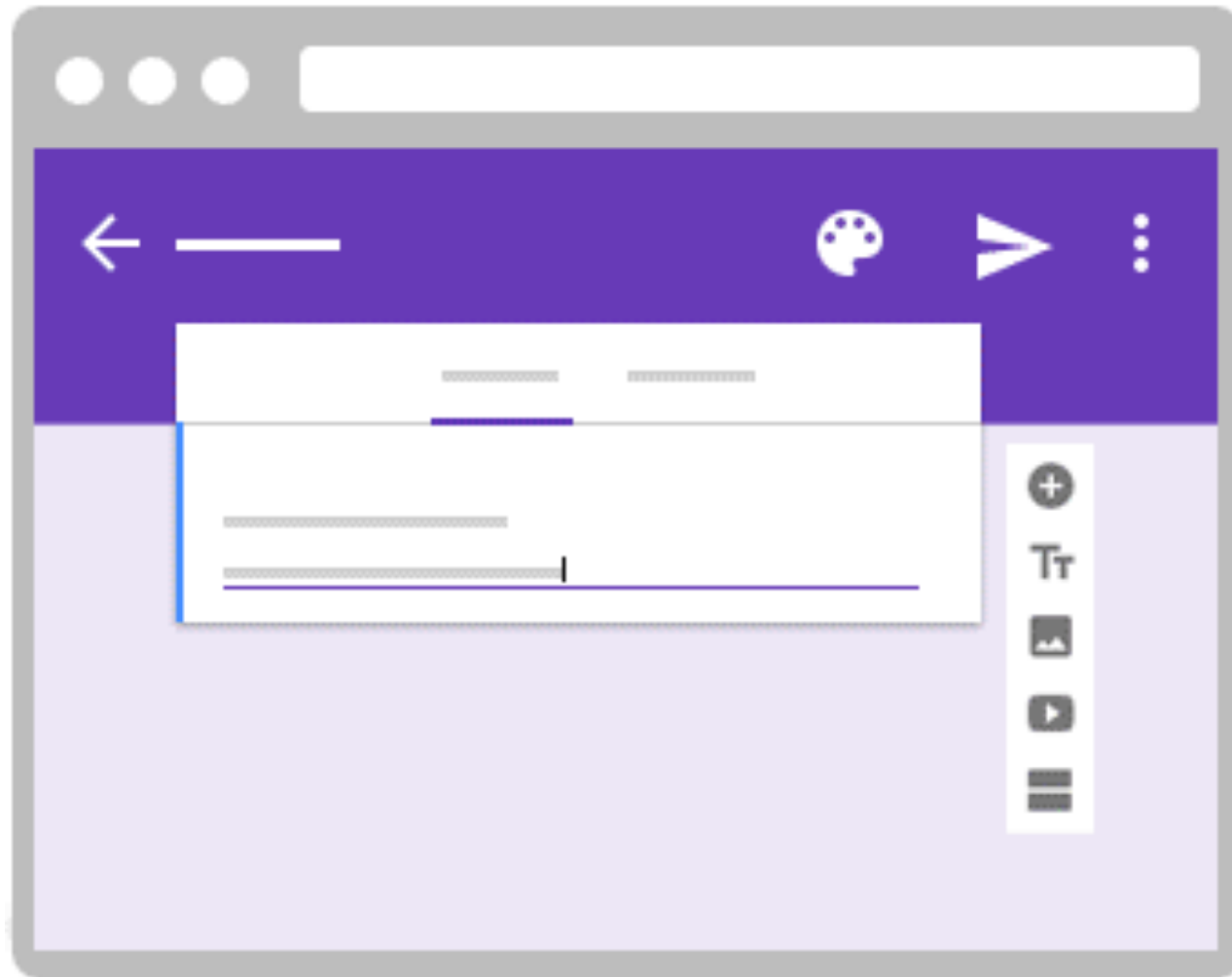# surveydown:
An Open-Source, Markdown-Based Platform for Interactive and Reproducible Surveys
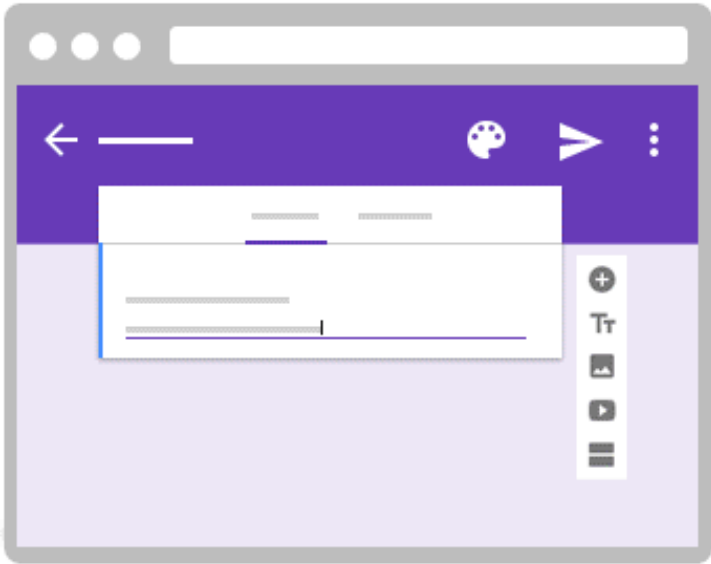
Pingfan Hu, Bogdan Bunea, John Paul Helveston

Typical experience making a survey

Typical experience making a survey
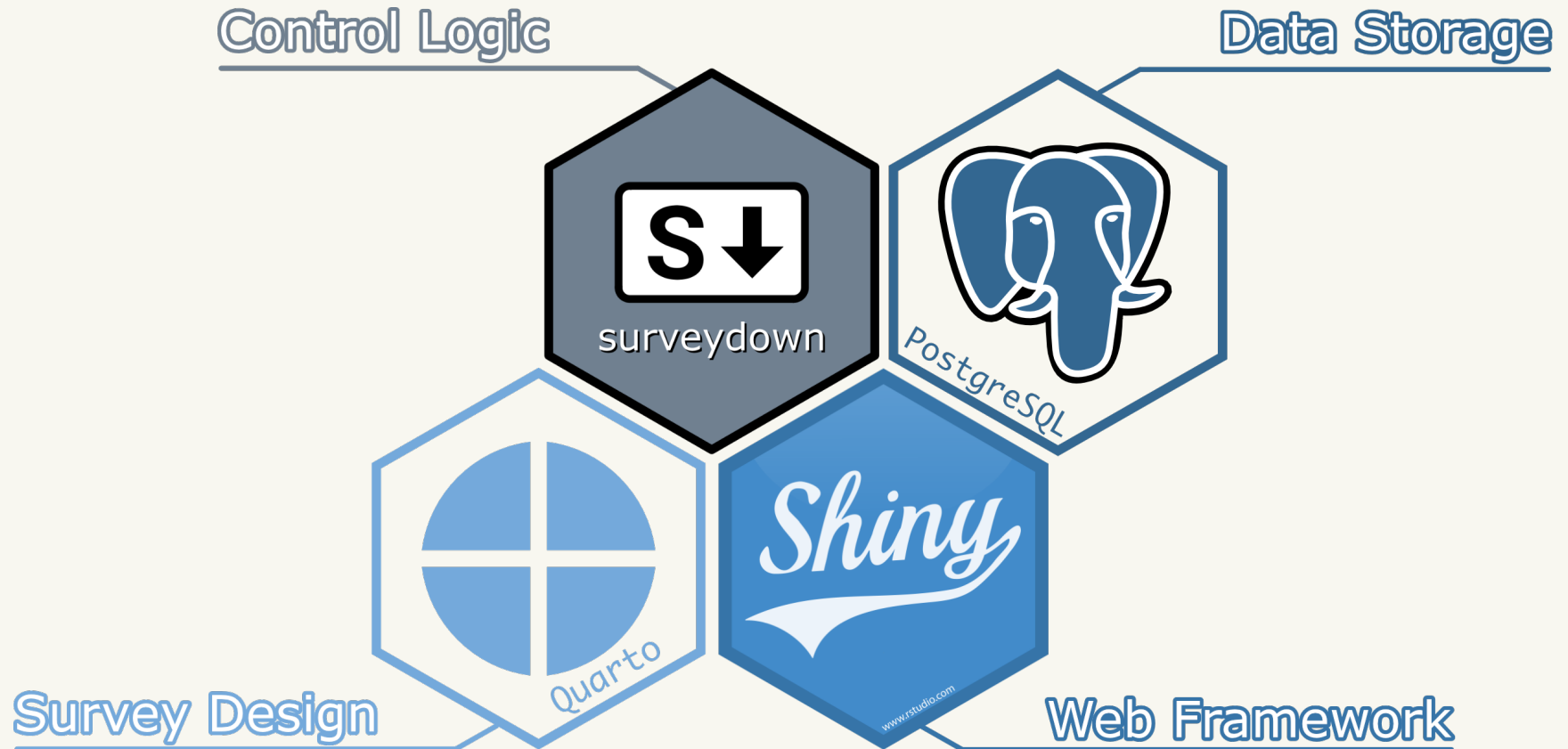

❌ **Reproducible**

❌ **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

```
 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  :::
```

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}
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  :::
```

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?",
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  :::
```

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}
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 :::
```

Question Definition

app.R

```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)
```

app.R

```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

app.R

```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)
```

Database Setup

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

app.R

```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)
```

Server Setup

app.R

```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)
```
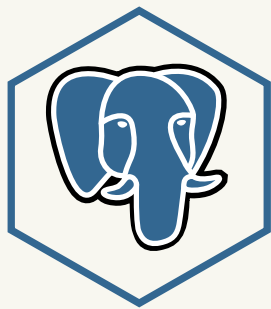
Launch Survey

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 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
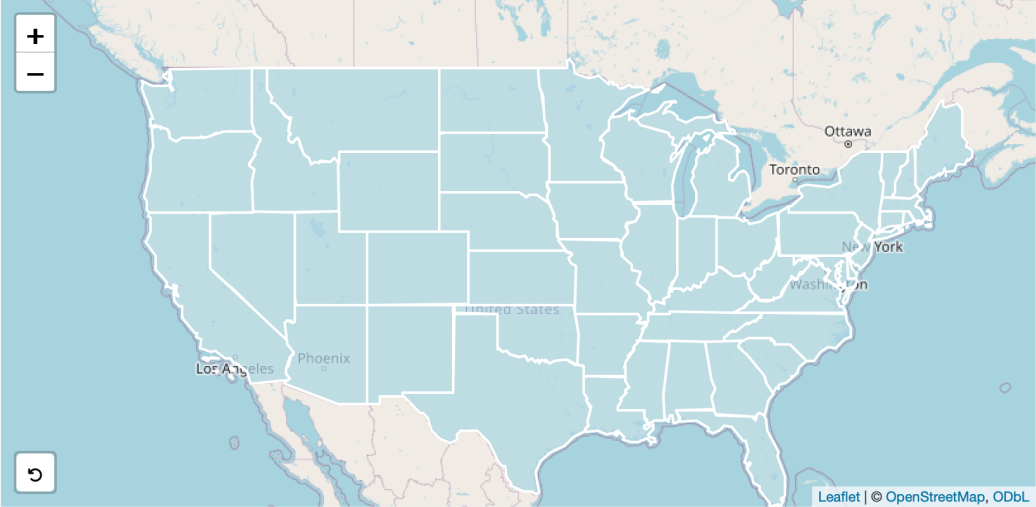
Custom interactive questions

Example of custom interactive question

Map Question Showcase
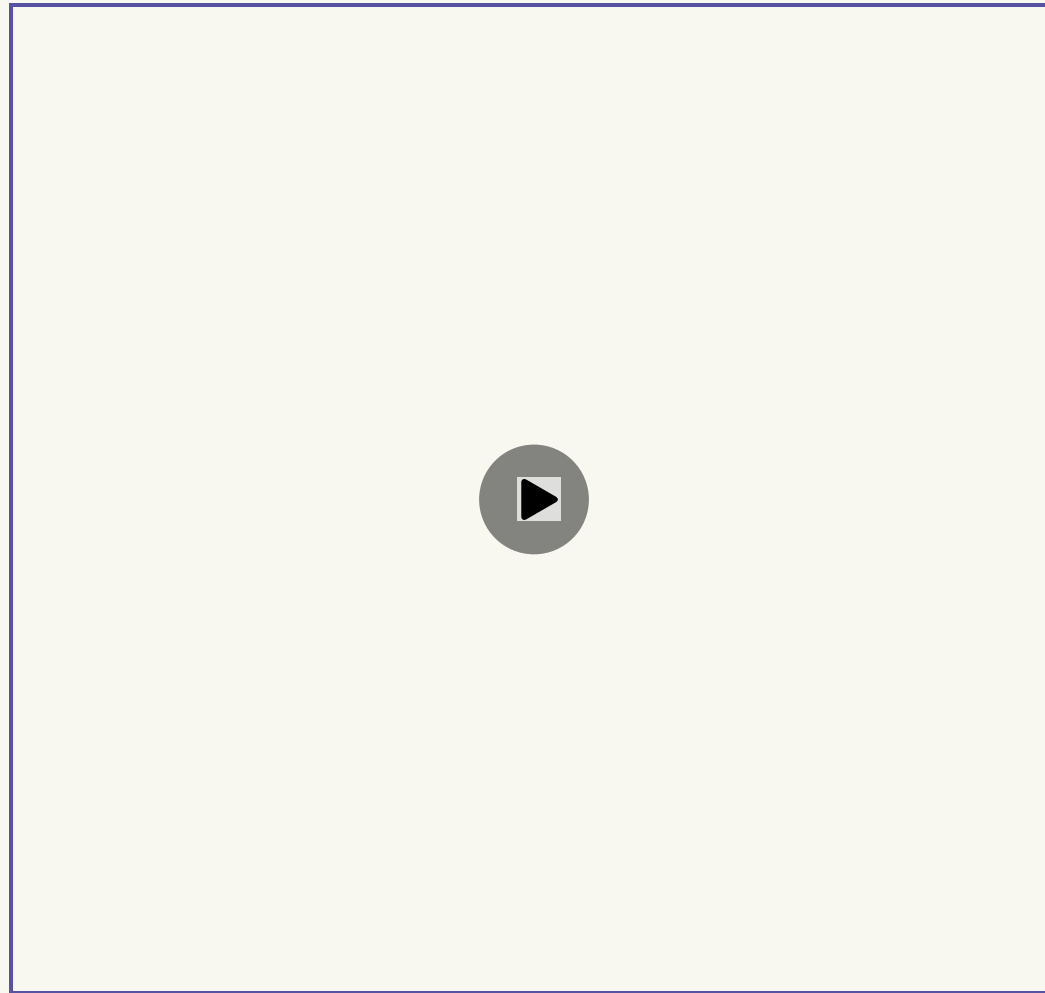
Source: Dr. Selena Hinojos, GWU

Future Work

GUI for defining surveys

More question types

…and more!

You can contribute!

Check out surveydown.org for more!