

surveydown

An Open-Source, Markdown-Based Platform
for Reproducible and Programmable Surveys

Pingfan Hu
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Quant UX Con 2025



About Me



- My name is **Pingfan Hu**, a PhD Candidate at George Washington University, supervised by Dr John Helveston.
- Graduating in **Spring 2025**.
- Research focuses:
 1. Sustainable transportation
 2. Choice modeling & data analysis
 3. Research software development
- For more information, visit pingfanhu.com

I try to figure out what people want...





Prof. John
Helveston



jhelvy.shinyapps.io



Welcome to the Ultimate Superhero Survey!



Thank you for participating in our research on superhero preferences and powers! This survey will help us understand what makes superheroes appealing to different people.

This survey should take about 3-5 minutes to complete.

Do you have a favorite super hero?

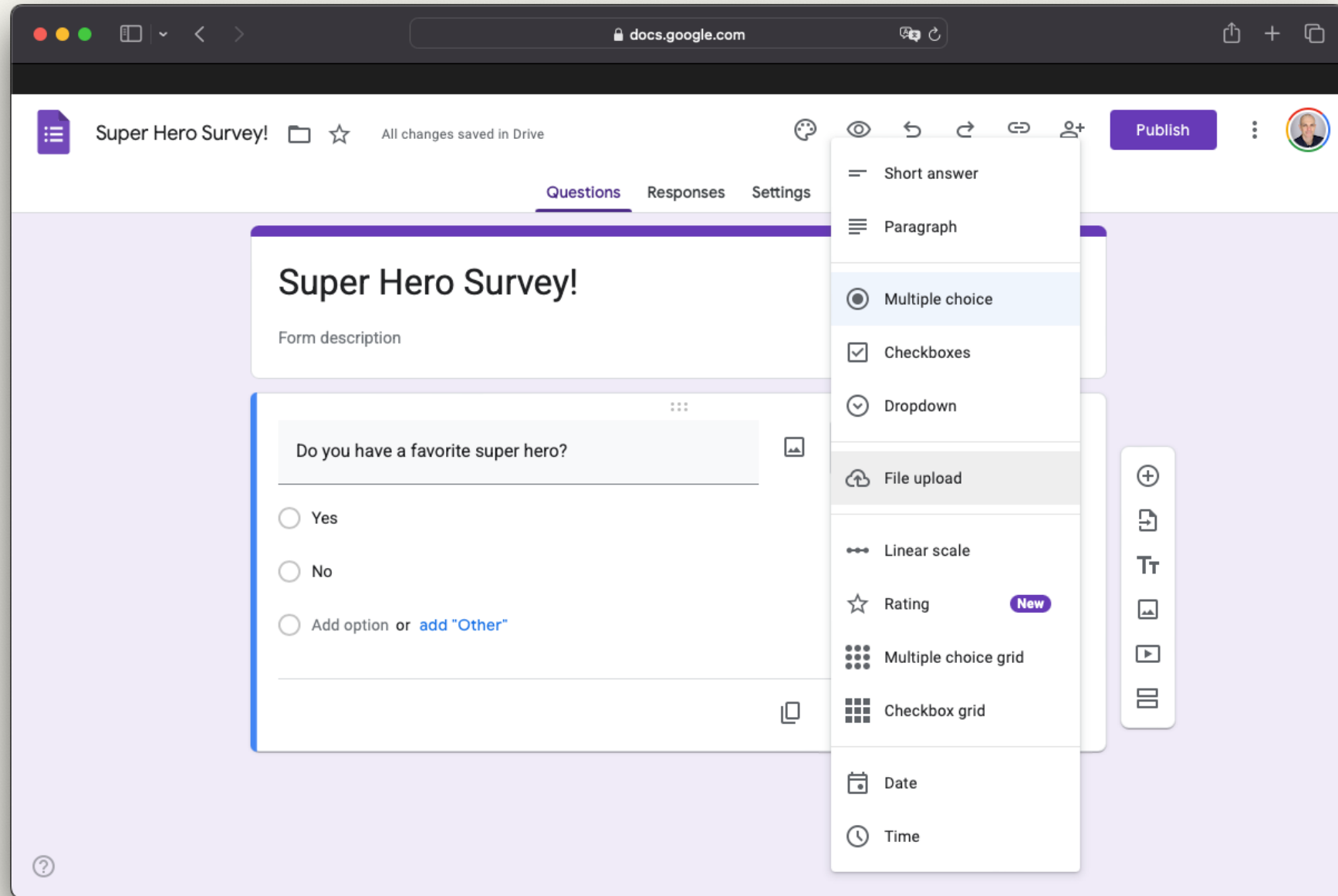
*

☐ Yes

☒ No

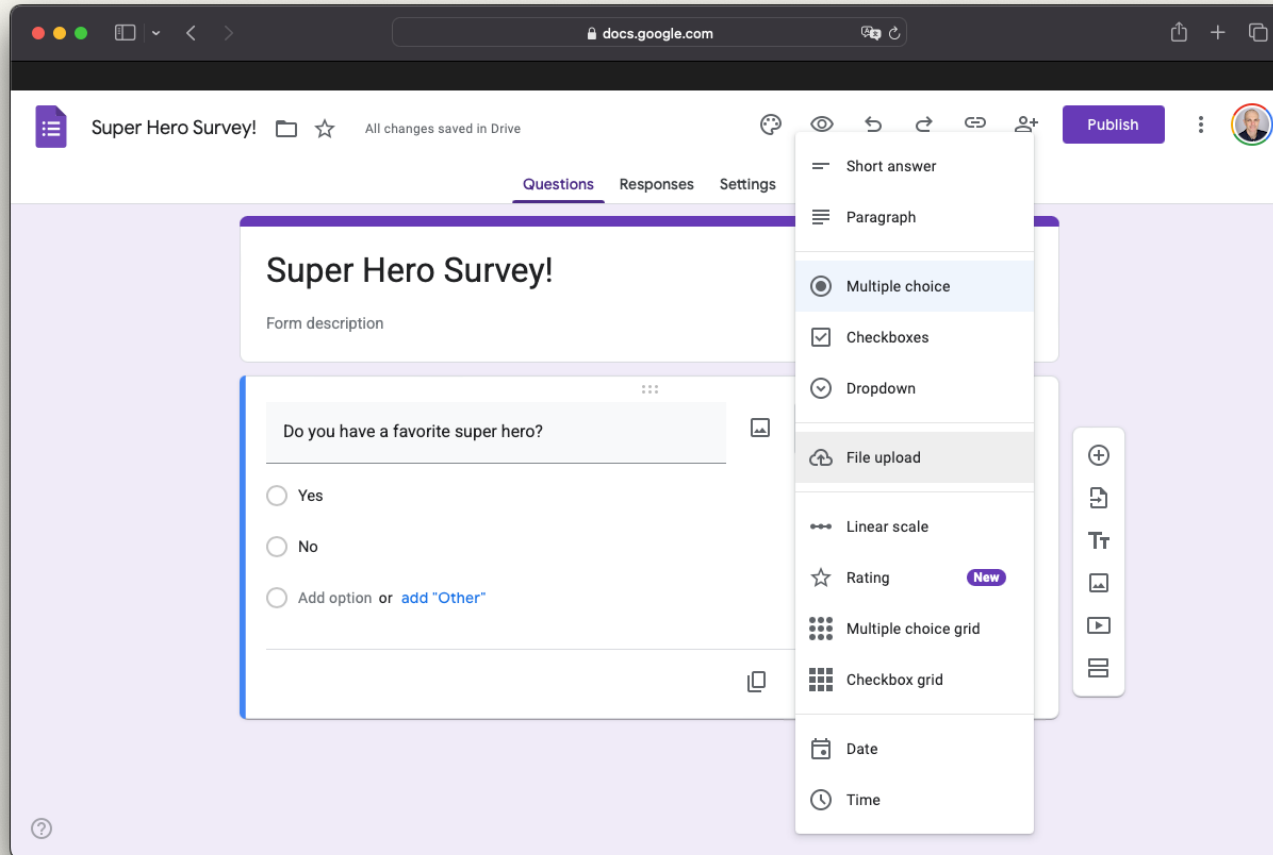
Next

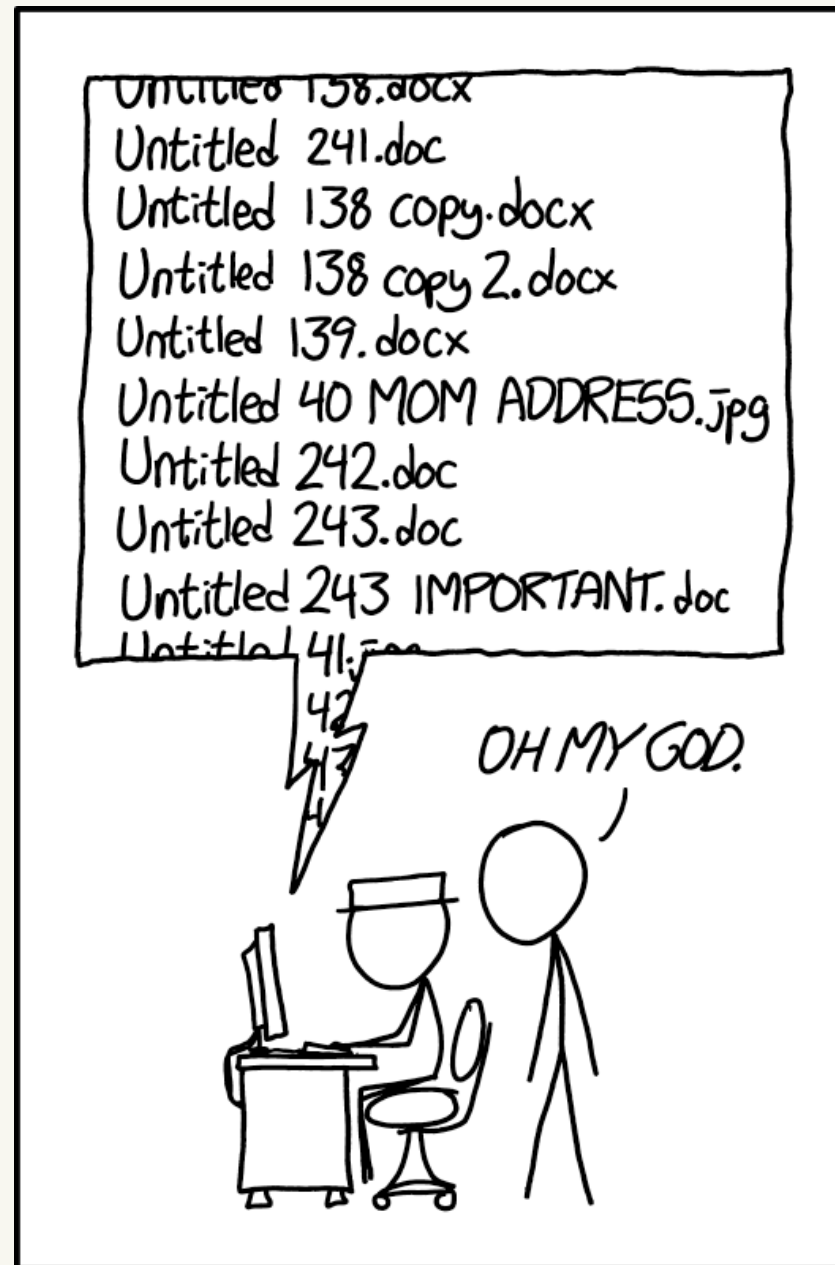
WYSIWYG Interface

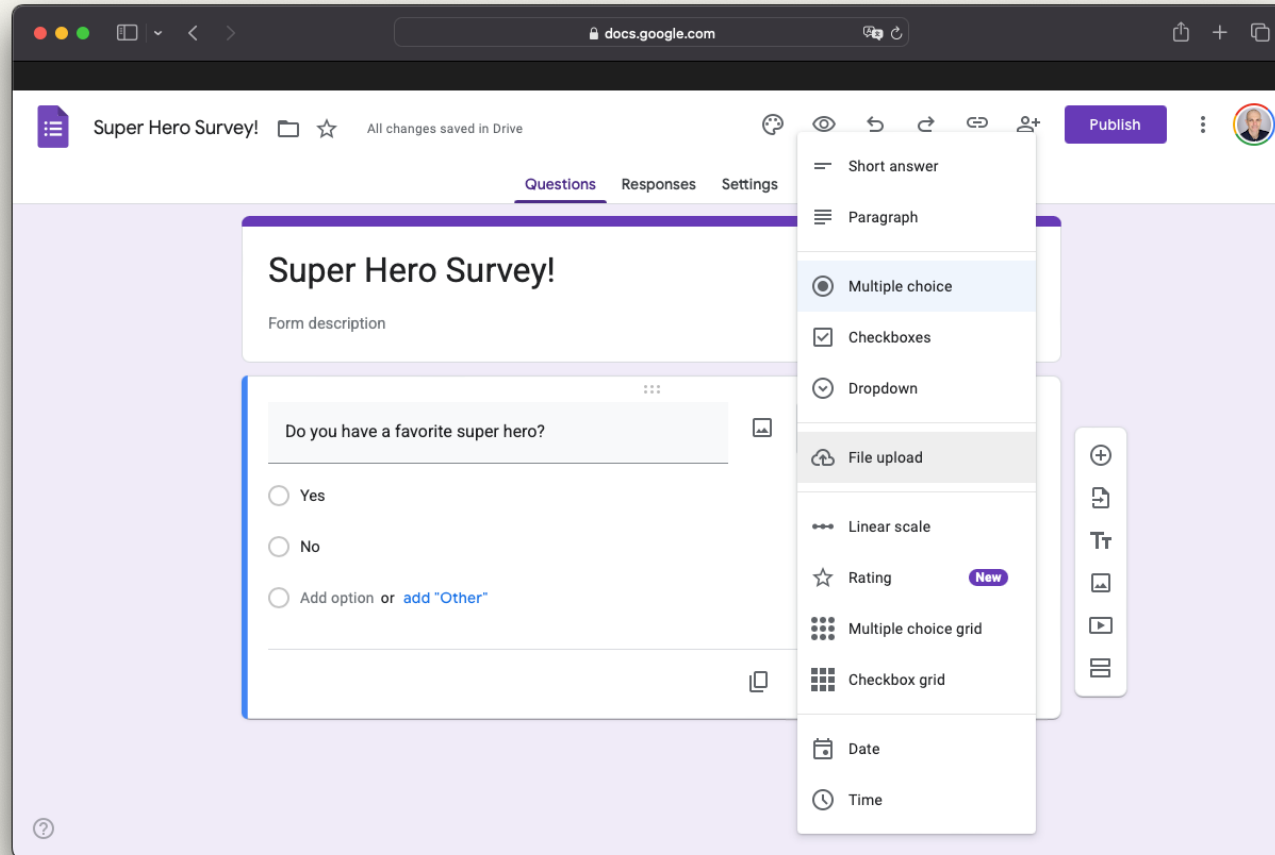


Limitations

- ✗ Reproducibility
- ✗ Version control







Limitations

- ✗ Reproducibility
- ✗ Version control
- ✗ Limited features
- ✗ Open source

Why not make
surveys from **code**?

~~Limitations~~

Features

- ✓ Reproducibility
- ✓ Version control
- ✓ Lots of features
- ✓ Open source

Introducing **surveydown**!



In this talk, we will cover:

What is surveydown?

How does it work?

What can I do with it?

What's next?

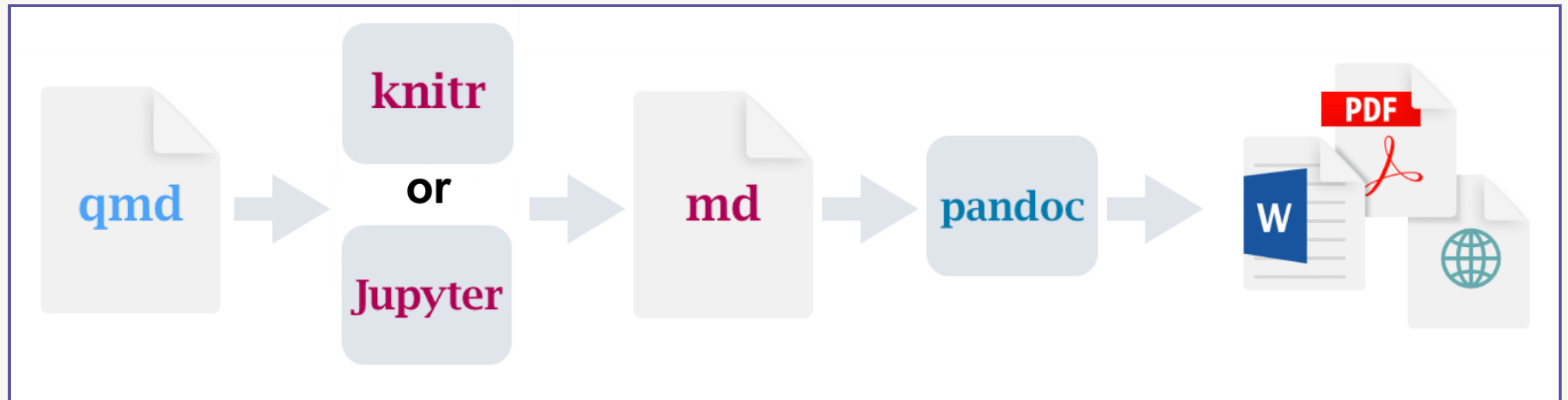
What is **surveydown**?



R package that renders Quarto files into surveys



Quarto is a publishing system

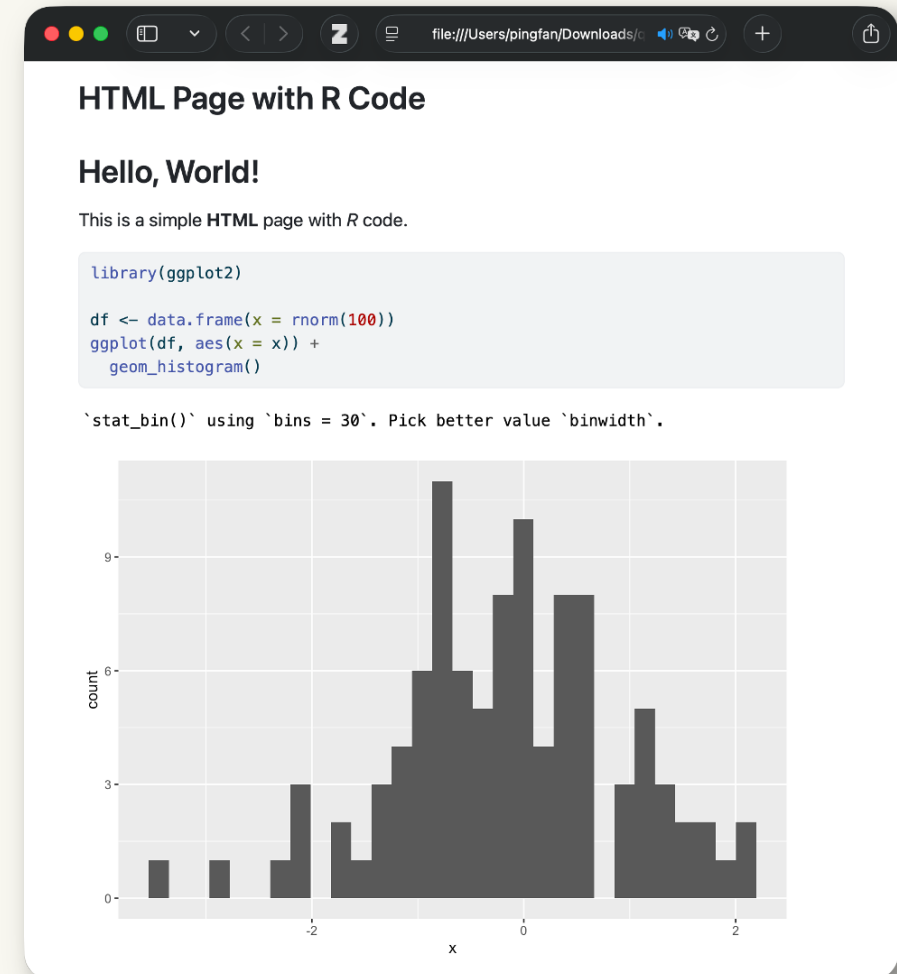


Original `qmd` file

Markdown + R code chunks

```
1 ---
2 format: html
3 title: "HTML Page with R Code"
4 ---
5
6 # Hello, World!
7
8 This is a simple HTML page with R code.
9
10 ```{r}
11 library(ggplot2)
12
13 df <- data.frame(x = rnorm(100))
14 ggplot(df, aes(x = x)) +
15   geom_histogram()
16 ```
```

Rendered HTML

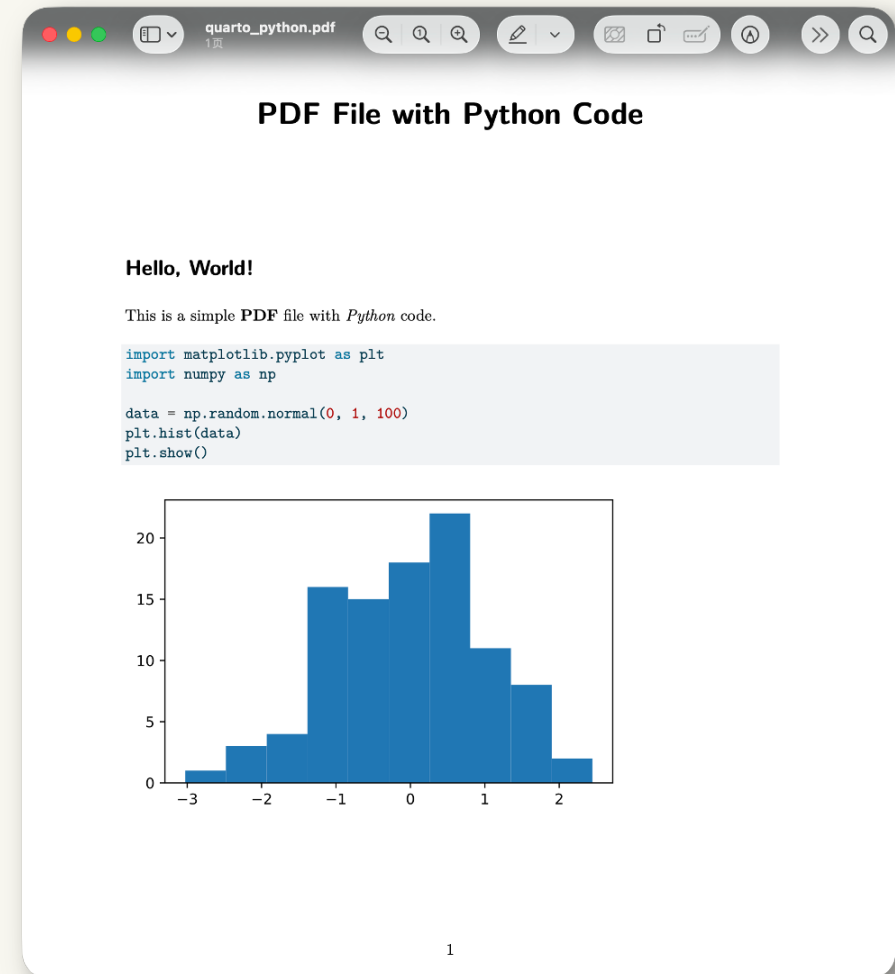


Original `qmd` file

Markdown + Python code chunks

```
1 ---
2 format: pdf
3 title: "PDF File with Python Code"
4 ---
5
6 # Hello, World!
7
8 This is a simple PDF file with Python code.
9
10 ```{python}
11 import matplotlib.pyplot as plt
12 import numpy as np
13
14 data = np.random.normal(0, 1, 100)
15 plt.hist(data)
16 plt.show()
17 ```
```

Rendered PDF

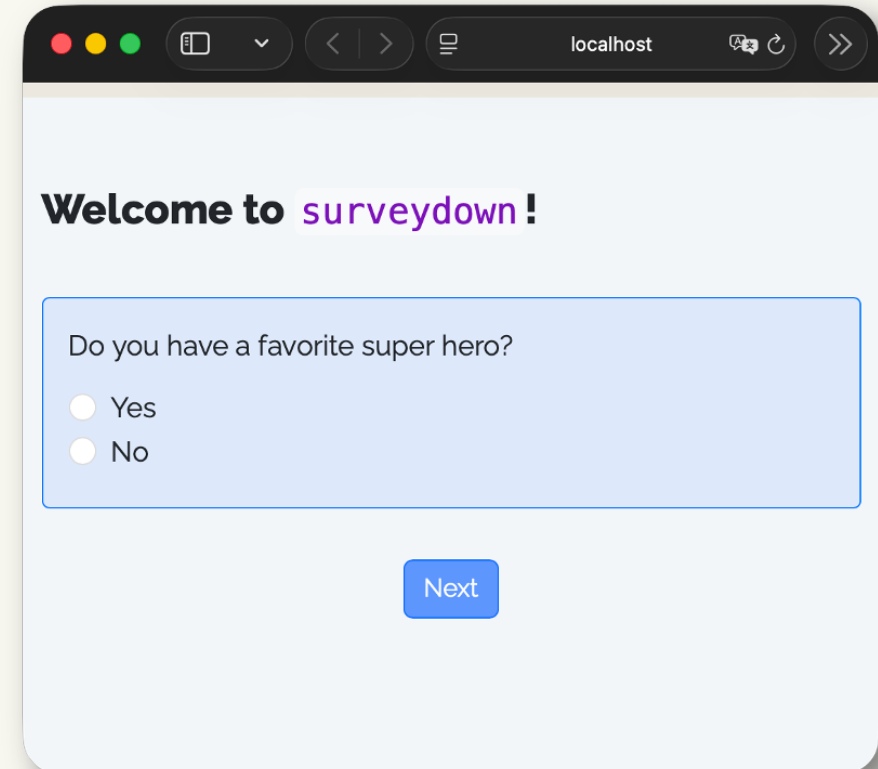




survey.qmd

```
1 ---
2 format: html
3 echo: false
4 warning: false
5 ---
6
7 ```{r}
8 library(surveydown)
9 ```
10
11 --- welcome
12
13 # Welcome to `surveydown`!
14
15 ```{r}
16 sd_question(
17   type = "mc",
18   id    = "has_fav_hero",
19   label = "Do you have a favorite super hero?",
20   option = c(
21     "Yes" = "yes",
22     "No"  = "no"
23   )
24 )
25
26 sd_next()
27 ```
28
29 --- some_other_page
30
31 Other content...
```

Rendered Survey



localhost

Welcome to surveydown !

Do you have a favorite super hero?

☐ Yes

☐ No

Next

survey.qmd

YAML header for a “clean” output

```
1 ---
2 format: html
3 echo: false
4 warning: false
5 ---
6
7 ```{r}
8 library(surveydown)
9 ```
10
11 --- welcome
12
13 # Welcome to `surveydown`!
14
15 ```{r}
16 sd_question(
17   type = "mc",
18   id   = "has_fav_hero",
19   label = "Do you have a favorite super hero?",
20   option = c(
21     "Yes" = "yes",
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23   )
24 )
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survey.qmd

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18   id    = "has_fav_hero",
19   label = "Do you have a favorite super hero?",
20   option = c(
21     "Yes" = "yes",
22     "No"  = "no"
23   )
24 )
25
26 sd_next()
27 ```
28
29 --- some_other_page
30
31 Other content...
```

Load the **surveydown** Package

survey.qmd

```
1 ---
2 format: html
3 echo: false
4 warning: false
5 ---
6
7 ```{r}
8 library(surveydown)
9 ```
10
11 --- welcome
12
13 # Welcome to `surveydown`!
14
15 ```{r}
16 sd_question(
17   type = "mc",
18   id    = "has_fav_hero",
19   label = "Do you have a favorite super hero?",
20   option = c(
21     "Yes" = "yes",
22     "No"  = "no"
23   )
24 )
25
26 sd_next()
27 ```
28
29 --- some_other_page
30
31 Other content...
```

Use triple-dash marker (---) to define survey pages

Quarto fences (:::) also OK:

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

Page content

```
:::
```

survey.qmd

```
1 ---
2 format: html
3 echo: false
4 warning: false
5 ---
6
7 ```{r}
8 library(surveydown)
9 ```
10
11 --- welcome
12
13 # Welcome to `surveydown`!
14
15 ```{r}
16 sd_question(
17   type = "mc",
18   id   = "has_fav_hero",
19   label = "Do you have a favorite super hero?",
20   option = c(
21     "Yes" = "yes",
22     "No"  = "no"
23   )
24 )
25
26 sd_next()
27 ```
28
29 --- some_other_page
30
31 Other content...
```

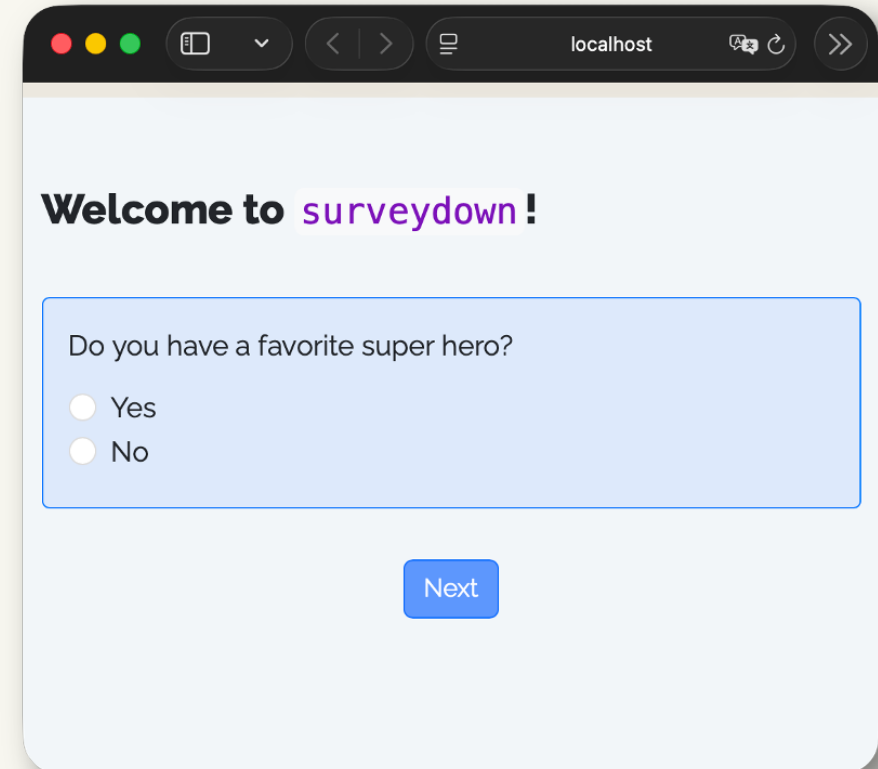
Page content

- Markdown for texts, images, etc.
- `sd_question()` for survey questions
- `sd_next()` for page navigation

survey.qmd

```
1 ---
2 format: html
3 echo: false
4 warning: false
5 ---
6
7 ```{r}
8 library(surveydown)
9 ```
10
11 --- welcome
12
13 # Welcome to `surveydown`!
14
15 ```{r}
16 sd_question(
17   type = "mc",
18   id    = "has_fav_hero",
19   label = "Do you have a favorite super hero?",
20   option = c(
21     "Yes" = "yes",
22     "No"  = "no"
23   )
24 )
25
26 sd_next()
27 ```
28
29 --- some_other_page
30
31 Other content...
```

Rendered Survey



localhost

Welcome to **surveydown**!

Do you have a favorite super hero?

☐ Yes

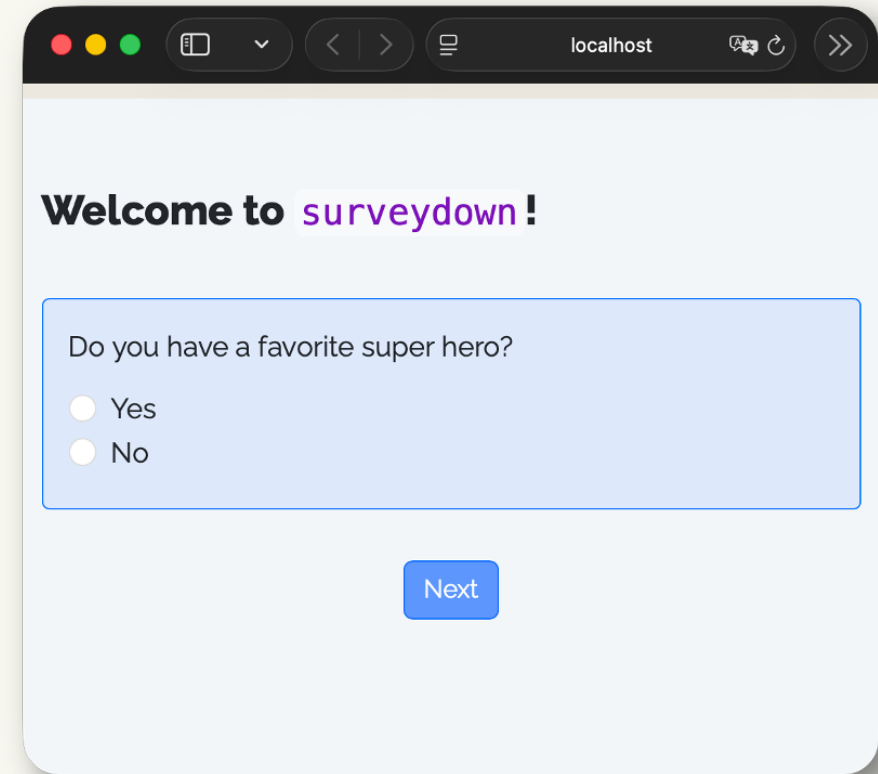
☐ No

Next

survey.qmd

```
1 ---
2 format: html
3 echo: false
4 warning: false
5 ---
6
7 ```{r}
8 library(surveydown)
9 ```
10
11 --- welcome
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16 sd_question(
17   type = "mc",
18   id    = "has_fav_hero",
19   label = "Do you have a favorite super hero?",
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21     "Yes" = "yes",
22     "No"  = "no"
23   )
24 )
25
26 sd_next()
27 ```
28
29 --- some_other_page
30
31 Other content...
```

Rendered Survey



Welcome to surveydown!

Do you have a favorite super hero?

☐ Yes

☐ No

Next

has_fav_hero
yes
no
no
yes

Wait a minute...
Quarto renders to **static** html pages, right?



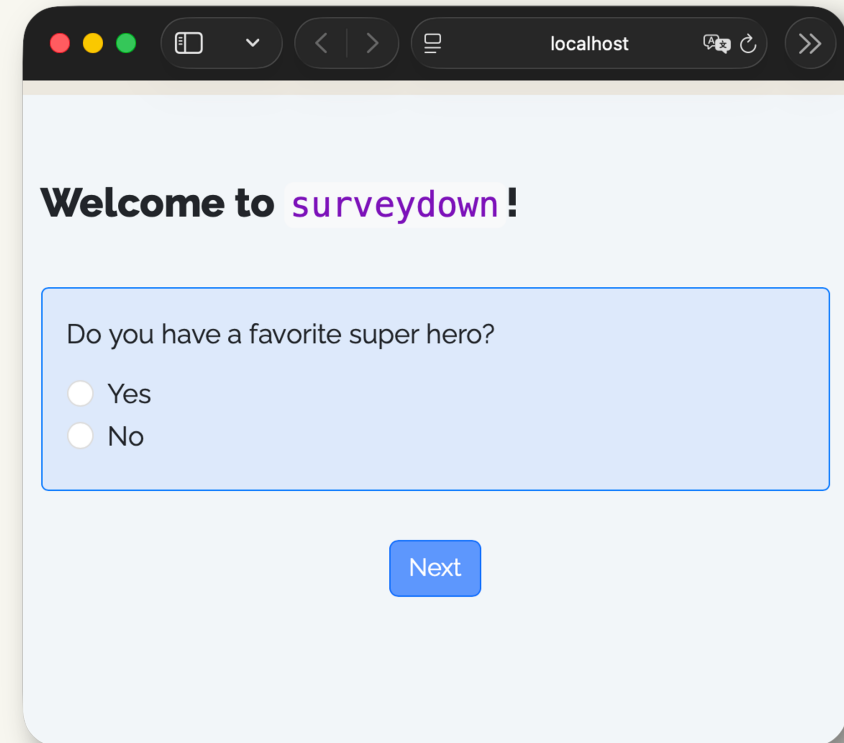
Shiny to the rescue!







=

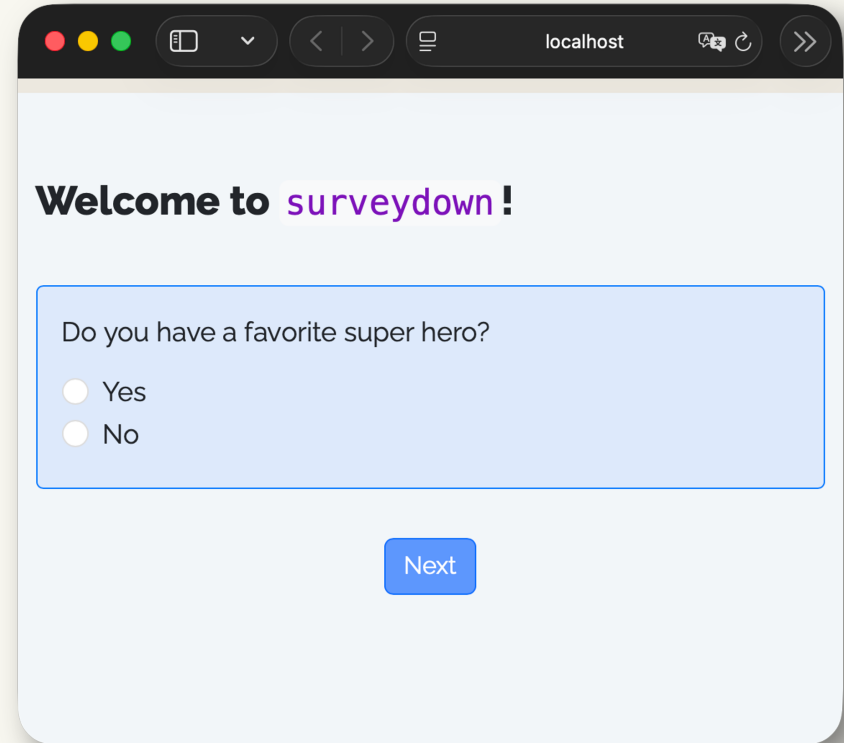


Shiny App

UI



Server



A complete surveydown survey

`survey.qmd`

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

`app.R`

An **R script** defining the survey Shiny app.

Don't panic!



app.R

```
1 library(surveydown)
2
3 ui <- sd_ui()
4
5 server <- function(input, output, session) {
6
7   sd_server()
8
9 }
10
11 shiny::shinyApp(ui = ui, server = server)
```

app.R

```
1 library(surveydown)
2
3 ui <- sd_ui()
4
5 server <- function(input, output, session) {
6
7   sd_server()
8
9 }
10
11 shiny::shinyApp(ui = ui, server = server)
```

Render `survey.qmd` as UI

Run the `surveydown` server

Wait a minute...
How do you store the response **data**?



PostgreSQL to the rescue!

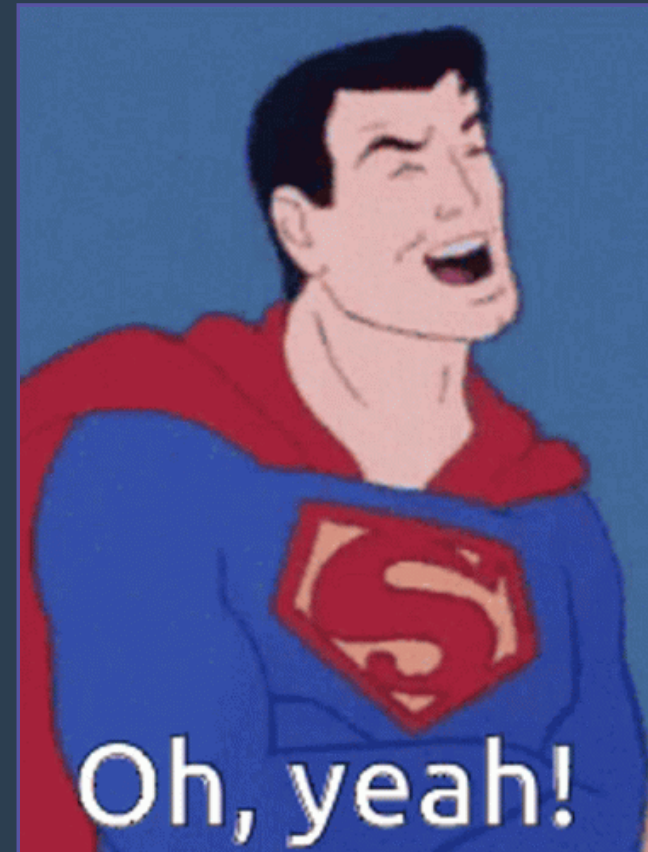


Table Editor

schema public

+ New table

Search tables...

coders

data

demo

demo2

evRangeSurvey

leaf_miles

my_test_table

mydata

mytable1

newtable

responses

slider_test

slider_test2

slider_test3

speedtest

superheros

superheros

Filter

Sort

Insert

Add RLS policy

Role postgres

Realtime off

API Docs

	session_id text	has_fav_hero text	fav_hero_name text	hero_universe text
	064585d4b3ce857a4a24e9dea4a657da	no	NULL	NULL
	14d82544a547922107f492e6ee9a67dc	no	NULL	NULL
	1eb83f38450cc4fa5b3bc8540d161f38	yes	Superman	dc
	4ef1e74ae94737c502edb08db8e27f77	yes	NULL	marvel
	5cf0f43d847425de2d015e1145ac3199	yes	Spiderman	all
	676ae2ebd611f7fe70586c23af5b53c	NULL	NULL	NULL
	68fe326c20852efae79bca9b0b089815	no	NULL	NULL
	6f436b4a64f154324ad6c4c883e99002	yes	Monkey King	marvel
	8352cbbaad349838729c489c43f08c4f	yes	Spiderman	dc
	86e11fbaa660bc1d94b686fd0206b55d	yes	Superman	all
	a426816365182d50dc133ee0c6255b3d	yes	NULL	NULL
	a754b629d48ad2c53049c6741e9d4645	no	NULL	NULL
	bb7021e8ad7e35be6d75831a2f5c51cd	yes	Spiderman	all
	bbe8c56090359bb4eb37e58b95b31316	yes	Spider Man	marvel

Page 1 of 1100 rows20 records

RefreshDataDefinition

app.R

```
1 library(surveydown)
2
3 # sd_db_config()
4 db <- sd_db_connect()
5
6 ui <- sd_ui()
7
8 server <- function(input, output, session) {
9
10   sd_server(db)
11
12 }
13
14 shiny::shinyApp(ui = ui, server = server)
```

Store credentials
Connect to the database

Pass connection to `sd_server()`

The screenshot shows the RStudio interface with a script editor on the left and a console on the right. The script editor contains the following code:

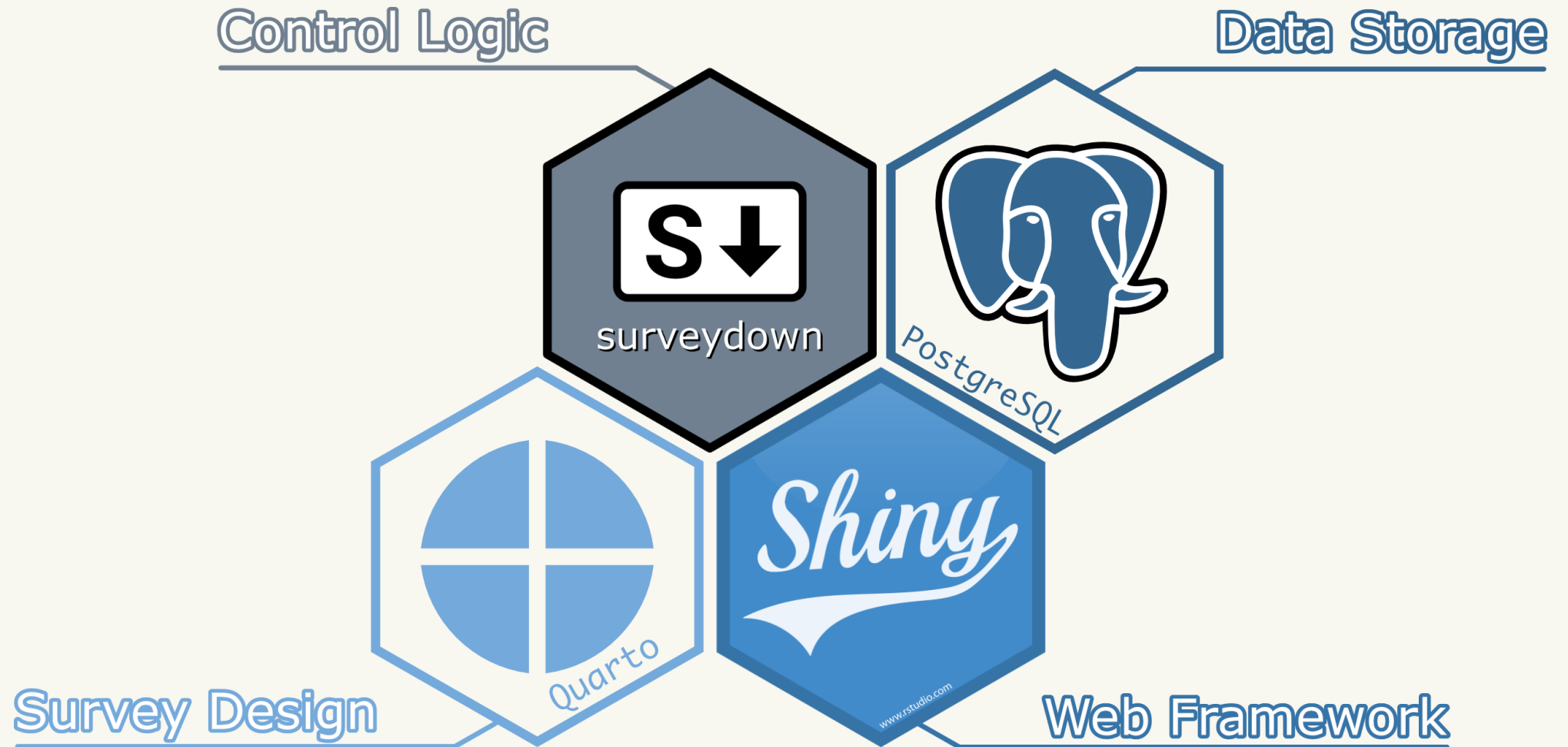
```
1 library(surveydown)
2 library(dplyr)
3
4 db <- sd_db_connect()
5
6 data <- sd_get_data(db = db)
7
8 glimpse(data)
9
```

The console shows the output of the script execution:

```
> db <- sd_db_connect()
✓ Successfully connected to the database.
>
> data <- sd_get_data(db = db)
>
> glimpse(data)
Rows: 20
Columns: 50
$ session_id           <chr> "5cf0f43d847425...
$ time_start           <chr> "2025-08-15 15:...
$ time_end             <chr> "2025-08-15 15:...
$ completion_code      <chr> "37081685", "60...
$ browser              <chr> "Safari v26, i0...
$ ip_address           <chr> "140.248.0.0", ...
$ has_fav_hero         <chr> "yes", "yes", "...
$ fav_hero_name        <chr> "Spiderman", "S...
$ hero_universe        <chr> "all", "dc", "a...
$ hero_qualities       <chr> "strength, flyi...
$ dream_power          <chr> "telepathy", "t...
$ responsibility_scale <chr> "10", "8.1", "1...
$ villain_encounter    <chr> "help_backup", ...
$ superhero_rating     <chr> NA, NA, NA, NA,...
$ superhero_rating_spiderman <chr> "love", "love",...
$ superhero_rating_batman <chr> "love", NA, "li...
$ superhero_rating_wonder_woman <chr> "love", NA, "li...
```

What is **surveydown**?





What can **surveydown** do?

surveydown is feature-packed!

surveydown.org

AboutDocumentationTemplatesBlog

FAQ

Documentation

Features & Roadmap

Survey Basics

Getting Started

Basic Components

Question Development

Defining Questions

Question Types

Question Formatting

Custom Questions

Survey Design Concepts

Survey Settings

Page Navigation

Conditional Logic

System Translations

External Resources

Interactivity

Reactivity

Randomization

External Redirect

Data Management

Storing Data

Fetching Data

Features

Feature	Docs	Version	Discussion
Wide variety of question types	Question Types	v0.0.1	105 , 109
Conditionally show questions	Conditional Display	v0.0.1	
Markdown formatting for options and buttons	Markdown Formatting	v0.0.1	
Require specific questions or all questions be answered	Required Questions	v0.0.2	
Support for bootstrap themes	Themes	v0.0.4	
Customizable scss theme file	Themes	v0.0.4	
Ability to Ignore the database connection	Supabase Ignore	v0.0.8	
Time stamps recorded for each question and page interaction		v0.0.9	
Progress bar that updates on each question interaction	Progress Bar	v0.0.9	
Customizable progress bar color and position on page	Progress Bar	v0.0.9	
Ability to use latest survey results in the survey itself	Fetching Data	v0.1.1	
Pass parameters through the url	Reactive	v0.2.2	92

On this page

surveydown package

Features

To Do

sdstudio package

Features

To Do

Site made with  and  quarto

Feature Highlights

Question types

Conditional logic

12 Built-in Question Types

text

textarea

numeric

mc

mc_multiple

mc_buttons

mc_multiple_buttons

select

slider

slider_numeric

date

daterange

Question Type: text

```
1 sd_question(  
2   type  = "text",  
3   id    = "fav_hero_name",  
4   label = "Who is your favorite super hero?"  
5 )
```



Who is your favorite super hero?

Question Type: mc_buttons

```
1 sd_question(  
2   type = "mc_buttons",  
3   id   = "dream_power",  
4   label = "If you could have ONE superpower?",  
5   option = c(  
6     "🕸 Web-slinging" = "webslinging",  
7     "🛡 Super Strength" = "strength",  
8     "✈ Flight" = "flight",  
9     "🧠 Telepathy" = "telepathy",  
10    "⚡ Super Speed" = "speed"  
11  ),  
12  direction = "vertical"  
13 )
```



If you could have ONE superpower?

🕸 Web-slinging
Swing through cities

🛡 Super Strength
Lift anything

✈ Flight
Soar through the skies

🧠 Telepathy
Read minds

⚡ Super Speed
Faster than lightning

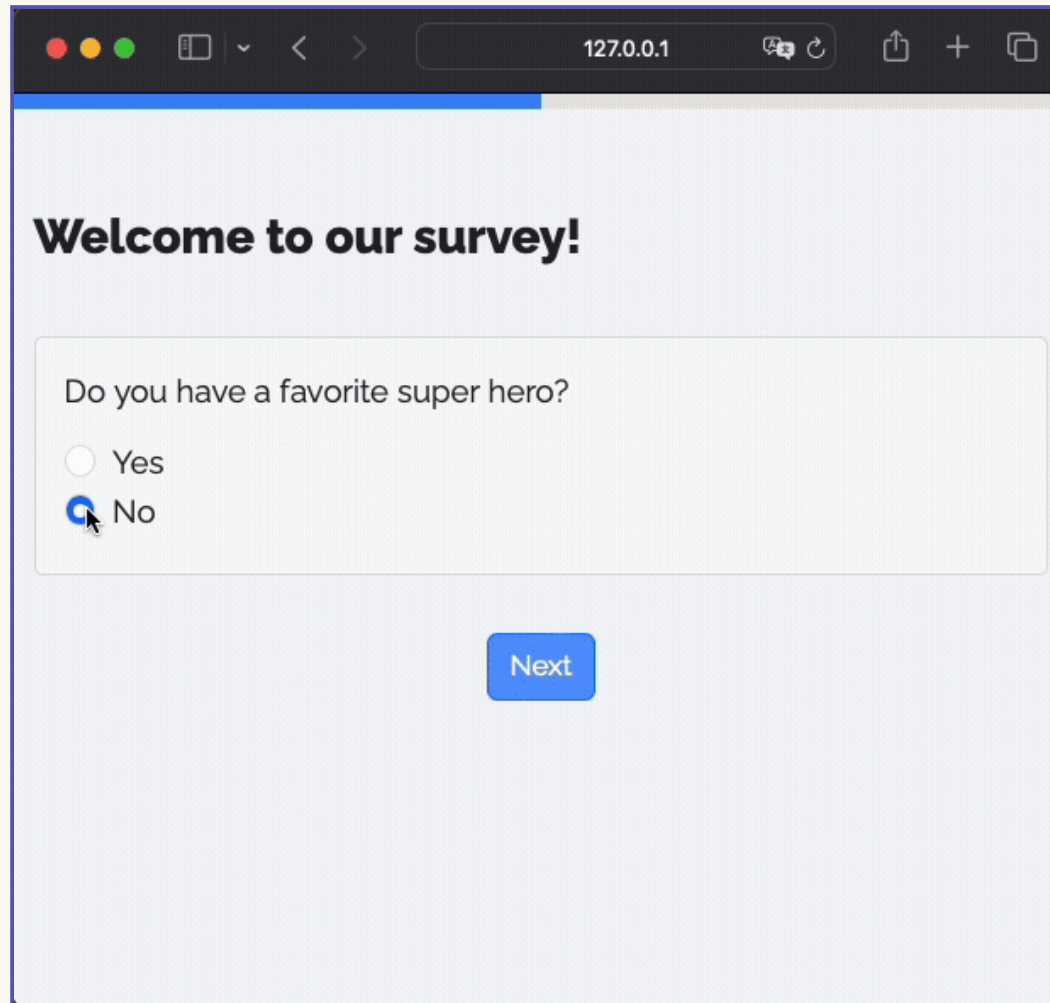
Conditional logic

Conditional showing

Conditional skipping

Conditional stopping

Conditional showing - `sd_show_if()`



A screenshot of a web browser window displaying a survey. The browser's address bar shows the URL `127.0.0.1`. The survey content is as follows:

Welcome to our survey!

Do you have a favorite super hero?

☐ Yes

☒ No

Next

Conditional showing - `sd_show_if()`

survey.qmd

```
1 # Conditional Question
2 sd_question(
3   type = "mc",
4   id   = "has_fav_hero",
5   label = "Do you have a favorite hero?",
6   option = c("Yes" = "yes", "No" = "no")
7 )
8
9 # Target Question
10 sd_question(
11   type = "text",
12   id   = "fav_hero",
13   label = "Who is your favorite super hero?"
14 )
```

app.R

```
1 # Inside server
2 sd_show_if(
3   input$has_fav_hero == "yes" ~ "fav_hero"
4 )
```

Condition ~ Target

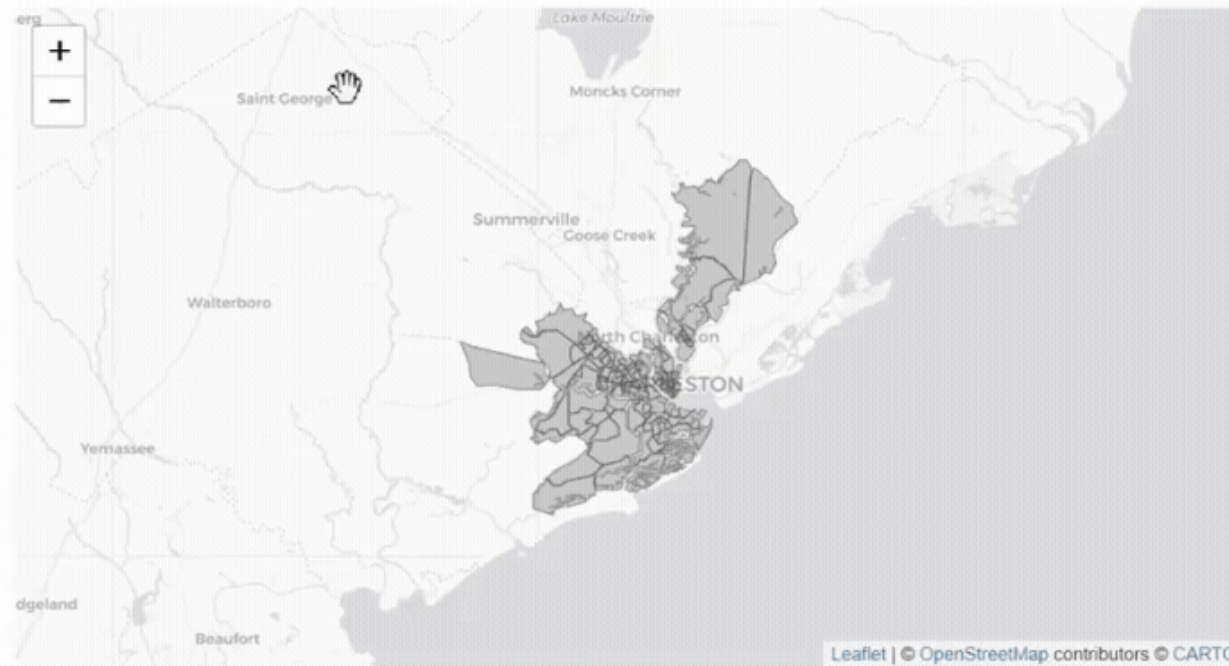
“If {condition}, then show {target}”

If it works in **Shiny**,
it works in **surveydown**.

Embedding an interactive map with Leaflet:

Question 1: Social Vulnerability is how likely people are to face greater harm or impact on their lives after disruptive hazard events like flooding based on social or economic conditions like income or transportation access.

Please review the map of the City of Charleston, South Carolina, and select the areas you believe are more socially vulnerable to the impacts of hazardous events.

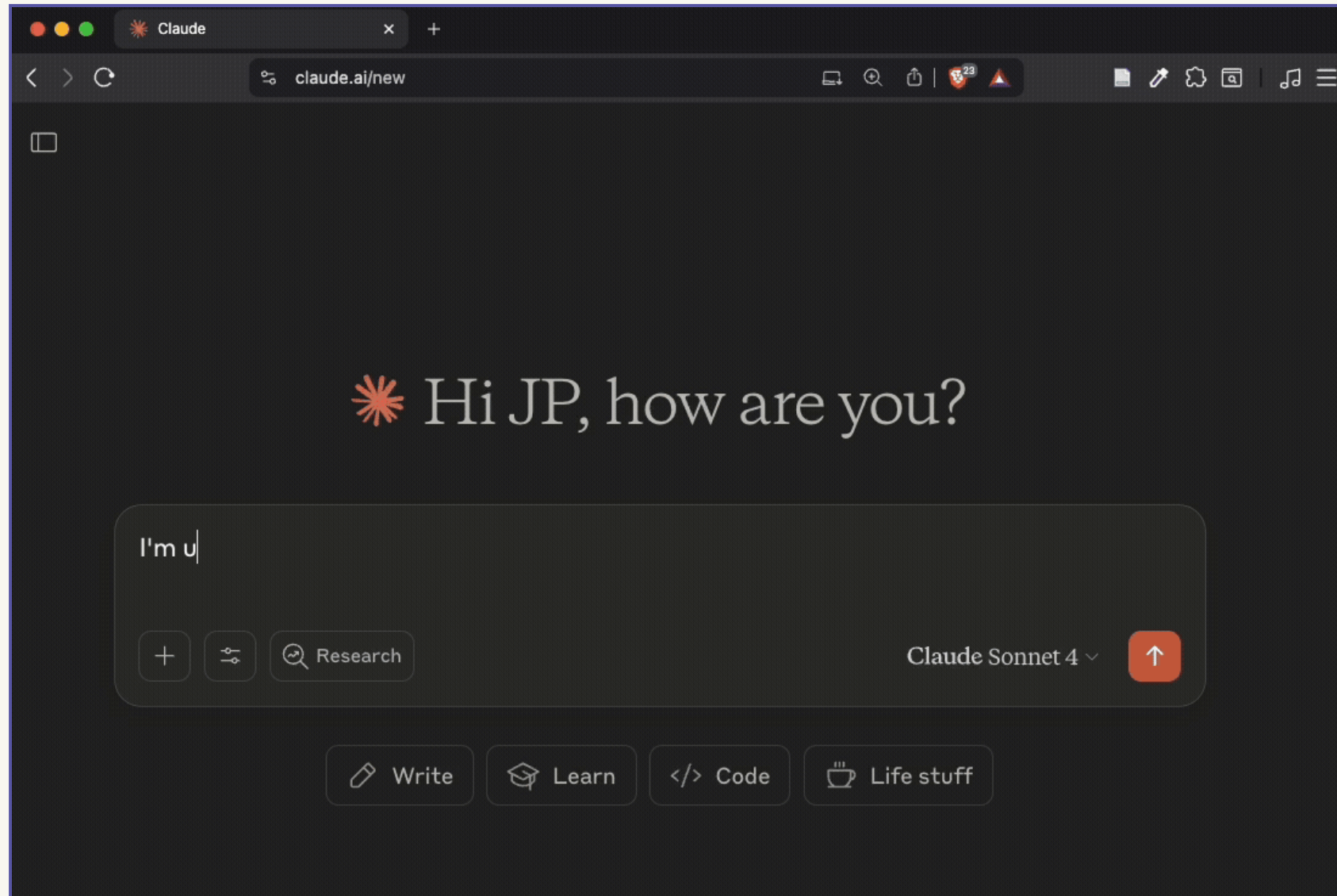


Next Question



surveydown + LLMs
is pretty cool

Generate surveys with LLMs!



What's next?

Try out the companion `sdstudio` package:

```
sdstudio::launch()
```

1270.0.1

surveydown Studio

Build

Preview

Responses

Structure

Page: welcome

+T

+Q

|

▼

T

🦸 Welcome to the...

Q

has_fav_hero | mc

Do you have a favorite super hero?

Q

fav_hero_name | text

Who is your favorite super hero?

Page: hero_details

+T

+Q

|

▼

T

Tell us about your...

Q

hero_universe | mc

Which superhero universe do you prefer?

Q

hero_qualities | mc_multiple

What qualities do you find most appealing in superheroes? (Select all that apply)

Page: powers

+T

+Q

|

▼

T

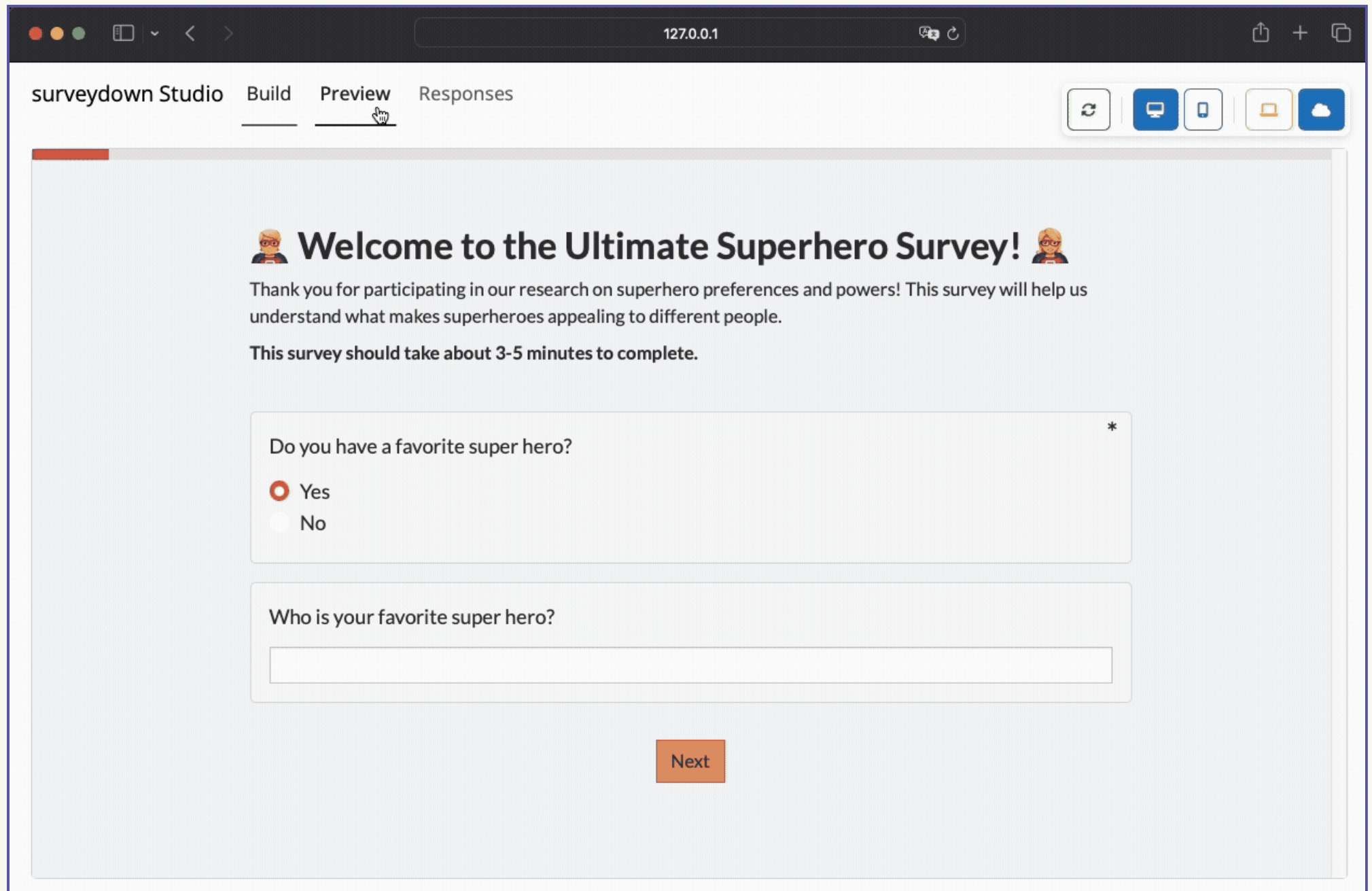
If you could have...

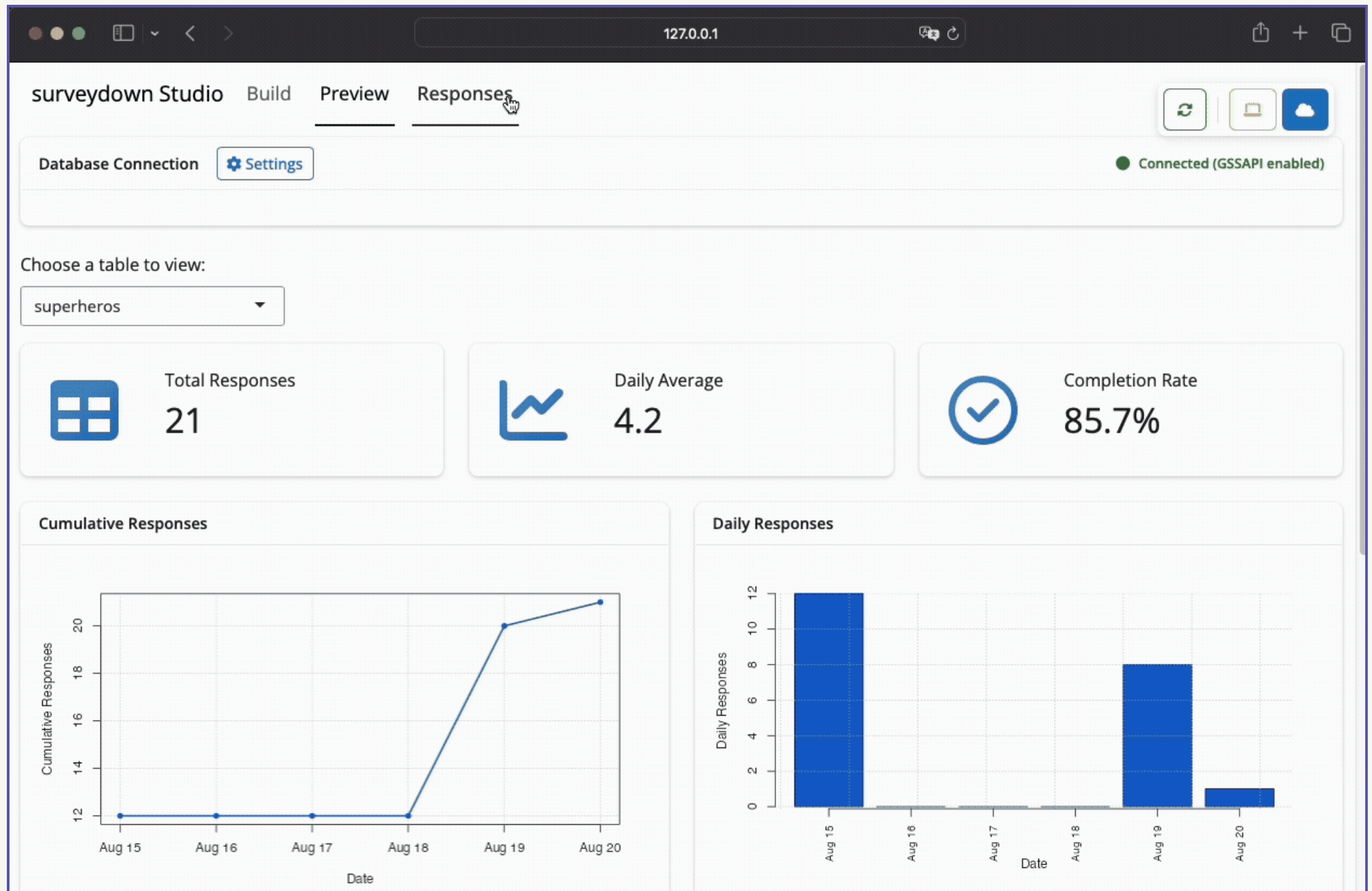
Code

survey.qmd

app.R

```
1 ---
2 format: html
3 echo: false
4 warning: false
5 theme: [superhero, custom.scss]
6 barcolor: "#e74c3c"
7 ---
8
9 ```{r}
10 library(surveydown)
11 ```
12
13 ::: {.sd_page id=welcome}
14
15 # 🦸 Welcome to the Ultimate Superhero Survey! 🦸♀️
16
17 Thank you for participating in our research on superhero preferences and
18 powers! This survey will help us understand what makes superheroes
19 appealing to different people.
20
21 **This survey should take about 3-5 minutes to complete.**
22
23 <br>
24 ```{r}
25 sd_question(
26   type = "mc",
27   id   = "has_fav_hero",
28   label = "Do you have a favorite super hero?",
29   option = c("Yes" = "yes", "No" = "no")
30 )
```





**With great power comes great
responsibility.**

Ways to help:

[github.com / surveydown-dev / surveydown /](https://github.com/surveydown-dev/surveydown/)

- Try it out!
- Give it a ★
- Post an issue
- Join the GitHub discussion
- Contribute a template



Meet the team!

surveydown.org



John Helveston, Ph.D.



Pingfan Hu



Bogdan Bunea



One more thing...

Workshop by Dr John Helveston Tomorrow

jhelvy.github.io/2025-qux-surveydown-workshop/

Thursday Nov 6, **2:00 PM** UTC–5, Eastern Time (U.S.)