

surveydown

An open-source platform for programmable,
markdown-based surveys

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USRSE'25



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

The image shows a web browser window displaying the Google Forms WYSIWYG editor. The browser's address bar shows 'docs.google.com'. The form is titled 'Super Hero Survey!' and has a subtitle 'Form description'. The 'Questions' tab is selected in the top navigation bar. A question is being edited: 'Do you have a favorite super hero?'. Below the question, there are three radio button options: 'Yes', 'No', and 'Add option or add "Other"'. A context menu is open over the question, showing various question types: 'Short answer', 'Paragraph', 'Multiple choice' (which is highlighted), 'Checkboxes', 'Dropdown', 'File upload', 'Linear scale', 'Rating' (marked as 'New'), 'Multiple choice grid', 'Checkbox grid', 'Date', and 'Time'. On the right side of the editor, there is a vertical toolbar with icons for adding new questions, inserting images, text, videos, and tables. The top right of the interface includes a 'Publish' button and a user profile icon.

docs.google.com

Super Hero Survey! ☆ All changes saved in Drive

Questions Responses Settings

Super Hero Survey!

Form description

Do you have a favorite super hero?

☐ Yes

☐ No

☐ Add option or [add "Other"](#)

Short answer

Paragraph

☒ Multiple choice

☒ Checkboxes

☒ Dropdown

☒ File upload

☒ Linear scale

☒ Rating **New**

☒ Multiple choice grid

☒ Checkbox grid

☒ Date

☒ Time

+

📷

Tt

📺

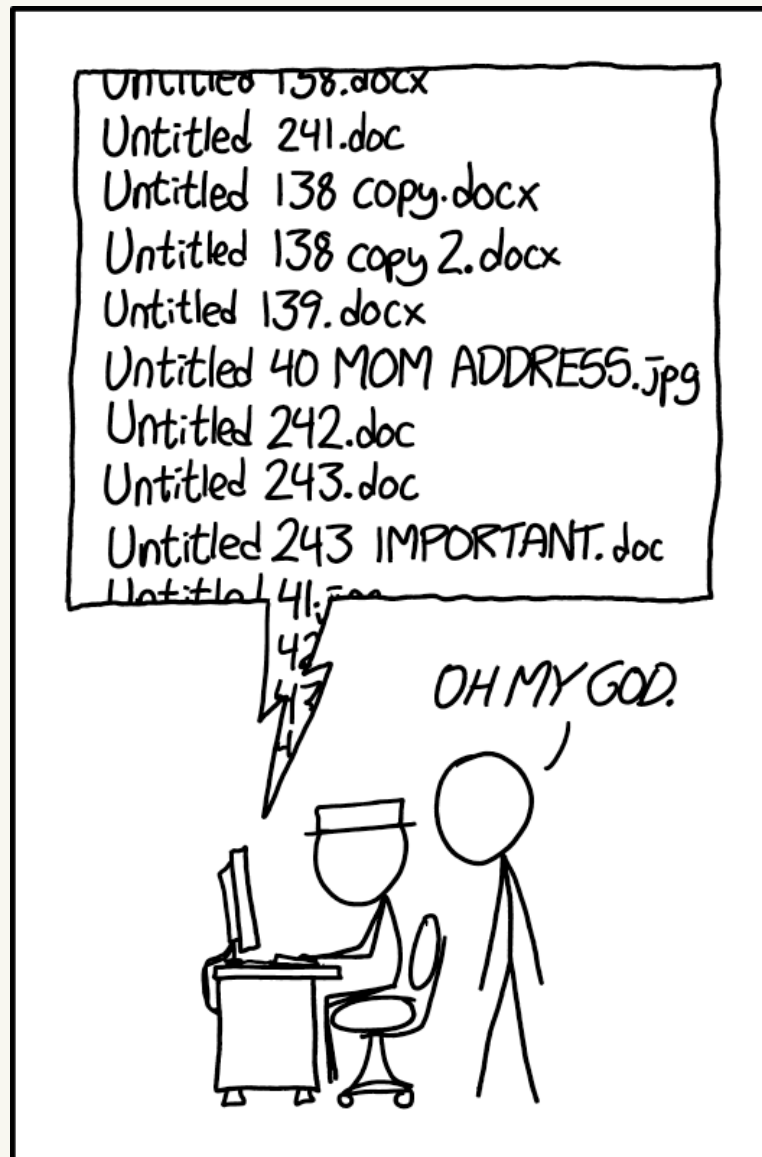
📄

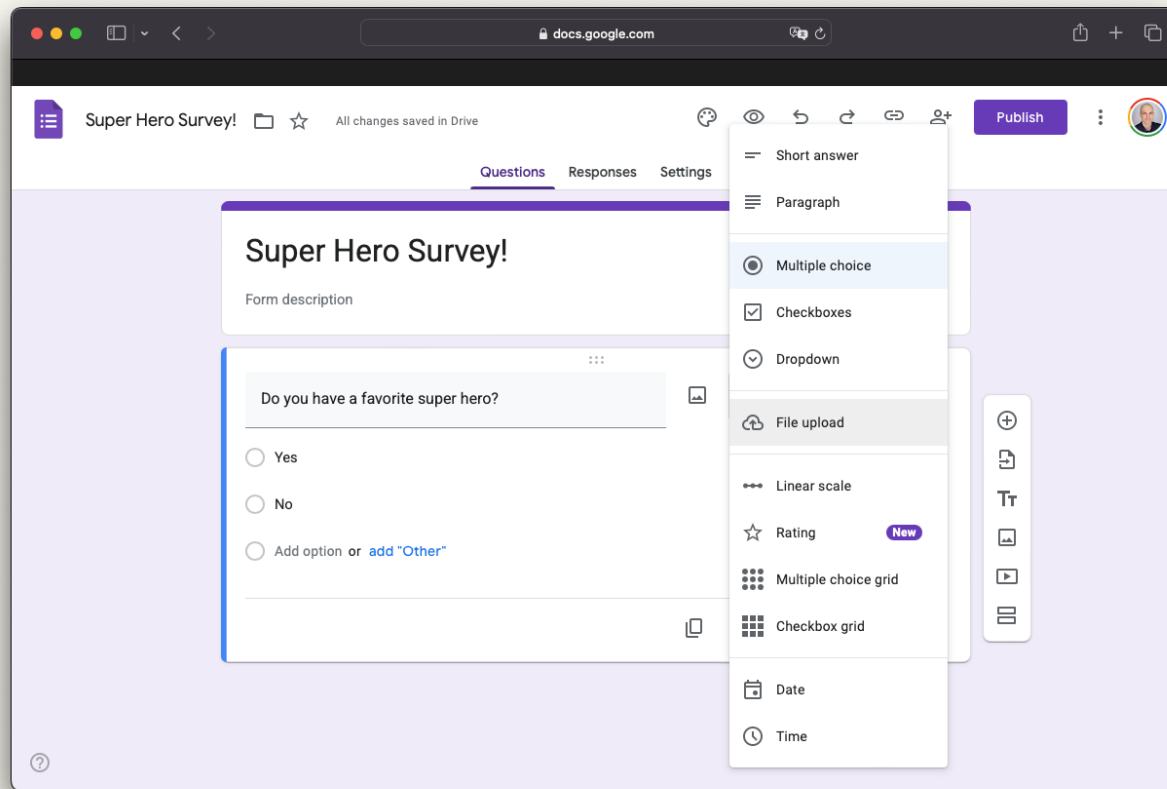
Publish

Limitations

- ✗ Reproducibility
- ✗ Version control

The screenshot shows the Google Forms editor interface. At the top, the title 'Super Hero Survey!' is visible, along with tabs for 'Questions', 'Responses', and 'Settings'. A 'Publish' button is located in the top right corner. The main content area displays a question: 'Do you have a favorite super hero?'. Below the question, there are three radio button options: 'Yes', 'No', and 'Add option or add "Other"'. A dropdown menu is open, showing various question types: 'Short answer', 'Paragraph', 'Multiple choice' (which is selected), 'Checkboxes', 'Dropdown', 'File upload', 'Linear scale', 'Rating' (marked as 'New'), 'Multiple choice grid', 'Checkbox grid', 'Date', and 'Time'. The interface is clean and modern, with a light purple background.





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?

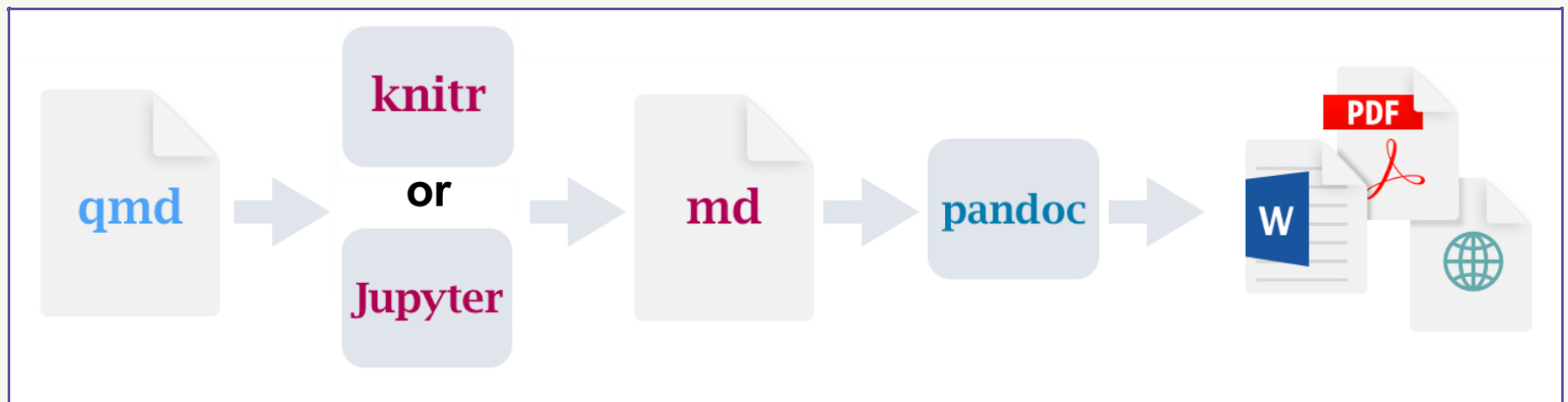
What is **surveydown**?



R package that renders Quarto files into surveys



Quarto is a publishing system

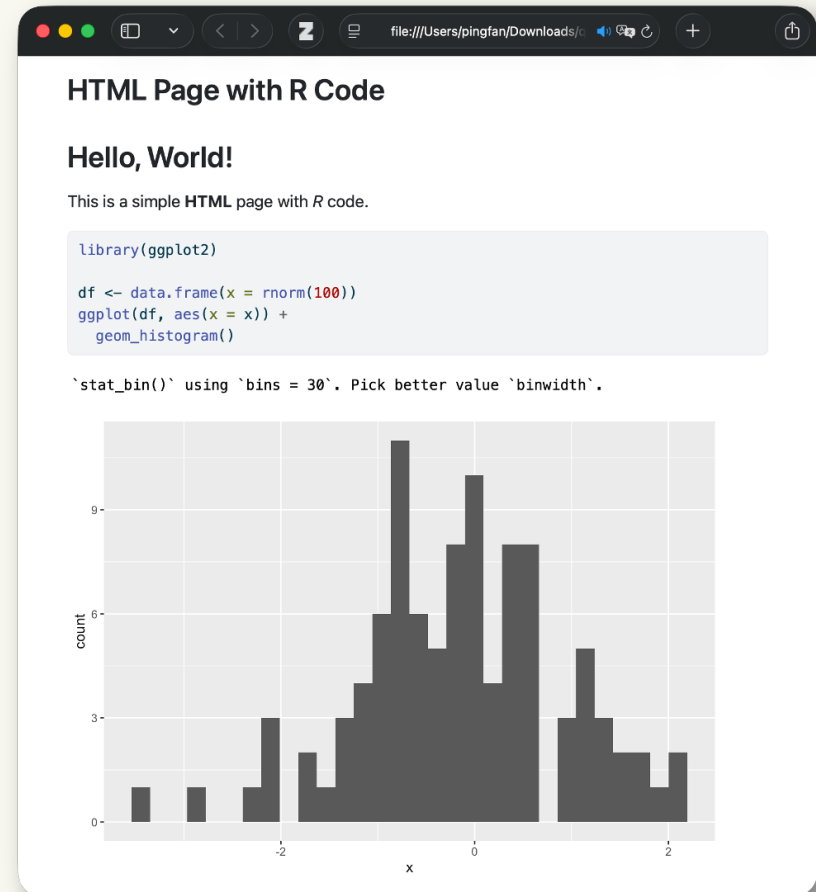


Original `qmd` file

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

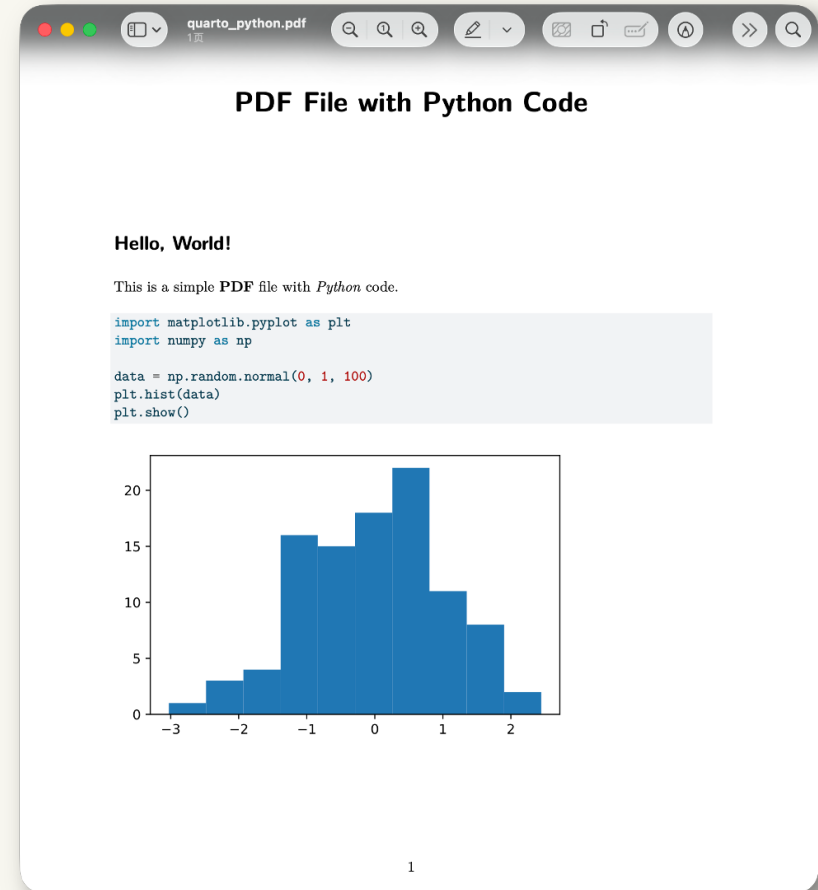


Original `qmd` file

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

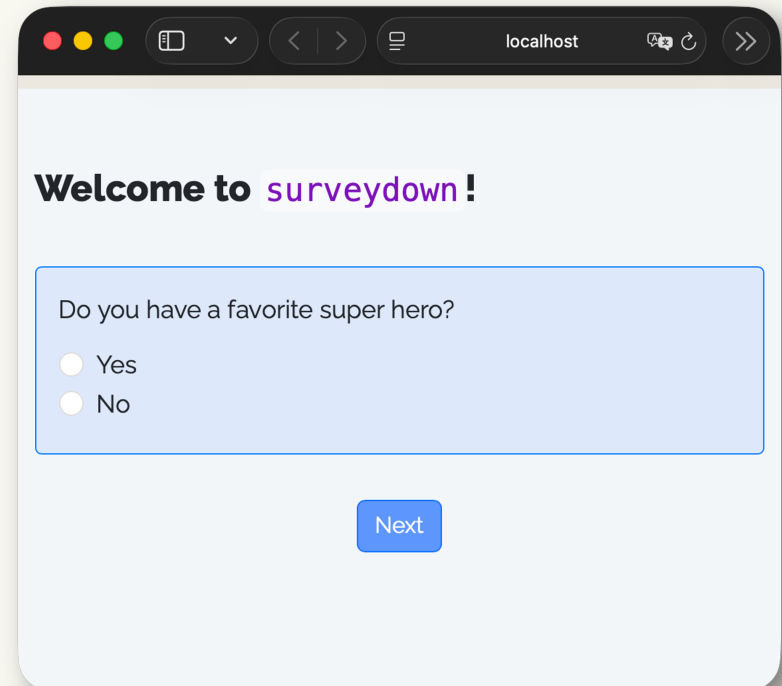




+



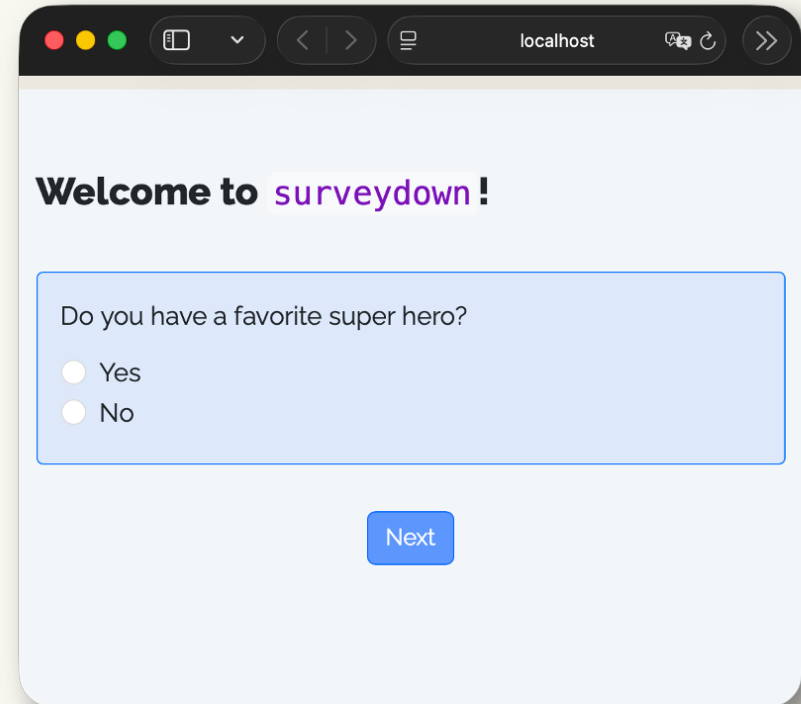
=



survey.qmd

```
1 ---
2 format: html
3 echo: false
4 warning: false
5 ---
6
7 ```{r}
8 library(surveydown)
9 ```
10
11 ::: {#welcome .sd-page}
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 :::
```

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 .sd-page}
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 :::
```

YAML header for a “clean” output

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 `surveydown`!
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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 :::
```

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 .sd-page}
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 :::
```

Use Quarto fences (:::) to define survey pages

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 `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 :::
```

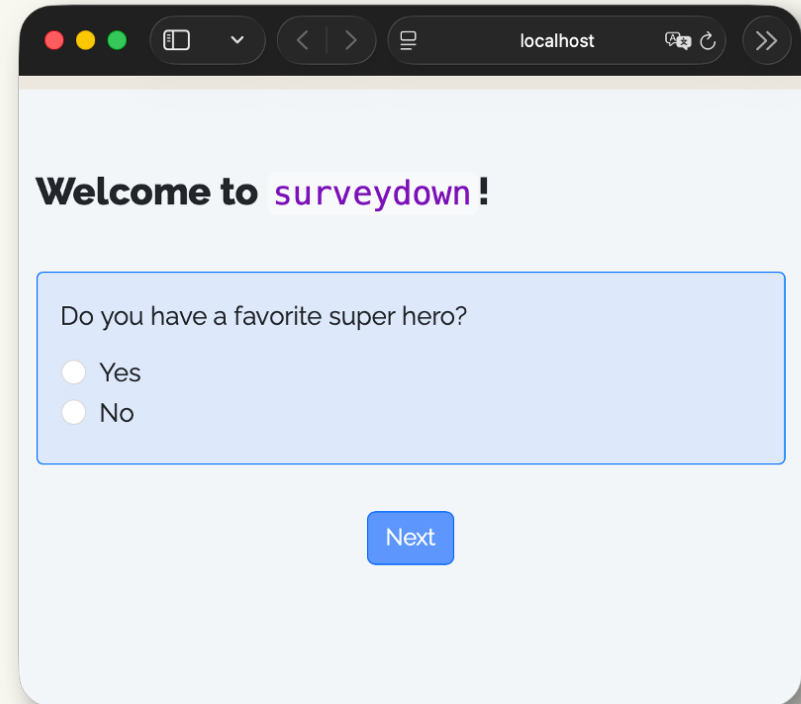
Page content

- 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 .sd-page}
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 :::
```

Rendered Survey



localhost

Welcome to surveydown!

Do you have a favorite super hero?

☐ Yes

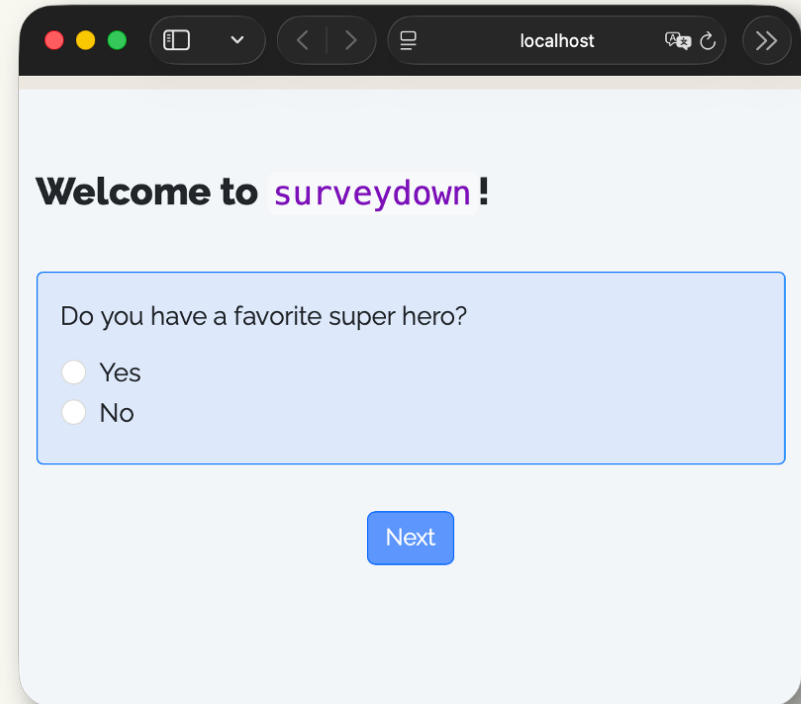
☐ No

Next

survey.qmd

```
1 ---
2 format: html
3 echo: false
4 warning: false
5 ---
6
7 ```{r}
8 library(surveydown)
9 ```
10
11 ::: {#welcome .sd-page}
12
13 # Welcome to `surveydown`!
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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 :::
```

Rendered Survey



localhost

Welcome to surveydown!

Do you have a favorite super hero?

☐ Yes

☐ No

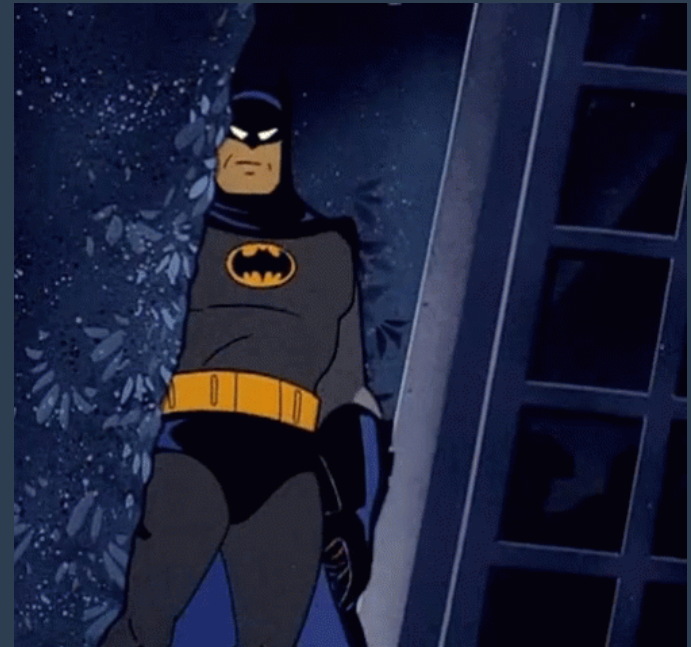
Next

has_fav_hero
yes
no
no
yes

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



Shiny to the rescue!

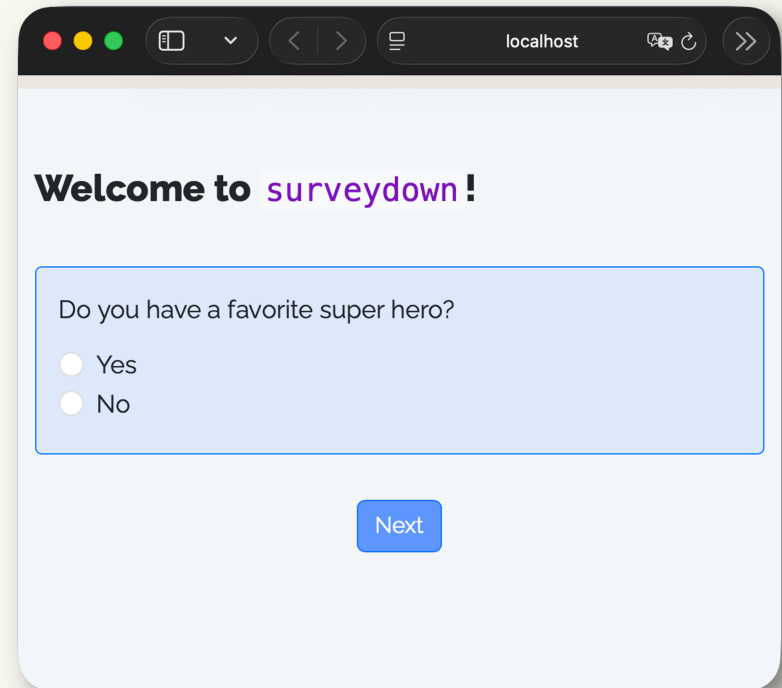




+



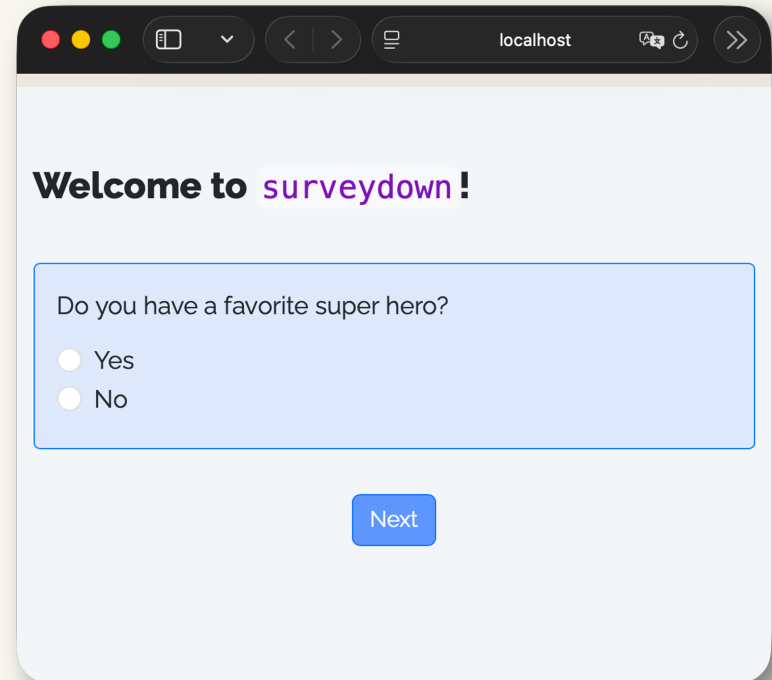
=



Shiny App



UI

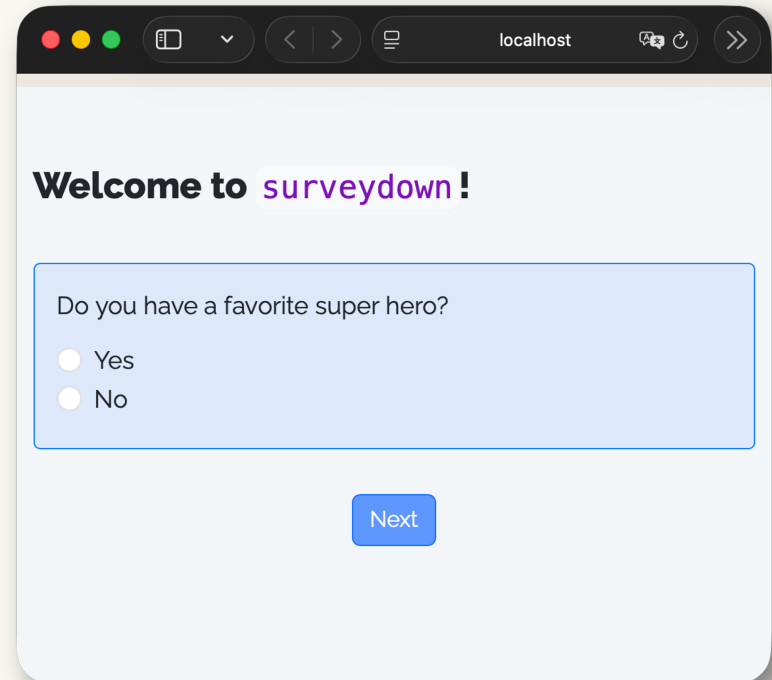


Shiny App

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   sd_server()
7 }
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   sd_server()
7 }
8
9 }
10
11 shiny::shinyApp(ui = ui, server = server)
```

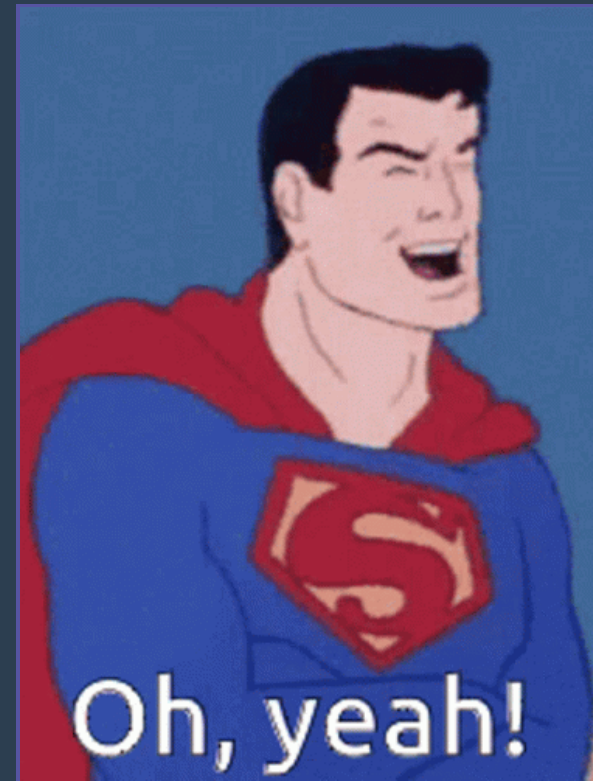
Render `survey.qmd` as UI

Run the `surveydown` server

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



PostgreSQL to the rescue!



supabase.com

Demo Free / surveydown / main Production Connect Feedback ?

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**
- temn

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
	86e11fbaa660bcd94b686fd0206b55d	yes	Superman	all
	a426816365182d50dc133ee0c6255b3d	yes	NULL	NULL
	a754b629d48ad2c53049c6741e9d4645	no	NULL	NULL
	bb7021e8ad7e35be6d75831a2f5c51cd	yes	Spiderman	all
	bbe8c56090359bb4eb37e58b95b31316	yes	Spider Man	marvel

Page 1 of 1 100 rows 20 records Refresh Data Definition

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()`

```
demo - main - RStudio

survey.qmd x app.R x analysis.R x
Source on Save Run Source

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

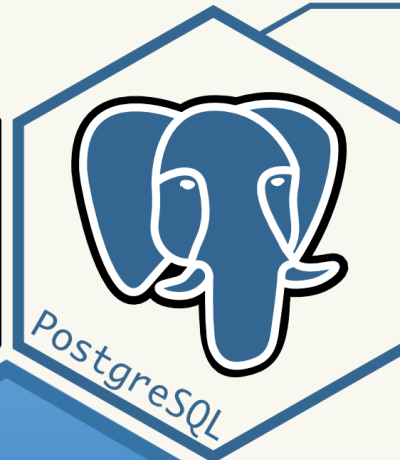
> db <- sd_db_connect()
✓ Successfully connected to the database.
>
> data <- sd_get_data(db = db)
>
> glimpse(data)
Rows: 20
Columns: 50
$ session_id           <chr> "5cf0f43d847425...
$ time_start           <chr> "2025-08-15 15:...
$ time_end             <chr> "2025-08-15 15:...
$ completion_code      <chr> "37081685", "60...
$ browser              <chr> "Safari v26, iO...
$ 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**?



Control Logic

Data Storage



Survey Design

Web Framework

What can **surveydown** do?

surveydown is feature-packed!

The screenshot shows the surveydown.org website. The browser address bar displays 'surveydown.org'. The navigation bar includes links for 'About', 'Documentation', 'Templates', and 'Blog', along with icons for FAQ, GitHub, RSS, and a search icon. The left sidebar contains a 'Documentation' menu with categories like 'Features & Roadmap', 'Survey Basics', 'Question Development', 'Survey Design Concepts', 'Interactivity', and 'Data Management'. The main content area is titled 'Features' and contains a table listing various features, their documentation links, and the versions in which they were introduced. A right sidebar titled 'On this page' lists links to 'surveydown package', 'Features', 'To Do', and 'sdstudio package'.

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

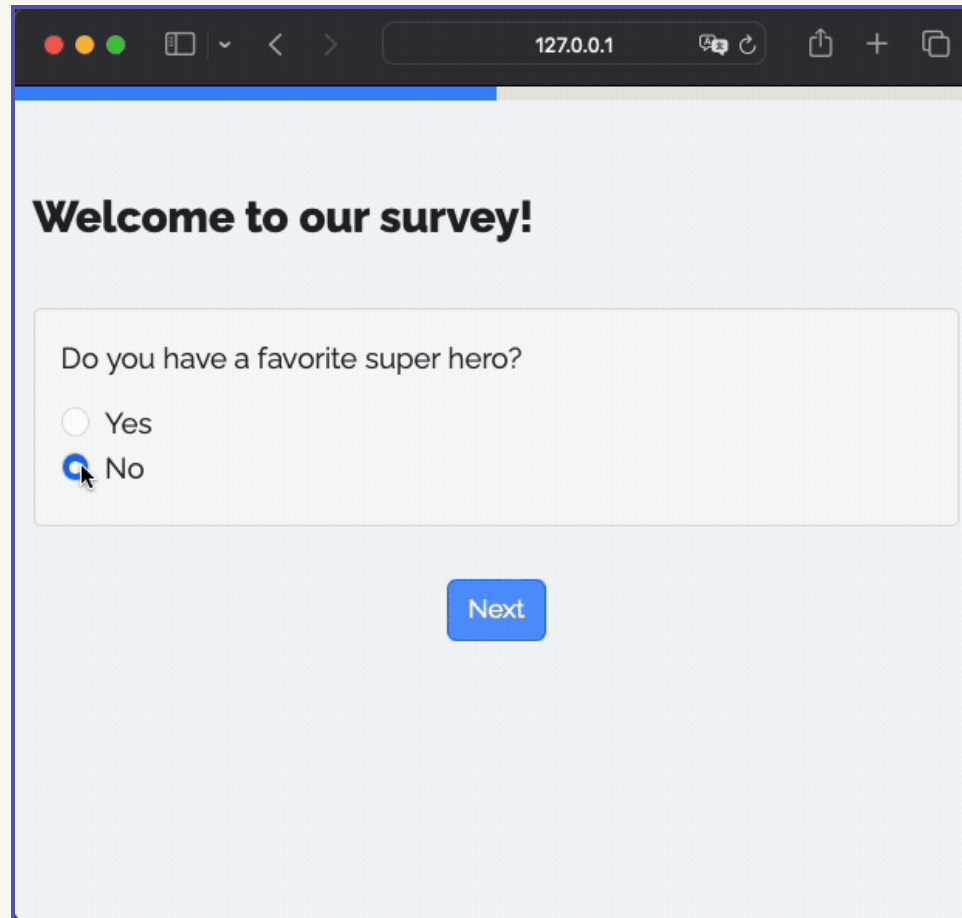
Conditional logic

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

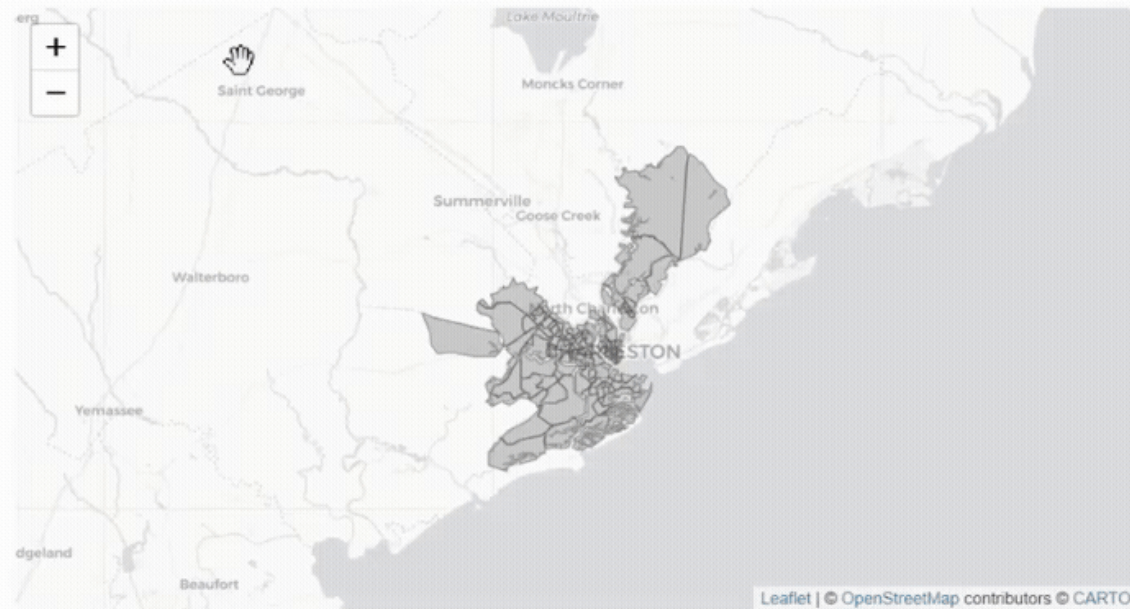
“If {condition}, then show {target}”

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.

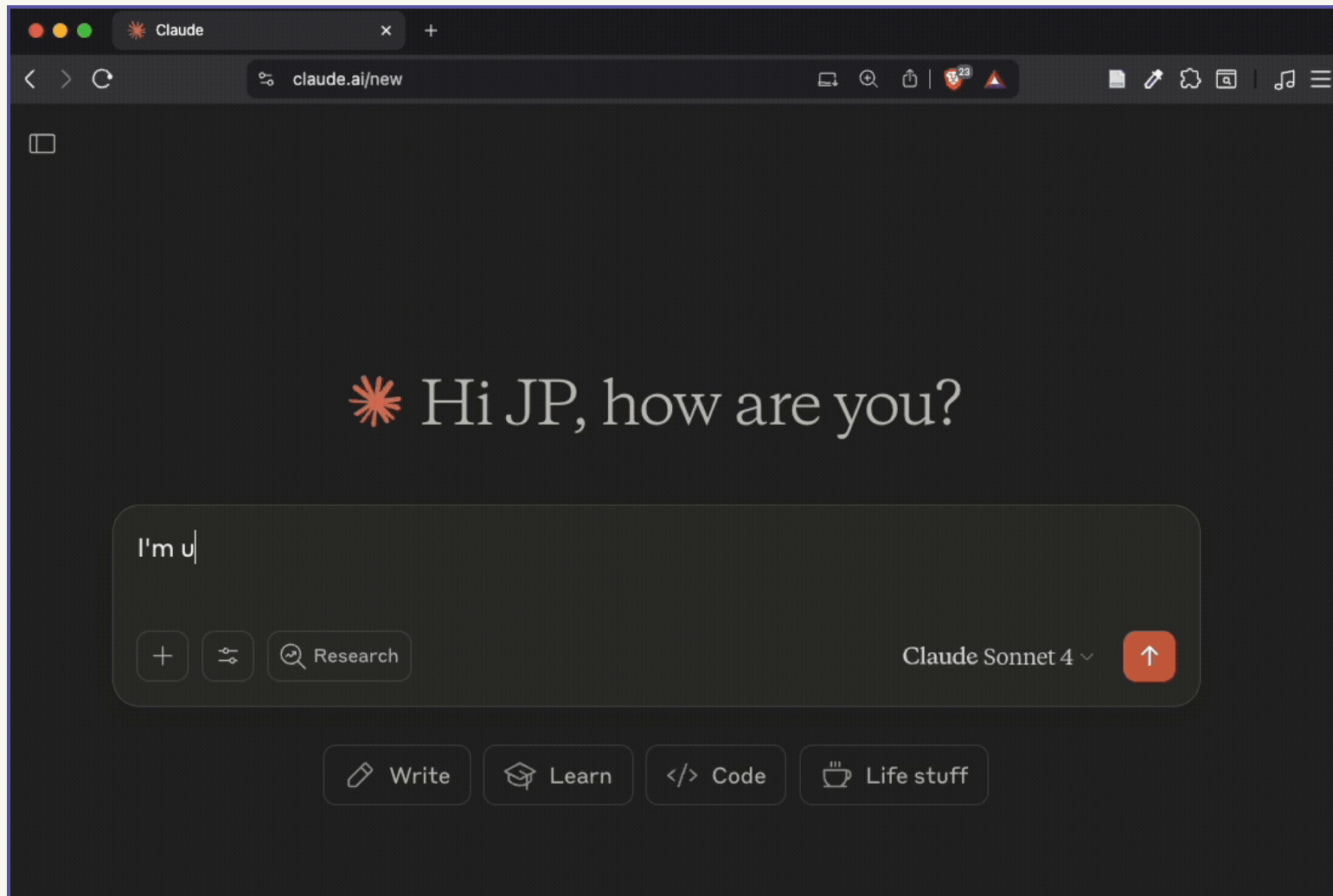


Next Question



surveydown + LLMs
is pretty cool

Generate surveys with LLMs!



What's next?

Try out the companion `sdstudio` package:

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

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

surveydown Studio

Build

Preview

Responses

 **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.

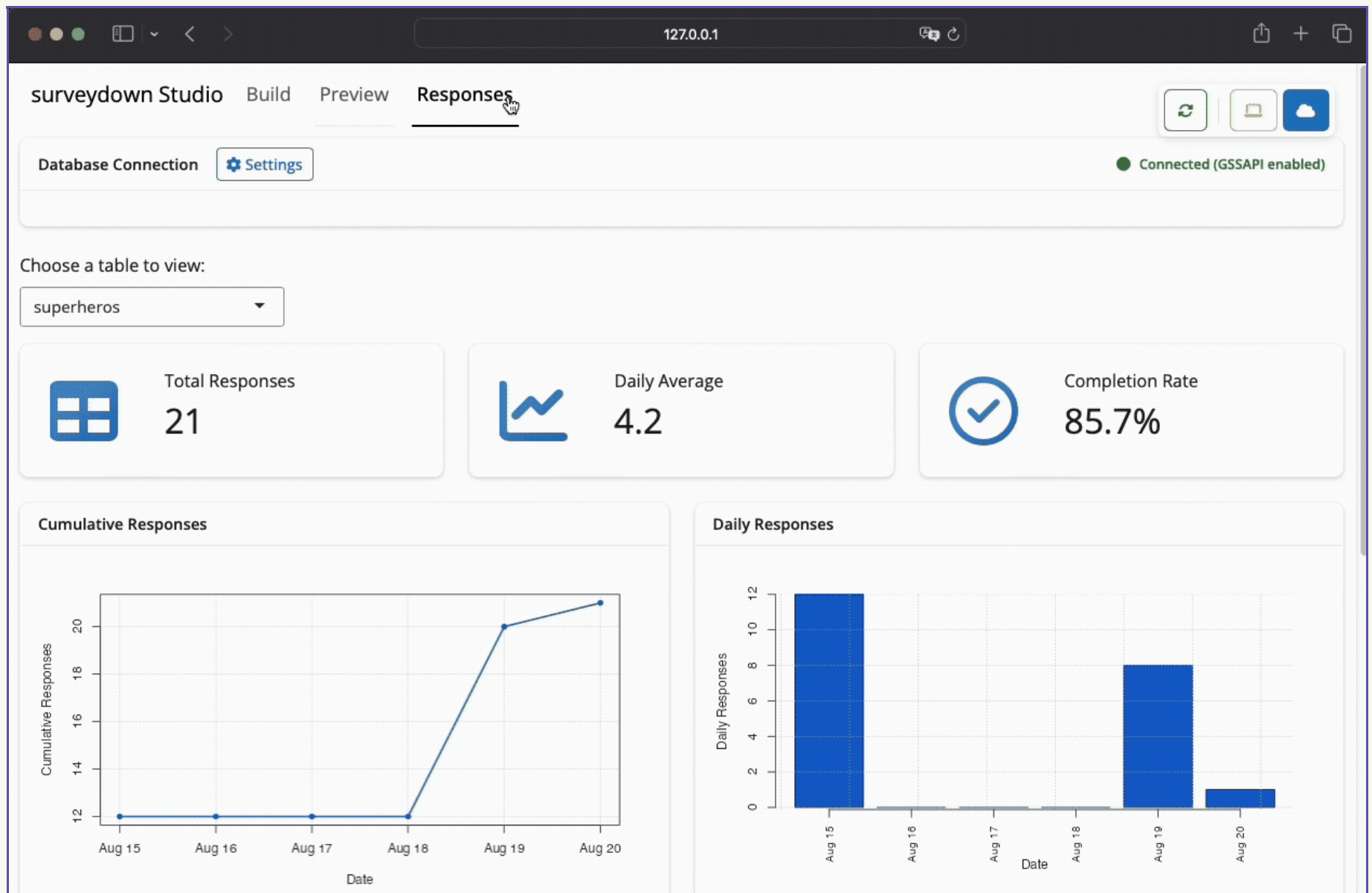
Do you have a favorite super hero? *

☒ Yes

☐ No

Who is your favorite super hero?

Next



**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

