

surveydown

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

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USRSE'25

I try to figure out what people want...





Red Yellow Green Book Back Forward Address Bar jhelvy.shinyapps.io Refresh Home

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

WYSIWYG Interface

The screenshot shows a Google Forms interface titled "Super Hero Survey!". The main area displays a question: "Do you have a favorite super hero?" with options "Yes", "No", and "Add option or add 'Other'". A context menu is open over this question, listing various question types:

- Short answer
- Paragraph
- Multiple choice
- Checkboxes
- Dropdown
- File upload
- Linear scale
- Rating New
- Multiple choice grid
- Checkbox grid
- Date
- Time

The "Multiple choice" option is currently selected. On the right side of the interface, there is a vertical toolbar with icons for adding a new section, file upload, text, image, video, and table.

Limitations

✗ Reproducibility
✗ Version control

The screenshot shows the Google Forms interface for a survey titled "Super Hero Survey!". A context menu is open over a multiple-choice question about favorite super heroes. The menu lists various question types: Short answer, Paragraph, Multiple choice (selected), Checkboxes, Dropdown, File upload, Linear scale, Rating (New), Multiple choice grid, Checkbox grid, Date, and Time. The "Multiple choice" option is highlighted with a blue selection bar.

Untitled 158.docx
Untitled 241.doc
Untitled 138 copy.docx
Untitled 138 copy 2.docx
Untitled 139.docx
Untitled 40 MOM ADDRESS.jpg
Untitled 242.doc
Untitled 243.doc
Untitled 243 IMPORTANT.doc
Untitled 41.jpg



Limitations

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

The screenshot shows a Google Forms interface. At the top, there's a navigation bar with 'Questions' (highlighted in blue), 'Responses', and 'Settings'. Below the title 'Super Hero Survey!', there's a form description: 'Do you have a favorite super hero?'. Underneath, there's a multiple choice question with three options: 'Yes', 'No', and 'Add option or add "Other"'. A context menu is open on the right side of the screen, listing various question types: Short answer, Paragraph, Multiple choice (selected), Checkboxes, Dropdown, File upload, Linear scale, Rating (marked as New), Multiple choice grid, Checkbox grid, Date, and Time. The 'Multiple choice' option is highlighted with a light purple background.

Why not make
surveys **code** based?

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?

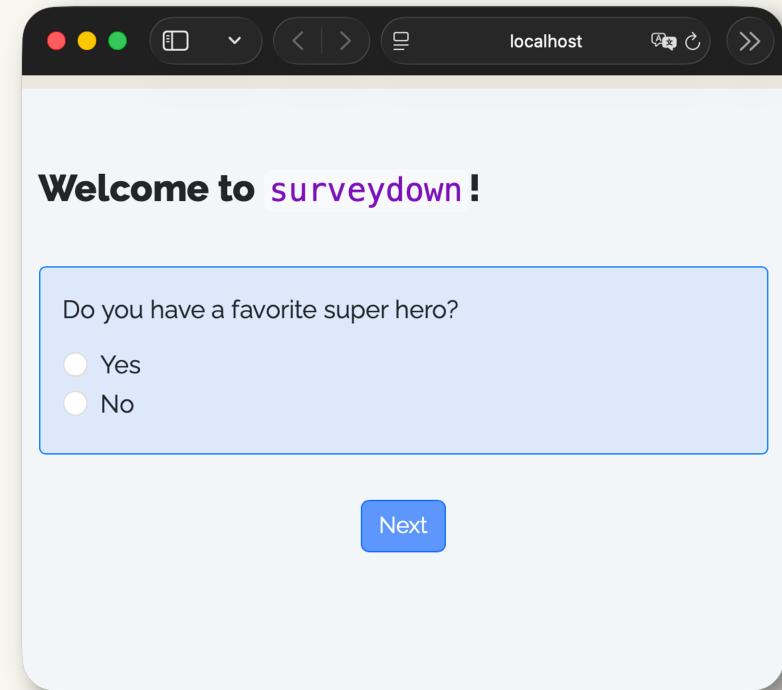
What can I do with it?

What's next?

What is **surveydown**?



R package that renders Quarto files into surveys

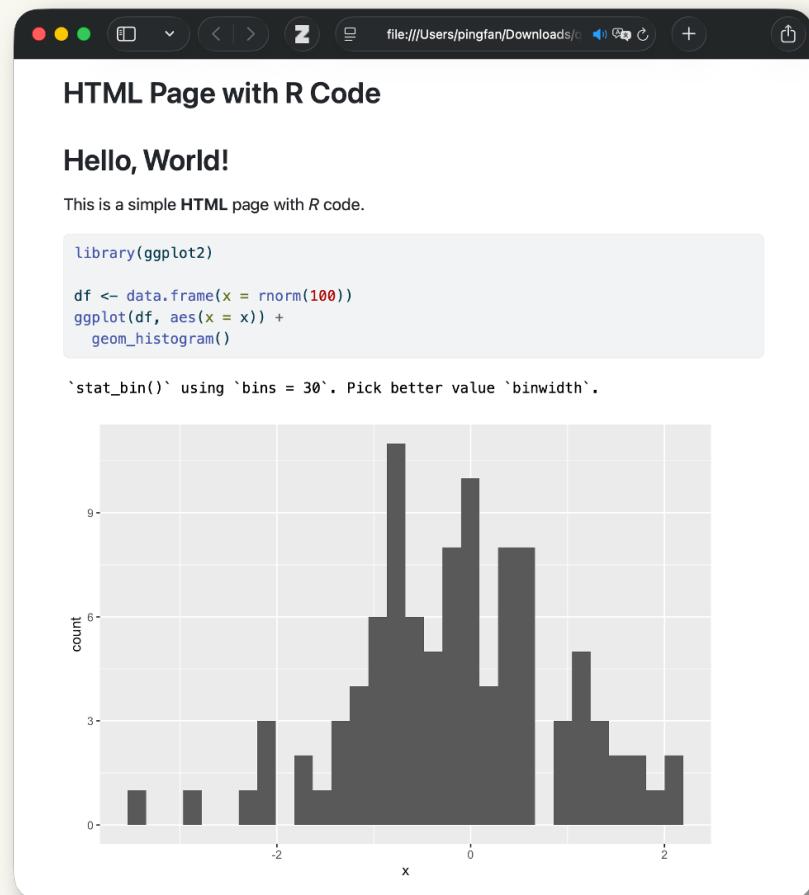


Original qmd file

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

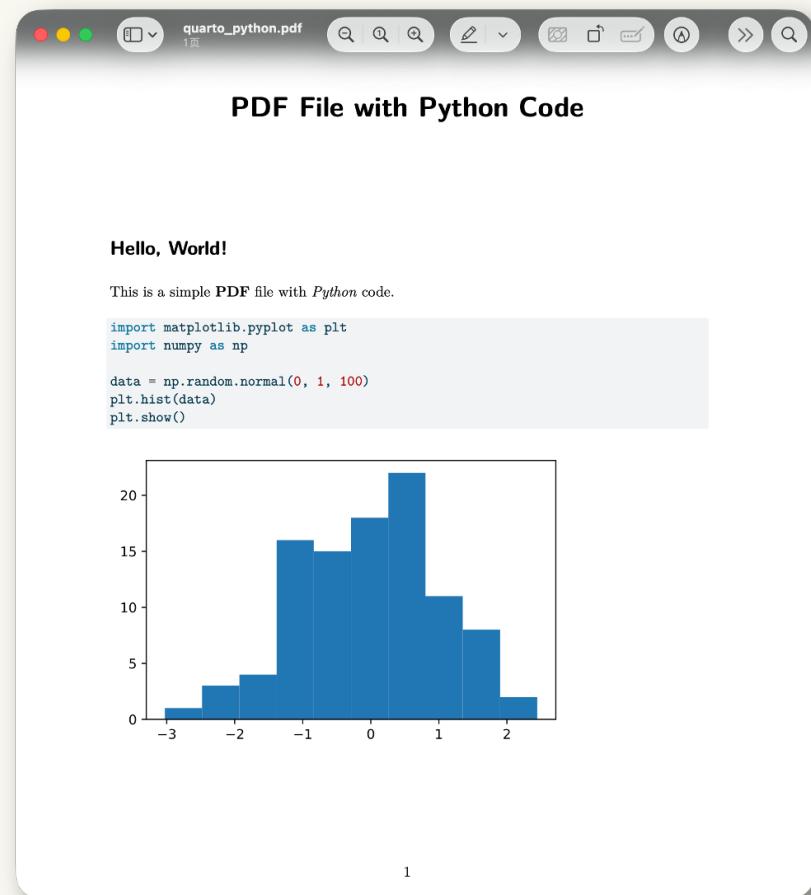


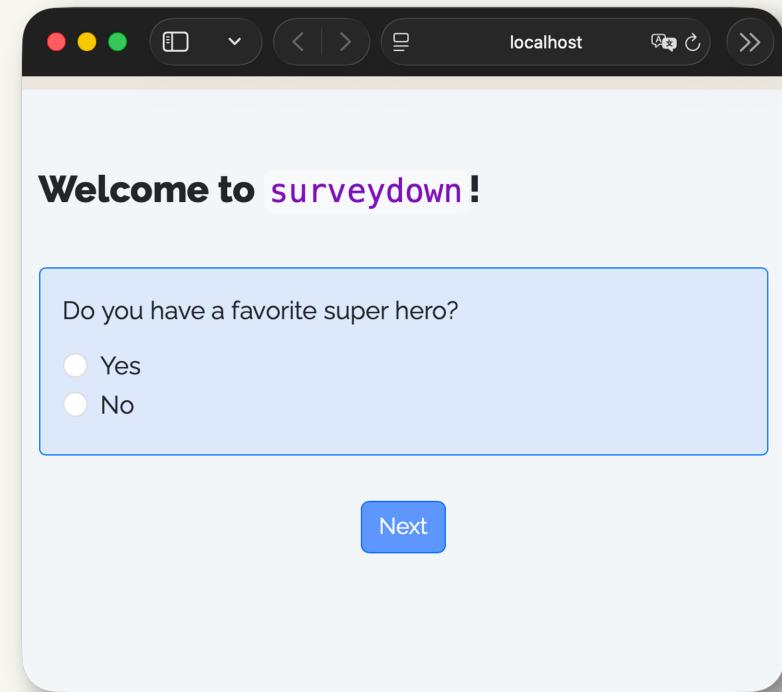
Original qmd file

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

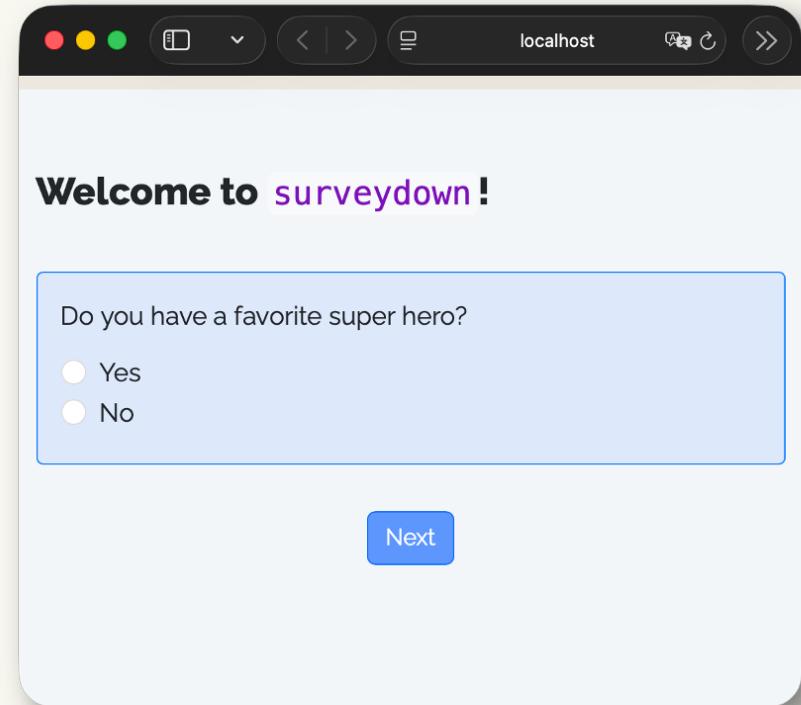




survey.qmd

```
1 ---  
2 format: html  
3 echo: false  
4 warning: false  
5 ---  
6  
7 `r`  
8 library(surveydown)  
9 `r`  
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 `r`  
28  
29 :::
```

Rendered Survey



survey.qmd

```
1 ---  
2 format: html  
3 echo: false  
4 warning: false  
5 ---  
6  
7 `r`  
8 library(surveydown)  
9 `r`  
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 `r`  
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`!  
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 ::::
```

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 :::: {#welcome .sd-page}  
11 # Welcome to `surveydown`!  
12  
13 sd_question(  
14   type = "mc",  
15   id = "has_fav_hero",  
16   label = "Do you have a favorite super hero?",  
17   option = c(  
18     "Yes" = "yes",  
19     "No" = "no"  
20   )  
21 )  
22  
23 sd_next()  
24 ```  
25  
26 ::::
```

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 ::::
```

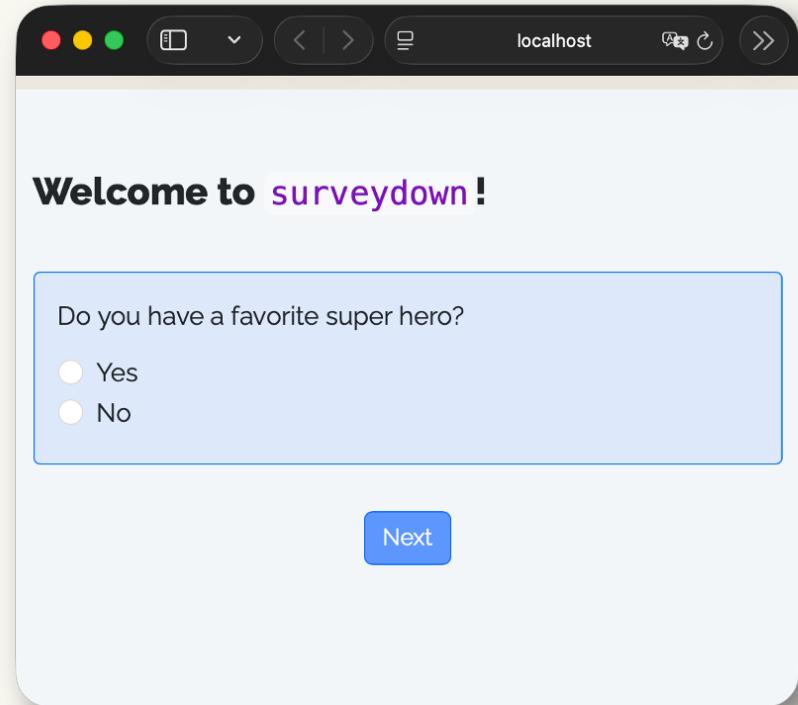
Page content

- Markdown for text, 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 `r`  
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 `r`  
28  
29 :::
```

Rendered 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 `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

The screenshot shows a web browser window titled 'localhost' displaying a survey page. The page has a header 'Welcome to surveydown!' and a question 'Do you have a favorite super hero?' with two radio button options: 'Yes' and 'No'. A 'Next' button is visible. Below the page, a data table is shown with a single row containing the value 'yes'.

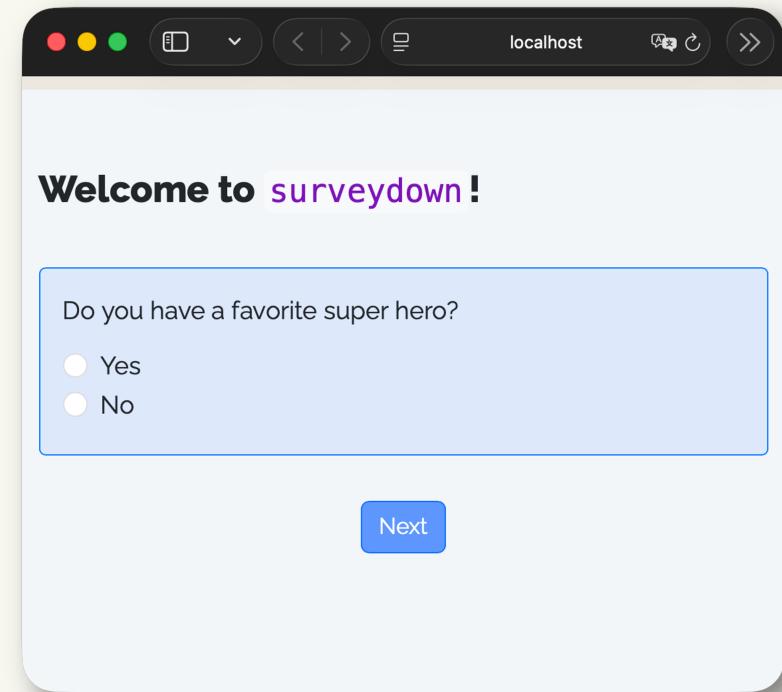
has_fav_hero
yes
no
no
yes

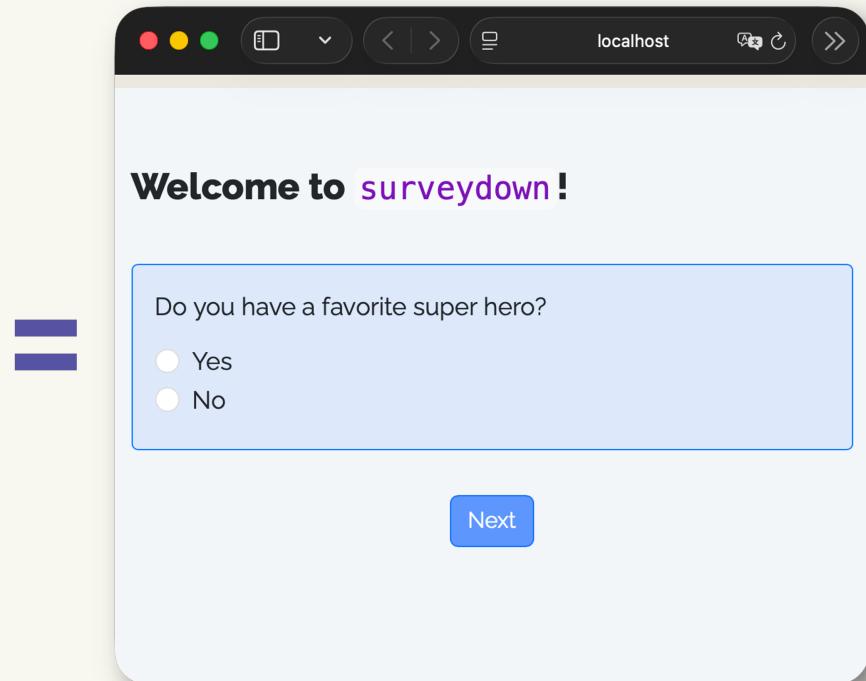
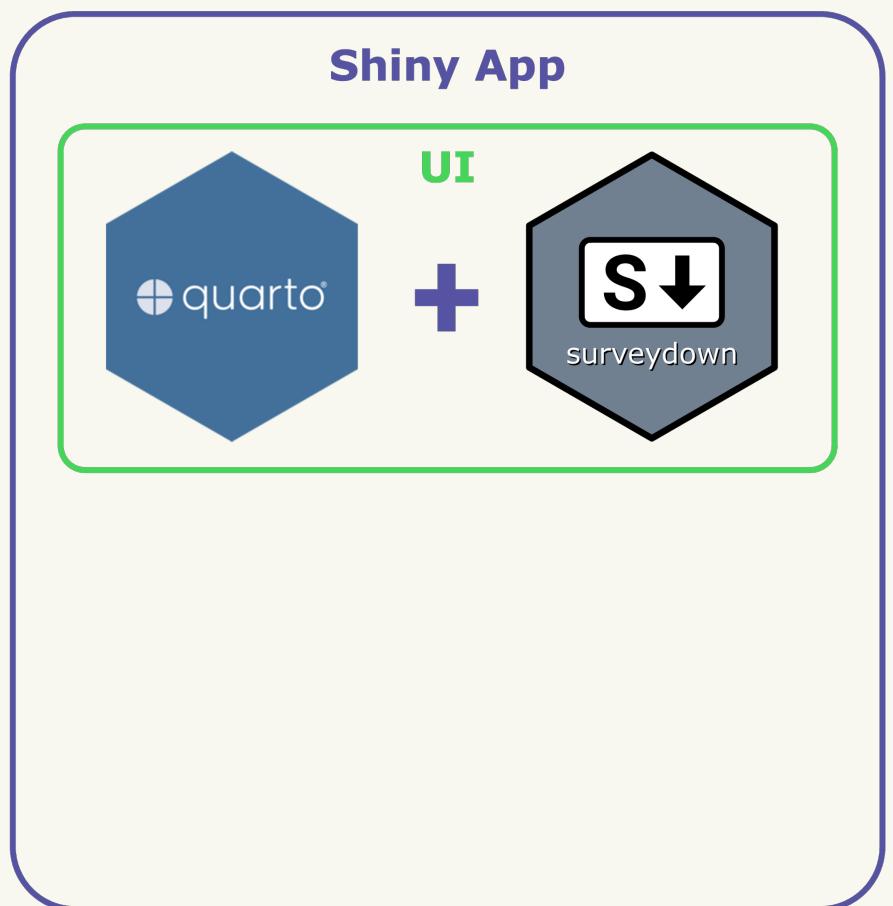
Wait a minute...
Quarto renders to **static** html pages, right?

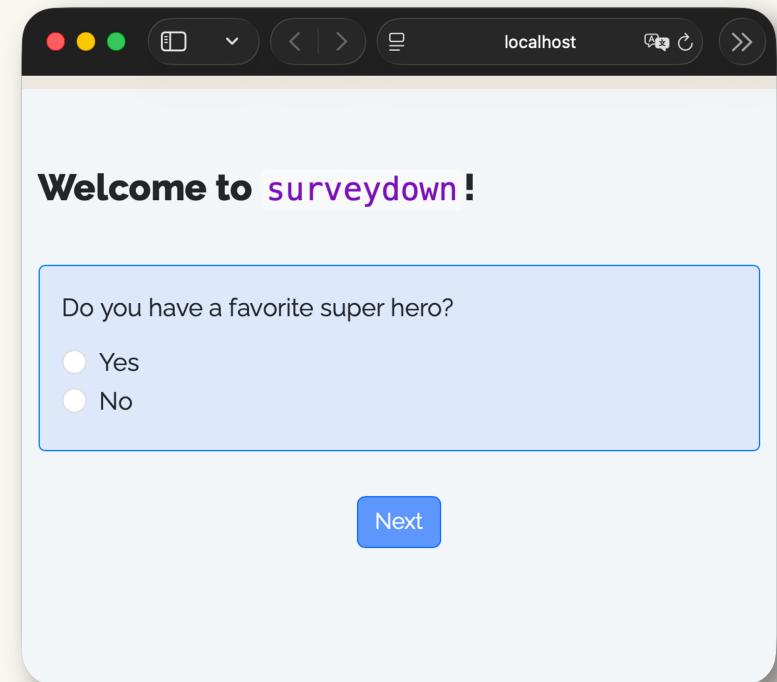
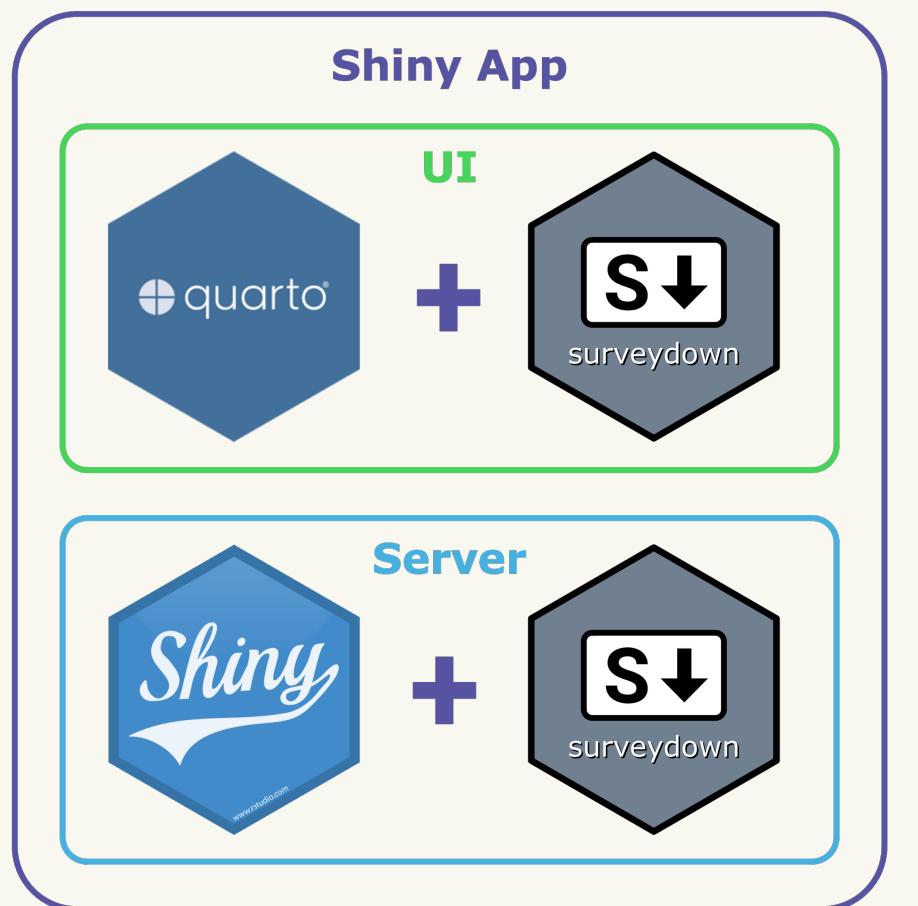


Shiny to the rescue!









A complete **surveydown** survey

`survey.qmd`

A **Quarto doc** defining the survey content (pages, text, 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)
```

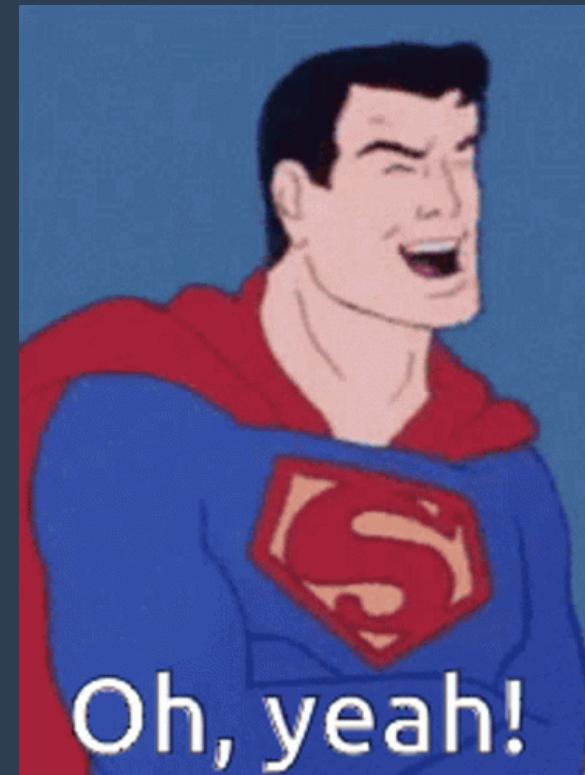
Render `survey.qmd` as UI

Run the `surveydown` server

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



PostgreSQL to the rescue!



The screenshot shows the Supabase Table Editor interface. On the left, a sidebar lists various tables: coders, data, demo, demo2, evRangeSurvey, leaf_miles, my_test_table, mydata, mytable1, newtable, responses, slider_test, slider_test2, slider_test3, speedtest, superheros, and tpmn. The 'superheros' table is currently selected. The main area displays the 'superheros' table with the following columns: session_id, has_fav_hero, fav_hero_name, and hero_universe. The table contains 15 rows of data.

session_id	has_fav_hero	fav_hero_name	hero_universe
064585d4b3ce857a4a24e9dea4a657da	no	NULL	NULL
14d82544a547922107f492e6ee9a67dc	no	NULL	NULL
1eb83f38450cc4fa5b3bc8540d161f38	yes	Superman	dc
4ef1e74ae94737c502edb08db8e27f77	yes	NULL	marvel
5cf0f43d847425de2d015e1145ac3199	yes	Spiderman	all
676ae2ebd611f7ffe70586c23af5b53c	NULL	NULL	NULL
68fe326c20852efae79bca9b0b089815	no	NULL	NULL
6f436b4a64f154324ad6c4c883e99002	yes	Monkey King	marvel
8352cbbaad349838729c489c43f08c4f	yes	Spiderman	dc
86e11fbcaa660bc1d94b686fd0206b55d	yes	Superman	all
a426816365182d50dc133ee0c6255b3d	yes	NULL	NULL
a754b629d48ad2c53049c6741e9d4645	no	NULL	NULL
bb7021e8ad7e35be6d75831a2f5c51cd	yes	Spiderman	all
bbe8c56090359bb4eb37e58b95b31316	yes	Spider Man	marvel

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()`

Locally get the data

The screenshot shows the RStudio interface with the following details:

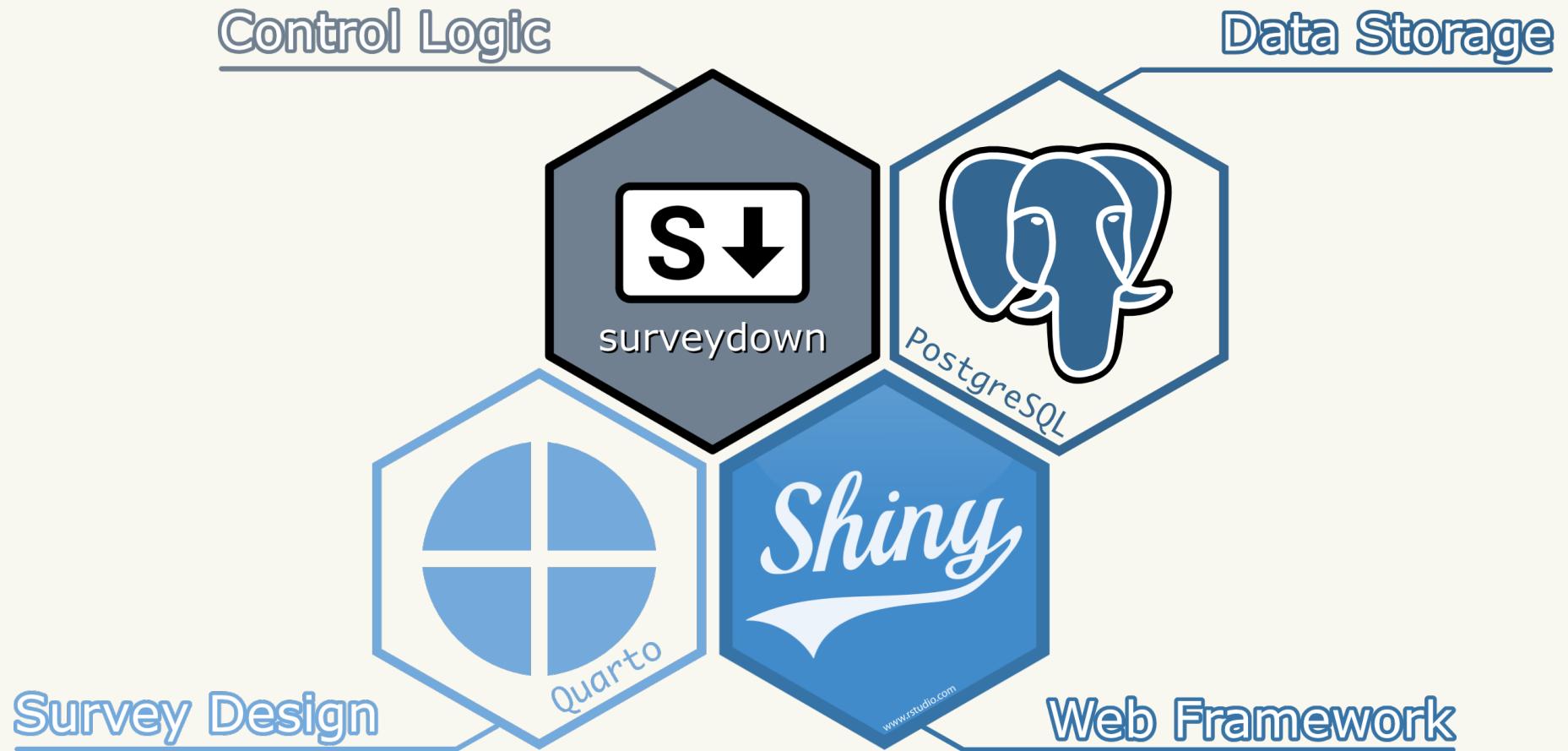
- File Bar:** survey.qmd, app.R, analysis.R, Go to file/function, Addins.
- Console Tab:** R 4.4.1 - demo - main - RStudio
- Code in Source Editor:**

```
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
```
- Console Output:**

```
> 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...
```
- Bottom Navigation:** Environment, History, Connections, Git, Tutorial, Files, Plots, Packages, Help, Viewer, Presentation.

What is **surveydown**?





What can **surveydown** do?

surveydown is feature-packed!

The screenshot shows a web browser window for surveydown.org. The page title is "Features". On the left, there's a sidebar with a navigation menu:

- 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

The main content area contains a table titled "Features" with the following data:

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

```
1 sd_question(  
2   type  = "mc",  
3   id    = "hero_universe",  
4   label = "Which superhero universe do you prefer?",  
5   option = c(  
6     "Marvel"           = "marvel",  
7     "DC Comics"        = "dc",  
8     "Independent/Other" = "other",  
9     "I like them all equally" = "all"  
10    )  
11  )
```



- Which superhero universe do you prefer?
- Marvel
 - DC Comics
 - Independent/Other
 - I like them all equally

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

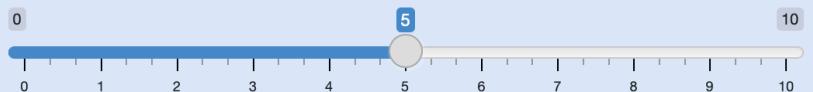
 Super Speed
Faster than lightning

Question Type: slider_numeric

```
1 sd_question(  
2   type  = "slider_numeric",  
3   id    = "responsibility_scale",  
4   label = "How much do you agree with  
5       "With great power comes  
6       great responsibility?",  
7   option = 0:10  
8 )
```



How much do you agree with "With great power comes great responsibility"?



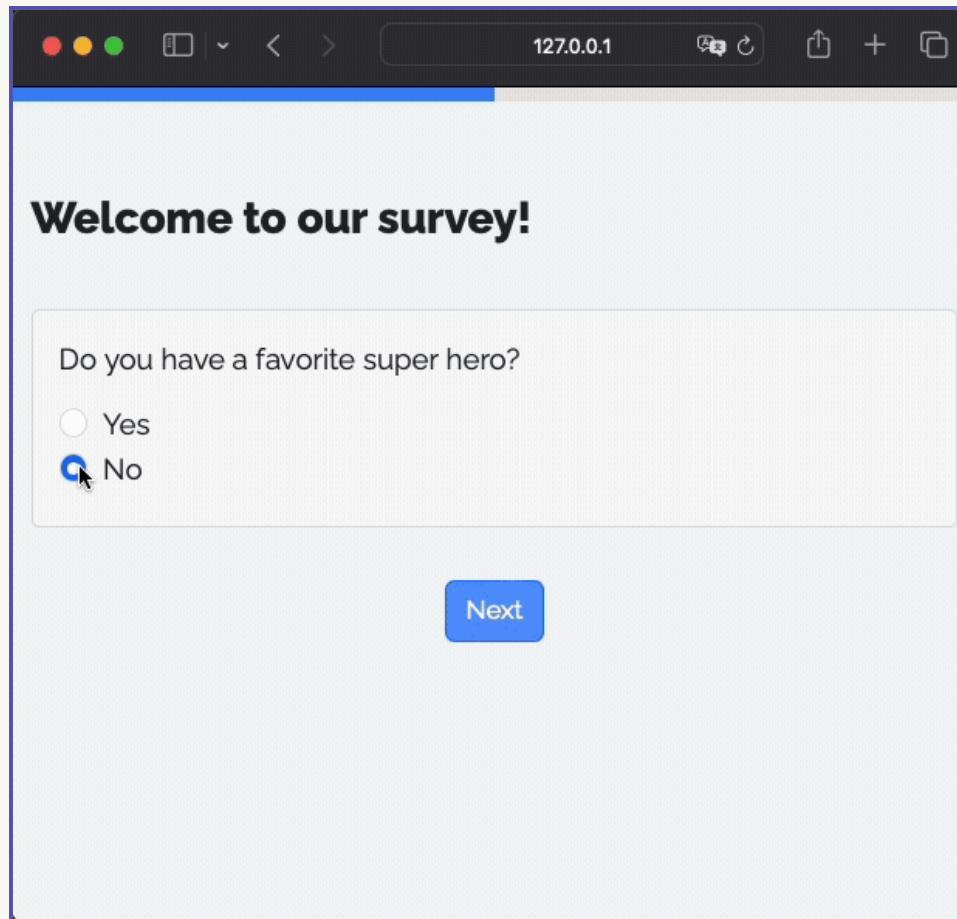
Conditional logic

Conditional showing

Conditional skipping

Conditional stopping

Conditional showing - sd_show_if()



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}”

Conditional skipping - `sd_skip_if()`

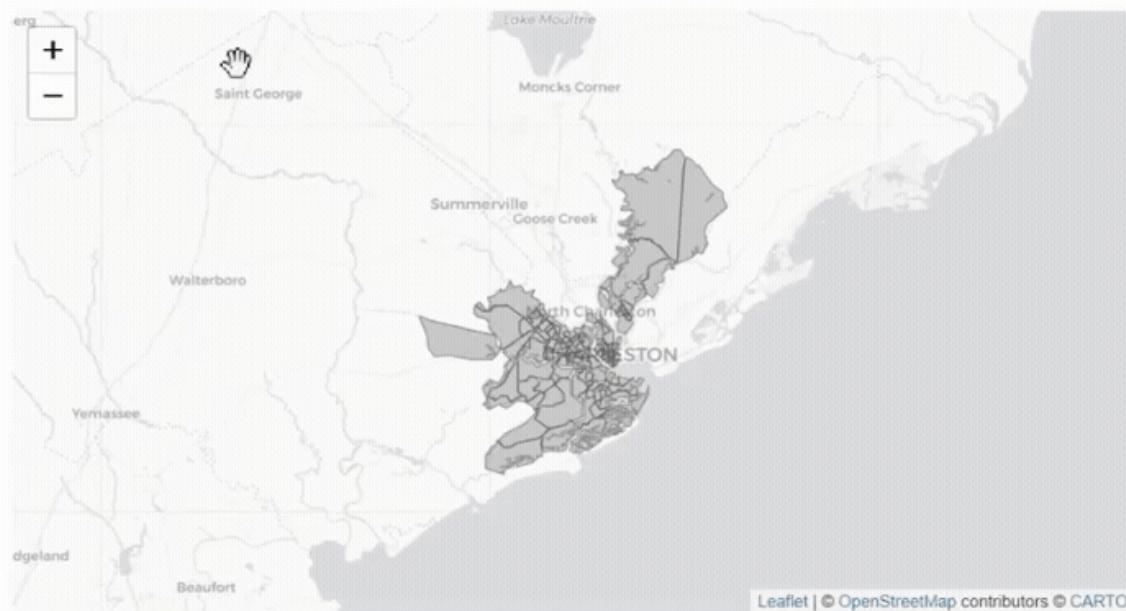
Conditional stopping - `sd_stop_if()`

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.

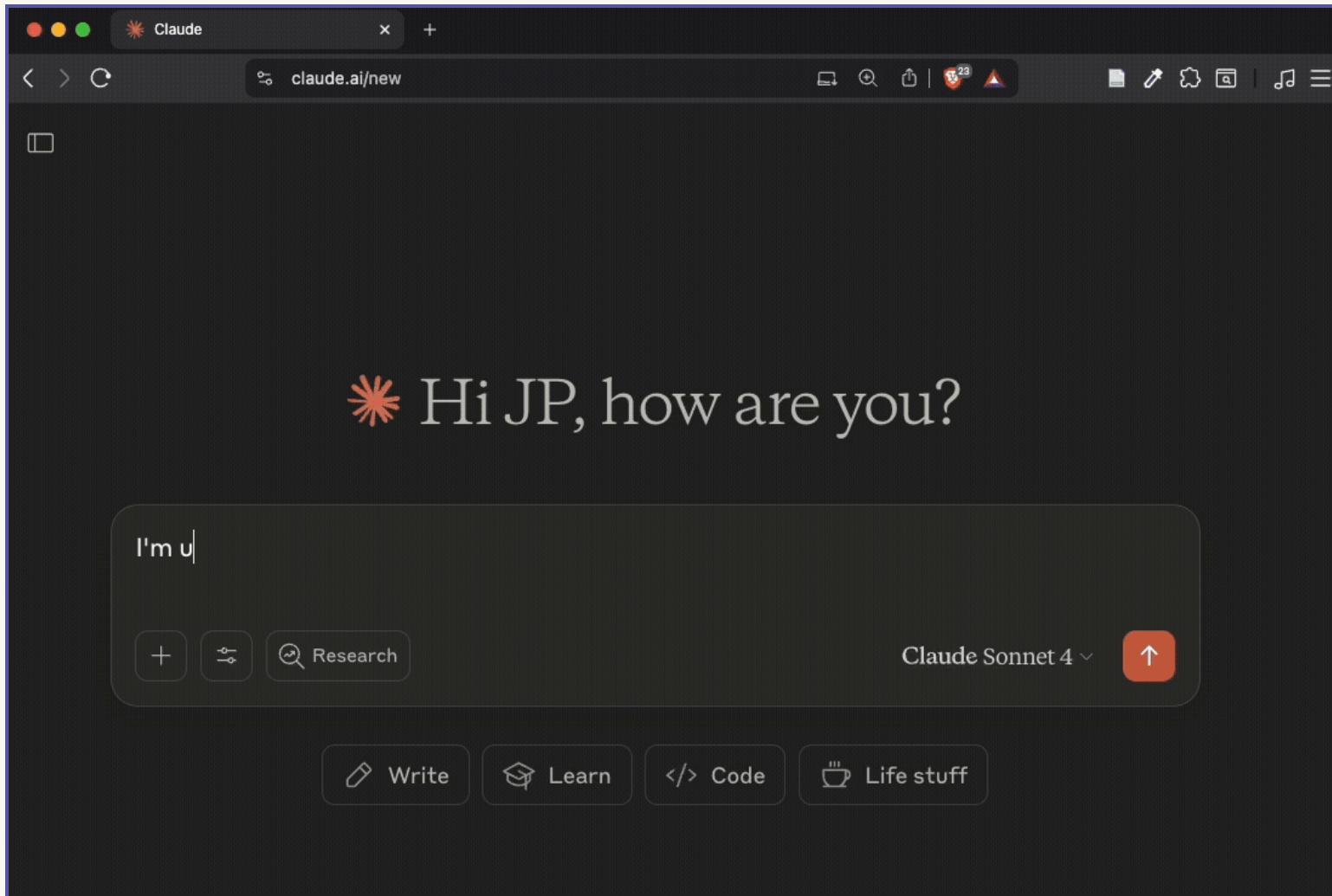


[Next Question](#)



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

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  
powers! This survey will help us understand what makes superheroes  
appealing to different people.  
18  
19 **This survey should take about 3-5 minutes to complete.**  
20  
21 <br>  
22  
23 ````{r}  
24 sd_question(  
25   type = "mc",  
26   id   = "has_fav_hero",  
27   label = "Do you have a favorite super hero?",  
28   option = c("Yes" = "yes", "No" = "no")  
29 )
```

surveydown Studio Build Preview Responses

127.0.0.1

Up + New

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

A screenshot of a web browser window titled "surveydown Studio". The tab bar shows "Build", "Preview" (which is underlined), and "Responses". The address bar shows "127.0.0.1". The top right has icons for "Up", "+", and "New". The main content area displays a survey page. At the top is a title "Welcome to the Ultimate Superhero Survey!" flanked by superhero icons. Below it is a thank-you message. A note says "This survey should take about 3-5 minutes to complete." The first question asks "Do you have a favorite super hero?" with a required asterisk. It has two radio button options: "Yes" (selected) and "No". The second question asks "Who is your favorite super hero?" and has a large empty text input field. At the bottom is a large orange "Next" button.

surveydown Studio Build Preview Responses [Responses](#)

Database Connection [Settings](#) Connected (GSSAPI enabled)

Choose a table to view:

superheros

Total Responses 21

Daily Average 4.2

Completion Rate 85.7%

Cumulative Responses

Date	Cumulative Responses
Aug 15	12
Aug 16	12
Aug 17	12
Aug 18	12
Aug 19	20
Aug 20	21

Daily Responses

Date	Daily Responses
Aug 15	11
Aug 16	0
Aug 17	0
Aug 18	0
Aug 19	8
Aug 20	1

With great power comes great responsibility.

Meet the team!



John Helveston,
Ph.D.



Pingfan Hu



Bogdan Bunea

Ways to help:

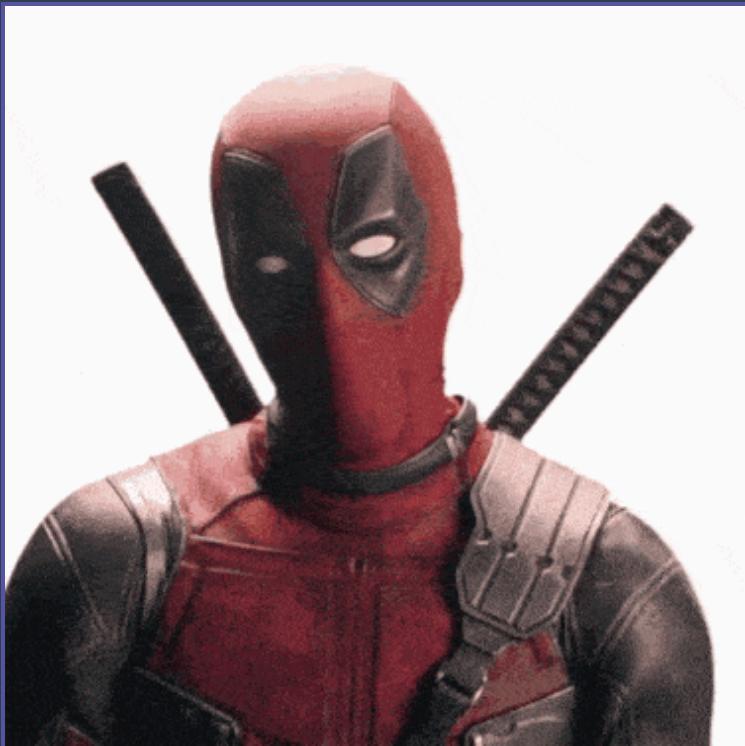
github.com/surveydown-dev/surveydown/

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



Thanks!

surveydown.org



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jhelvy.com
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