

Introduction to Shiny

Build Interactive Web Apps with R



Ronak Shah
R & Shiny Developer @ Roche
22nd Feb 2025

Contents

INTRODUCTION

1 What is R Shiny?

2 Examples of Shiny Apps

Basics of Shiny App

3 Shiny app structure

4 Reactivity

5 Live Demo

Adding Interactivity

6 Input & Output

7 More Examples

Deploying and Extending Shiny

8 Introduction to Shinyapps.io

9 Further Reading

10 Q&A

1. What is R Shiny?

- R package to build interactive web applications in R
- Provides a simple framework for creating web apps without knowledge of HTML, CSS or JS. *
- Allows you to interact with data and update outputs accordingly.
- Easy to get started for R programmers
- Useful in creating Dashboards, live data insights and visualization tools

*conditions apply

2. Examples of Shiny Apps

Ugly ones :

- https://shahronak.shinyapps.io/my_shiny_app/
- <https://shahronak.shinyapps.io/packageviewerR/>

Beautiful ones :

- <https://gisanddata.maps.arcgis.com/apps/dashboards/bda7594740fd40299423467b48e9ecf6>
- <https://nrennie.rbind.io/tidytuesday-shiny-app/>
- <https://friss.shinyapps.io/shiny-vue-r/>

3. Shiny App Structure

- ❑ Single File approach : Use app.R as single file for the app.
- ❑ Separate Files : Separate file for frontend (ui.R) and backend (server.R)
- ❑ Golem : Framework from ThinkR
- ❑ Rhino : Framework from Appsilon
- ❑ Shiny app as a package

4. Reactivity

- ❑ Shiny's reactivity is what makes app dynamic.
- ❑ Reactive Inputs : User provided values
Example : Textbox, Drop Down
- ❑ Reactive Expressions : Automatically recalculate when input changes.
Example : Calculate data based on country selection
- ❑ Observers : Used for actions that don't return a value.
Eg - Saving a file
- ❑ Reactive Outputs : Update outputs based on input change.
Eg - Update plot based on dropdown change

5. Live Demo

Simple App

6. *Output & render* functions

- ❑ `textOutput` & `renderText`
- ❑ `plotOutput` & `renderPlot`
- ❑ `tableOutput` & `renderTable`

7. More Examples

8. Shinyapps.io

- ❑ Free Deployment platform
- ❑ Can host upto 5 applications
- ❑ 25 Active Hours

9. Further Reading

- ❑ <https://shiny.posit.co/>
- ❑ <https://mastering-shiny.org/>
- ❑ <https://shiny.posit.co/r/articles/>
- ❑ <https://shiny.posit.co/r/gallery/>
- ❑ <https://www.appsilon.com/blog>

10. Q & A