



NOAA
FISHERIES
SWFSC

Interactive web applications with R shiny

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What is shiny?

R package for interactive web application development

Iris k-means clustering

X Variable

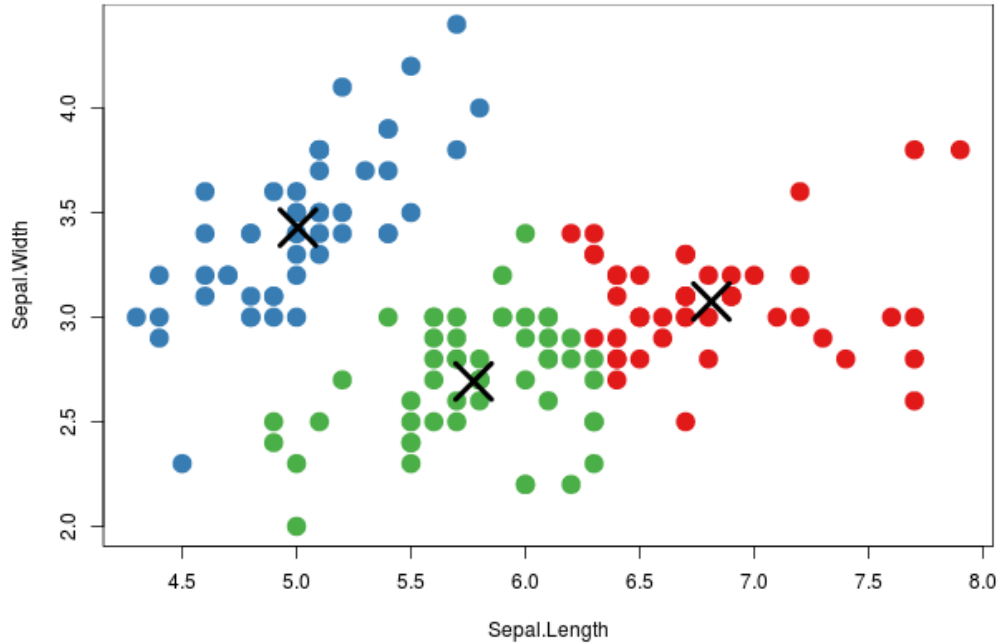
Sepal.Length

Y Variable

Sepal.Width

Cluster count

3



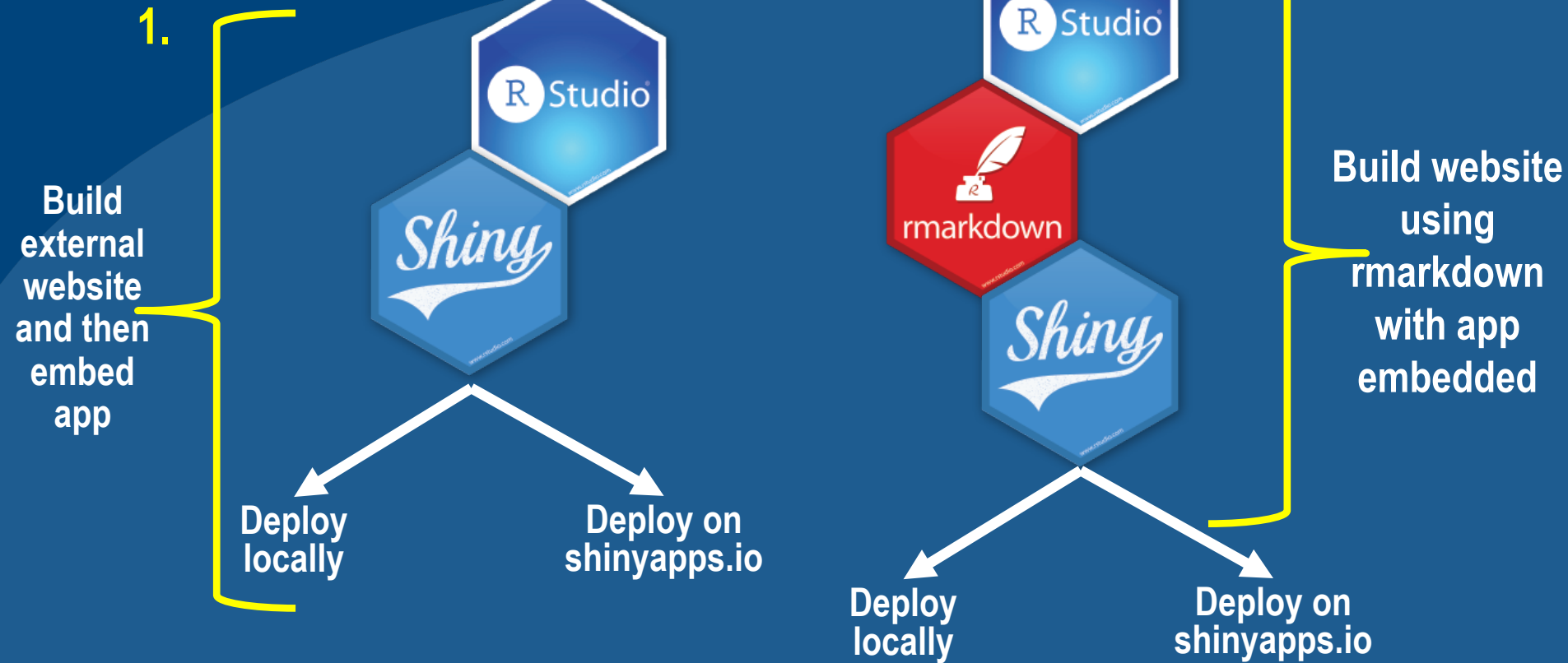
What can shiny do for me?

1. Provides a pathway for non-coders to analyze data
2. Puts best-practice science into the hands of practitioners
3. Allows for dynamic outputs that respond as new data are available
4. Allows for website development without ever leaving the R environment
5. Integrates your data, code and analysis in the same location

Take a look at the [AniMove App](#)




Two pathways

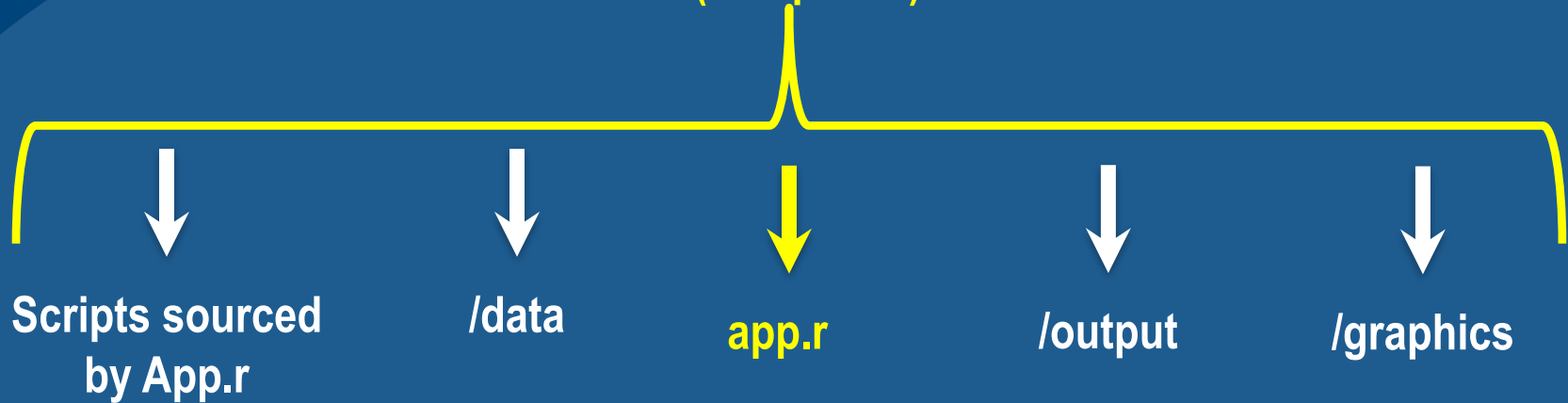


Architecture of a shiny directory



 = required

Parent Directory
"App_name"
(no spaces)




Architecture of a shiny code block in **app.R**



A. Load libraries

-- Any libraries required by your code +
library(shiny) ; library(rsconnect)

 = required

B. Load all your data

C. shinyUI(aesthetics user inputs)

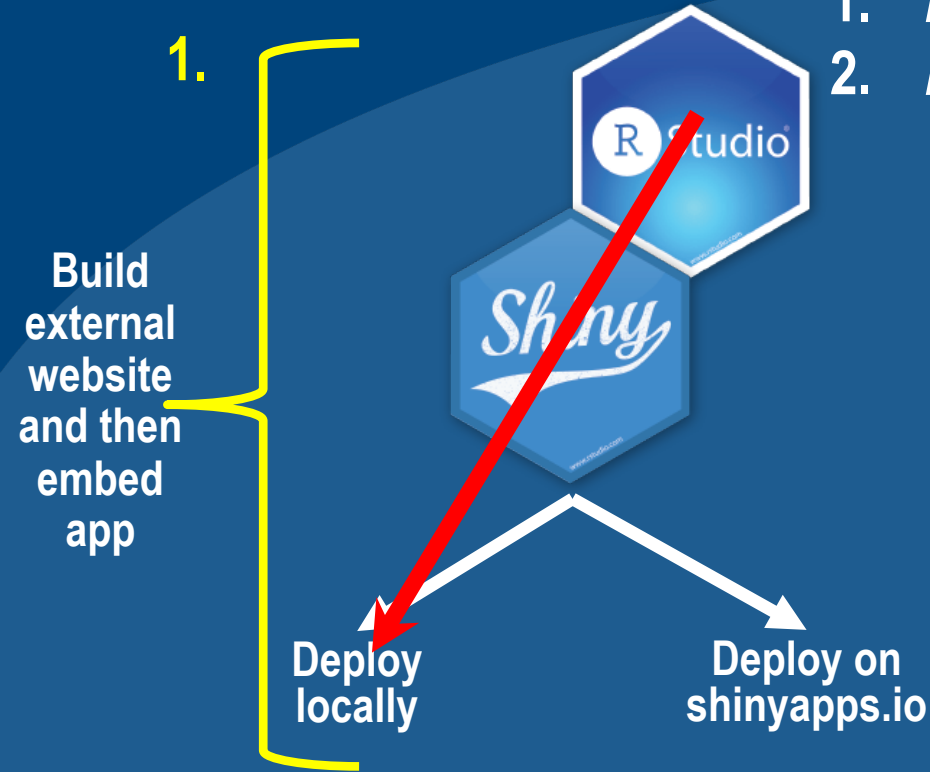
D. shinyServer(how the act reacts to user inputs)

E. shinyApp(ui = ui, server = server)



Lets take a look

1. `/r_shiny_workshop/histogram_app`
2. `/r_shiny_workshop/explore_fishery_app`



Check out the shiny cheatsheet in
</cheatsheets/shiny-cheatsheet.pdf>



Lets take a look

1.

Build
external
website
and then
embed
app



Deploy
locally

Deploy on
shinyapps.io

1. Create shinyapps.io account

<https://www.shinyapps.io/>

2. Introduce shinyapps.io to rstudio

```
rsconnect::setAccountInfo(name='your_name',  
token='your_token', secret='your_secret')
```

3. Deploy app

```
rsconnect::deployApp()
```

/r_shiny_workshop/explore_fishery_app

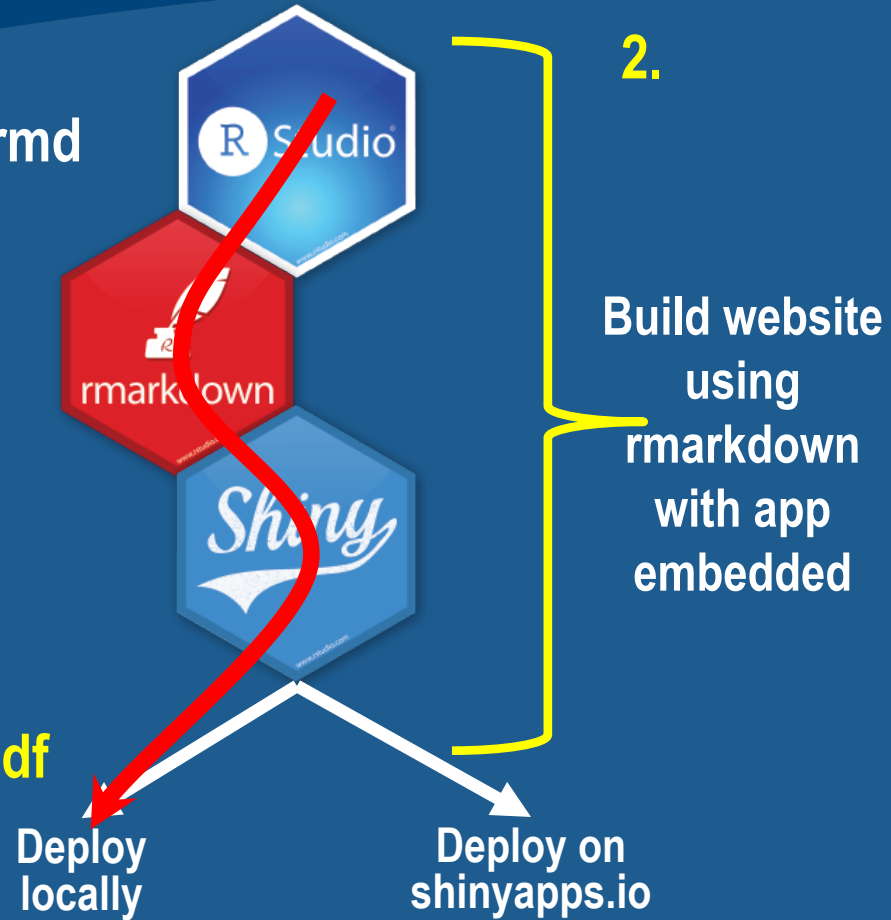


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Lets take a look

1. `/r_shiny_workshop/historgram_app_rmd`

Check out the rmarkdown cheatsheat in
</cheatsheats/rmarkdown-cheatsheet.pdf>



Lets take a look

1. Create shinyapps.io account

<https://www.shinyapps.io/>

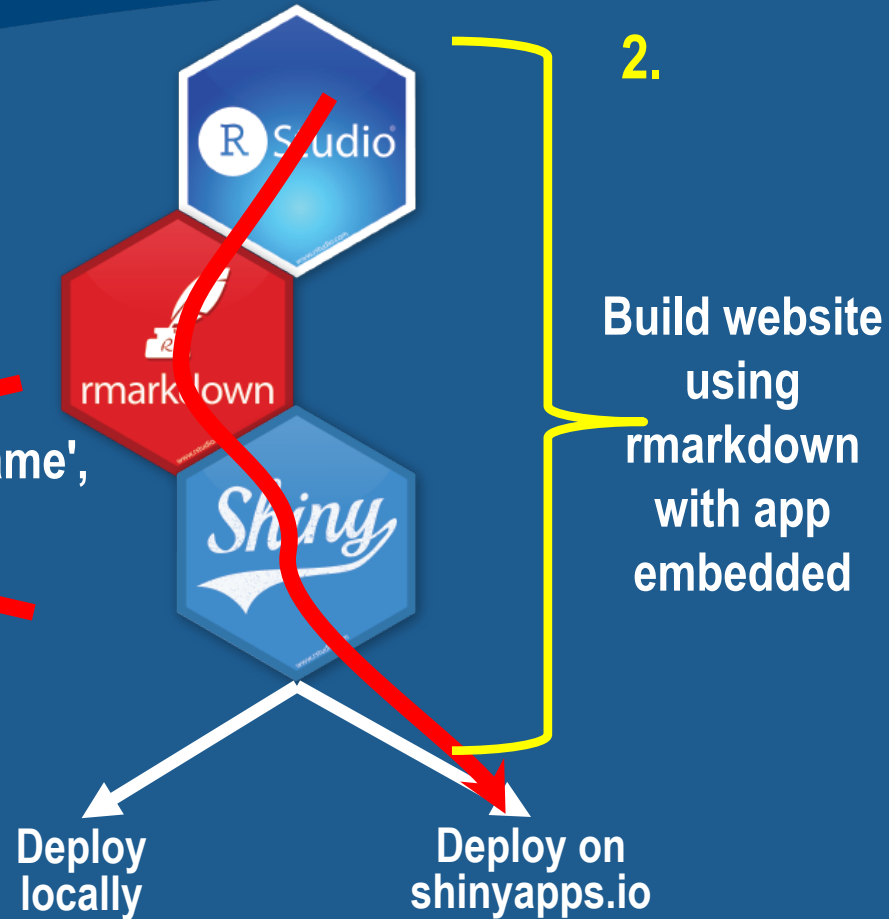
2. Introduce shinyapps.io to rstudio

`rsconnect::installRsconnectApp('your_name',
token='your_token', secret='your_secret')`

Only needs to happen once

3. Deploy app

`rsconnect::deployApp()`

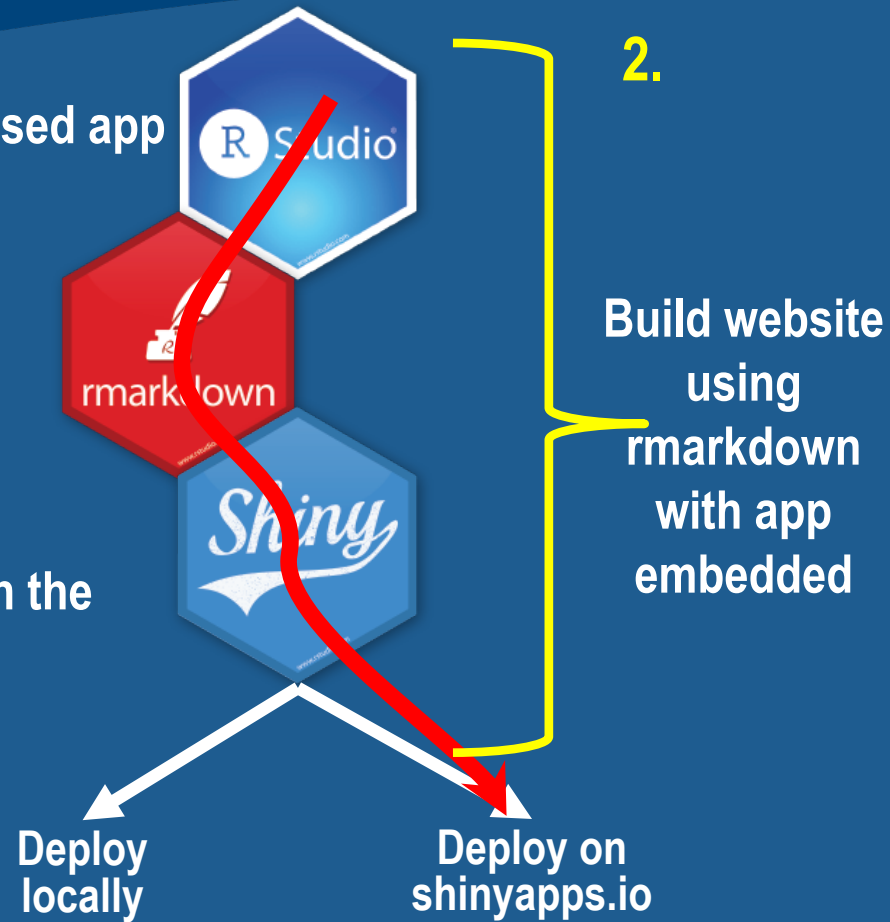


`/r_shiny_workshop/histogram_app_rmd`

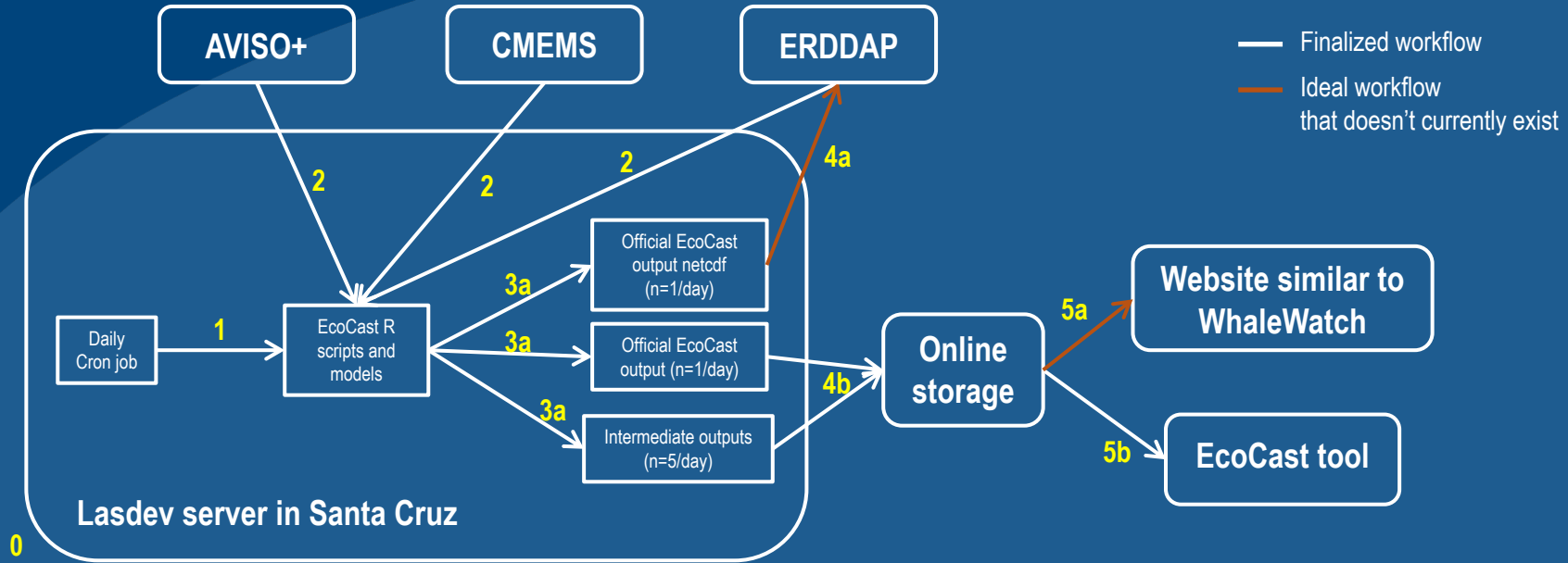
Try it yourself:

Turn explore_fishery_app into an rmarkdown based app

1. Create a new parent directory
2. Copy over data files
3. Copy histogram_app_rmd/app.r into parent directory
4. Edit the title
5. Replace sections 1:5 of the r code to match the explore_fishery_app
6. Deploy locally to make sure app works
7. Deploy on shinyapps.io



Shiny in action: EcoCast Tool



Try it for yourself: https://heatherwelch.shinyapps.io/rshinyapp_historical/