Shiny optimization of climate benefits from a statewide agricultural grant program

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https://wsda.shinyapps.io/WaCSE/

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Washington's Sustainable Farms & Fields Program incentivizes climate-smart practices.

$1.8 million in FY23

$1.5 million in FY24

Photo: San Juan Island Conservation District

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Benefits from climate-smart practices vary widely.

Photo: Molly McIlquham

We needed a decision-support tool to identify projects with the greatest climate benefits.

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Models and tools for on-farm carbon and GHG accounting already exist.

COMET Farm | USDA United States Department of Agriculture Natural Resources Conservation Service | Colorado State University

Whole Farm and Ranch Carbon and Greenhouse Gas Accounting System.

Too hard to use!

COMET-Planner | USDA Natural Resources Conservation Service U.S. DEPARTMENT OF AGRICULTURE | COLORADO STATE UNIVERSITY

Too limited!

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Our wishlist

- User-friendly for grant applicants and the public
- Interactively compare conservation practices
- Convert CO_2eq estimates into familiar terms
- Downloadable spreadsheets and reports

Washington Climate Smart Estimator

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Demo

WaCSE 3-minute demo, no audio

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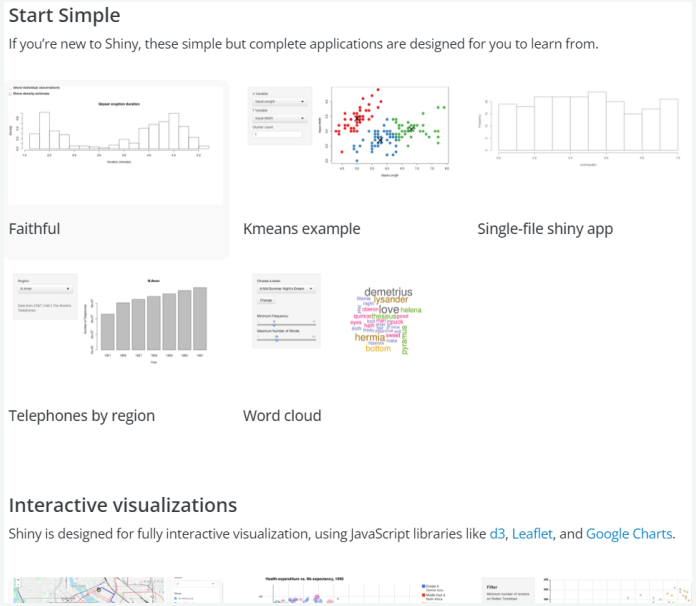
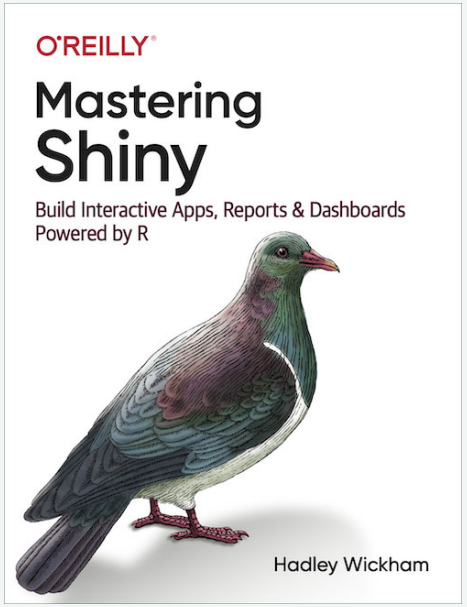
Study Shiny

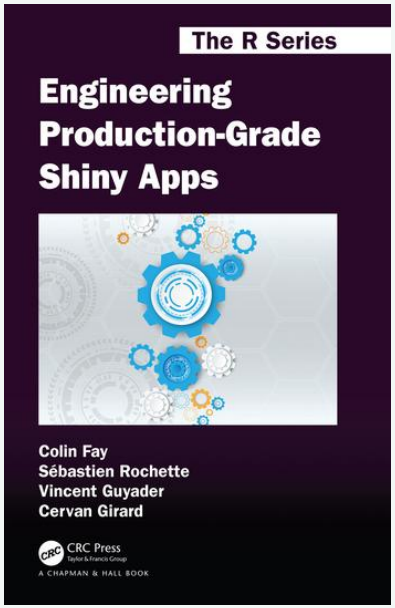
Start with examples and big picture workflows.



Posit Shiny Gallery



Mastering Shiny



Engineering Production-Grade Shiny Apps

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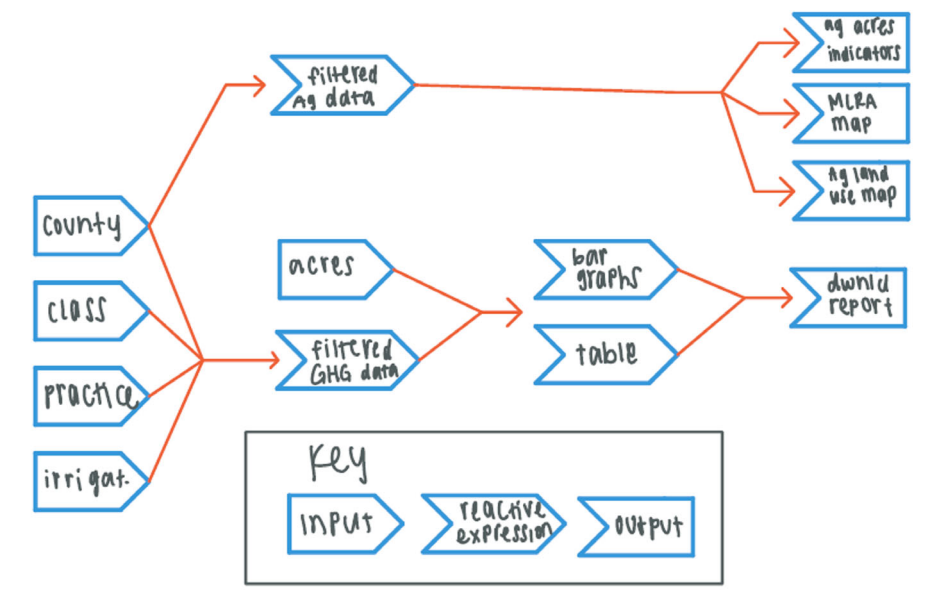
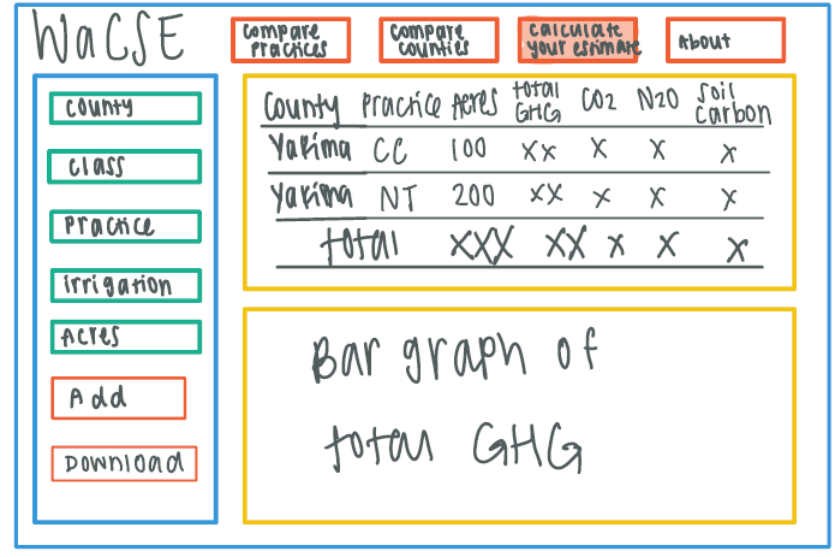
Wireframe Wishes

Before coding, sketch data flows and app design.





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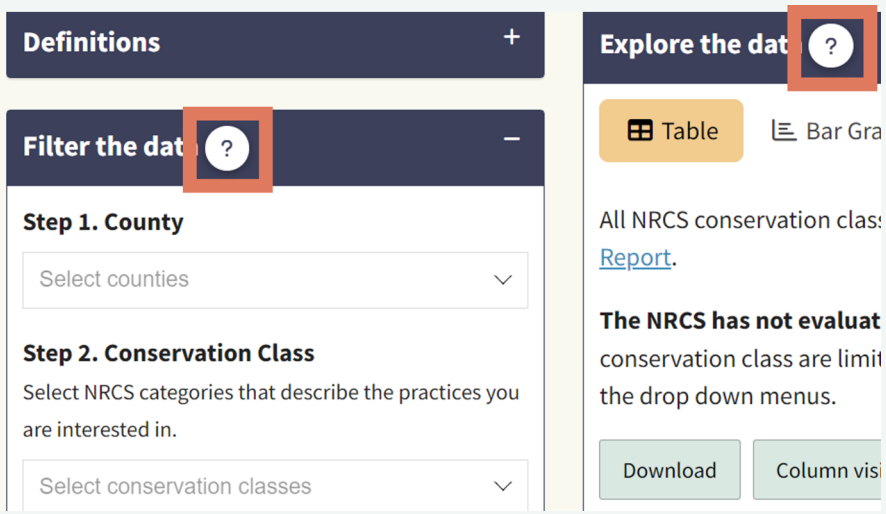
Construct Code 🛠️ 💻

Prototype then refactor with custom functions.




```
1  fct_helpBtn <- function(id) {
2    shinyWidgets::actionBttn(
3      inputId = id,
4      label = NULL,
5      icon = icon("question"),
6      style = "material-circle",
7      size = "xs",
8    )
9  }
```

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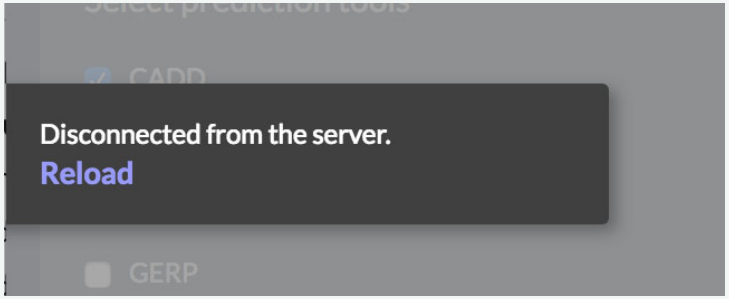
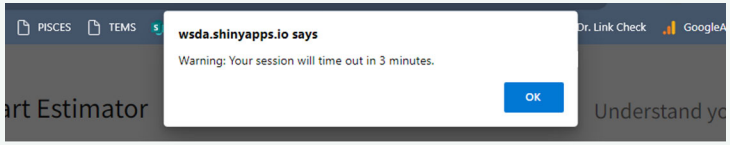
Elevate Experience 💖 💃

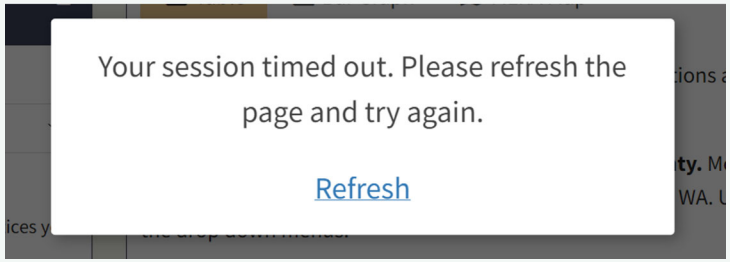
Incorporate HTML, CSS, JavaScript to improve user experience.

```
shinyjs::runjs(
    "function onTimeout() {
        alert('Warning: Your session will time out in 3 minutes.');
      } ...")

shinydisconnect::disconnectMessage(
  text = "Your session timed out. Please refresh the page and try again.",
  refresh = "Refresh")
```







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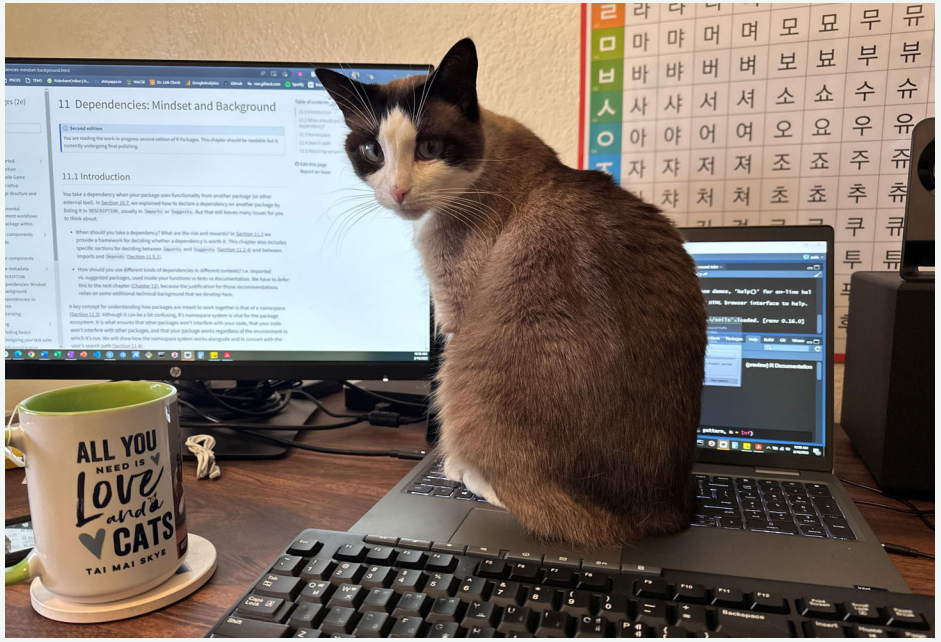
Try using R to solve a problem, even if you don't have a CS background!

There are many amazing R resources, and the community is incredibly supportive!



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I'd love to connect with you!

- Slides
- WaCSE GitHub Repo
- jadeynryan
- linkedin.com/in/jadey-ryan
- @jadeynryan
- WA Dept. of Agriculture Webpage

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