

# R Shiny App Development

Part II: **Shiny in Action**

William O. Agyapong  
Ph.D. Student, Data Science, UTEP





# Requirements

- Required package: shiny
- ggplot2
- plotly
- Datatables (DT)
- dplyr
- ggExtra
- bslib



# Prerequisites

- Familiar with R programming
- Can perform statistical analysis in R including data preparation, EDA, and modeling
- Assumes that you know some data visualization principles



# The Shiny Package

- An R package that let you build **interactive web applications**
- Python version is now available
- Other packages to extend the capabilities of Shiny: **bslib**, **shinythemes**, **shinydashboard**, **shinyjs**
- Sample apps + codes to get you started and inspired at the **Shiny Gallery** (<https://shiny.posit.co/r/gallery/>)
- Deployment: **shinyapps.io** or dedicated server

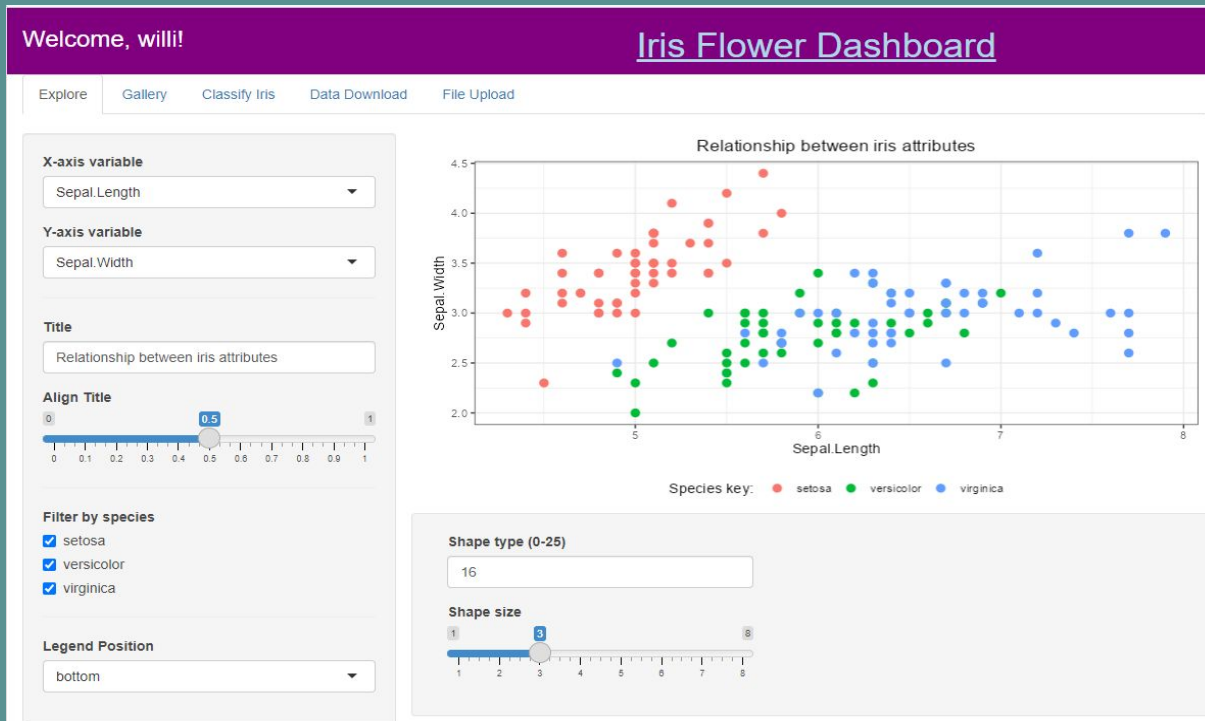


# Resources

- Getting started with Shiny:  
<https://shiny.posit.co/r/getstarted/shiny-basics/lesson1/index.html>
- Mastering Shiny:  
<https://shiny.posit.co/r/getstarted/shiny-basics/lesson1/index.html>
- Shiny Application Layout Guide:  
<https://shiny.posit.co/r/articles/build/layout-guide/>
- Shiny App Function Reference:  
<https://shiny.posit.co/r/reference/shiny/latest/>
- shinyapps.io user guide: [shinyapps.io-user-guide](https://shinyapps.io/user-guide/)
- Outstanding User Interfaces with Shiny:  
<https://unleash-shiny.rinterface.com/htmltools-overview>

# Agenda for today: Building an interactive dashboard

- Create a custom shiny app template using snippets
- User Input Controls
- Output Channels
- Handling user input and reactivity
- Dashboard Layout
- File uploads and downloads
- App Deployment/Hosting





# Basic Structure of a Shiny App

## The User Interface (UI)

- Defines the look and feel
- Frontend controller
- Essentially HTML/CSS elements
- Separate different components by commas

## Server

- The engine which defines how the app works
- Backend controller
- **Reactive expressions**

## Basic Structure: How it works

- A user interface
- A server function
- A call to the `shinyApp()` function







# Example Apps

- `shiny::runExample()`
- Visit the Posit Shiny Gallery: <https://shiny.posit.co/r/gallery/>
- New Zealand Trade Intelligence and Dashboard:  
<https://shiny.posit.co/r/gallery/government-public-sector/nz-trade-dash/>



# Last Session: Project (Code along) - April 5

- End-to-End Shiny App Development
- Basic Sentiment Analysis (Analysis of X posts, formerly tweets)
- Data consist of former president of the US, Barack Obama's 2014 - 2020 tweets downloaded directly from X (Twitter)
- Develop an interactive dashboard
- Base app:  
[https://william-agyapong.shinyapps.io/tweet-insights/?\\_ga=2.230265368.589920579.1646163786-1638345359.1645640858](https://william-agyapong.shinyapps.io/tweet-insights/?_ga=2.230265368.589920579.1646163786-1638345359.1645640858)
- Include additional functionalities
- Host the application