# Course Project - Interactive Shiny App

## MAS 627

The purpose of this project is to make you build an interactive web app in R via the `shiny` package. `shiny` apps are one way to allow users to interact with the data outside of R. `shiny` is one of the more advanced topics in R. Done well, this project will result in something you can add to your portfolio and show off to potential employers.

You may work in groups of 1, 2 or 3 on this project. No groups of 4 but you are welcome to work in two groups of 2.

## Requirements

In order to complete this project you need to find a dataset, ideally related to a topic that interests you. The data should require some amount of data cleaning / manipulation, i.e. no "textbook" data or the UCI Machine Learning repository. You are welcome to use multiple datasets from multiple sources if desired. I'm not setting a minimum on the amount of cleaning required; if you find a relatively clean dataset you can balance it out by putting more into the app itself, if you find yourself working through a very complicated cleaning process, I'll understand that as well. I'm going to be looking at *overall* workload, creativity, and quality relative to your peers when grading. I am not looking for you to check some minimum number of boxes.

- I don't have exact requirements, as all apps are different, but you should have the following at a minimum:
    - Visualizations
    - Interactive features (inputs)
    - A formatted layout
        * You can default to `sidebarLayout()` unless something else will make more sense
        * I encourage you to look at the `shinyDashboard` package as I know it makes beautiful dashboards easily (this is not a requirement, and I've never actually used it myself)

**You must submit these items:**

1. **Everything that I need to click "Run app" and make your app appear**

    - Any data needed
    - Any code needed for cleaning/preparing that data
    - Your app code

2. A link to your app online

    - Publish your app to shinyapps.io.
    - Instructions will be posted to Blackboard (and discussed in Day 12 lecture so see that video for play-by-play)

3. A *brief* write-up

    - Tell me about your app and what it does

- What made you decide on this app / why is this interesting?
- Highlight any key features of your app
- You can discuss anything that was particularly difficult or include any discussion that you feel is relevant

## Some links you might find useful

**Data sources:**

Find data on a topic that interests you! Finding something that interests you will result in a better project than simply going out to the internet and looking for an easy dataset. You can probably find *some* data for nearly any topic. Below are some links to help get you started, but do not feel that you need to use these sources.

- data.world
- Data is Plural
- Kaggle datasets - https://www.kaggle.com/datasets
    - Tons of data sets that have been used for machine learning and predictive modeling.
- Data.gov - I think this site aggregates a lot of the state and city level data, and includes federal data. Lots of stuff here (over 200,000 datasets).
- Most major cities are making data publicly available, just Google City Name + Open Data and see what you find.
    - Miami - https://opendata.miamidade.gov/
    - New York - https://opendata.cityofnewyork.us/
    - Chicago - https://data.cityofchicago.org/
    - Boston - https://data.cityofboston.gov/
    - Baltimore - https://data.baltimorecity.gov/
- Finance data can be read directly into R (see me) or downloaded from Yahoo/Google finance
- Twitter data can be read directly into R
- Census and American Community Survey - https://www.census.gov/programs-surveys/acs/
- United Nations data - http://data.un.org/
- Airbnb / Zillow
- ESPN

**Shiny Links:**

- @ShinyappsRecent on Twitter - https://twitter.com/shinyappsrecent?lang=en
    - See what other people are doing for some ideas or inspiration
- Shiny gallery on R Studio - https://shiny.rstudio.com/gallery/
    - Some good samples, from basic to very advance.
    - Displays code as well, useful if you want to use a certain template or layout.
- Shiny tutorial on R Studio - https://shiny.rstudio.com/tutorial/
    - This is probably overkill but these tutorials go through everything you could possibly want to do.