Instructions

This assignment has two parts. First, you will create a **Shiny application** and deploy it on Rstudio's servers. Second, you will use Slidify, Rstudio Presenter or R markdown presentation to prepare a reproducible **pitch presentation** about your application.

Your Shiny Application

1. Write a shiny application with associated supporting documentation. The documentation should be thought of as whatever a user will need to get started using your application.
2. Deploy the application on ShinyApps.io shiny server
3. Share your server.R and ui.R code on github

The application must include the following:

1. 2 dashboards
    - One dashboard for analyzing the SNCF trains dataset.
    - Another dashboard for analyzing the 2015 US flights dataset.
2. Some operation on the ui inputs in server.R
3. Some reactive output displayed as a result of server calculations
4. You must also include enough documentation so that a novice user could use your application.
5. The documentation should be at the Shiny website itself. Do not post to an external link.

SNCF trains dashboard

The dashboard must:

1 - Show the aggregated values per year (2015, 2016, 2017, 2018) of

- The total number of trains that have been carried out
- The total number of delayed trains at departure
- The total number of delayed trains at arrival
- The average number of delayed trains at departure
- The average number of delayed trains at arrival
- The total average departure delay time of all trains
- The total average arrival delay time of all trains
- The average departure delay time of delayed trains
- The average arrival delay time of delayed trains
- The total number of cancelled trains
- The percentage (proportion) of cancelled trains
- The percentage (proportion) of delay causes

2 - Show the same aggregated values per departure station (Paris Est, LYON PART DIEU, ...)

3 - A free analysis that you find useful.

US flights dashboard

In this dataset, each observation represents one flight.

The dashboard must:

1 - Show the available airports on a map.

- Try representing airport traffic on the map.

2 - Show the aggregated values per airline (United Air Lines, American Airlines...) of

- The total number of flights
- The total number of delayed flights
- The average flight duration
- The average flight distance
- The total distance covered by all airline flights
- The average departure delay
- The average arrival delay

3 - Show the same aggregated values per departure airport (LAX, JFK...)

4 - A free analysis that you find useful.

Hint: When we have large datasets, we usually avoid loading the total dataset into shiny, as this will cause high memory usage and latency. We try preparing a smaller dataset with aggregated values, and then we load the smaller dataset into shiny.

Your Reproducible Pitch Presentation

OK, you've made your shiny app, now it's time to make your pitch. You get 10 slides maximum (inclusive of the title slide) to pitch your app.

Here's what you need

1. 10 slides maximum to pitch our idea done in Slidify, Rstudio Presenter or RMD presentation
2. Your presentation pushed to github

Your presentation must satisfy the following

1. It must be done in Slidify, Rstudio Presenter or RMD presentation
2. It must be **less than** 10 pages
3. It must be published to Rpubs and to the same github repo
4. It must contain some embedded R code that gets run when presenting the document