Intro to Data Science - HW 10 - Shiny

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```
# Enter your name here: Benjamin Tisinger
```

Attribution statement: (choose only one and delete the rest)

```
# 1. I did this homework by myself, with help from the book and the professor.

# I also used these internet resources to help with Shiny Code Block below
#https://mastering-shiny.org/action-graphics.html
#https://stackoverflow.com/questions/54944804/scatterplot-in-shiny
#https://towardsdatascience.com/beginners-guide-to-creating-an-r-shiny-app-1664387d95b3
#https://www.youtube.com/watch?v=LnmMPm1lTAg&t=37s
#https://www.youtube.com/watch?v=76E59V1Wke0
#https://www.r-bloggers.com/2021/04/the-anatomy-of-a-shiny-application/
```

At a high level, we want to create a scatter plot, where the user can select what is the x axis and the y axis of the scatter plot. We will use the same dataset as used in our first ggplot homework.

The size and color will be represented by the year attribute, and the user will be able to choose one of the following (for the x and the y axis): new_sp_m014 new_sp_f014 new_sp_m65 new_sp_f65

```
library(dbplyr)
library(tidyverse)
```

Read in the same dataset we used for the ggplot homework

The file is: "https://intro-datascience.s3.us-east-2.amazonaws.com/who.csv (https://intro-datascience.s3.us-east-2.amazonaws.com/who.csv)" and store it in the *tb* dataframe

```
tb <- read.csv("https://intro-datascience.s3.us-east-2.amazonaws.com/who.csv")
```

Clean up the dataset, just like we did in the ggplot homework.

First, remove na's from iso2

```
tb <- tb[!is.na(tb$iso2),]
```

Now create the dataframe 'tbCan', which is the iso2 for canada (CA)

```
tbCan <- subset(tb, tb$iso2 =='CA')
```

We will need the imputeTS package (only install if needed)

```
#install.packages('imputeTS')
library(imputeTS)
```

Now we can use 'na_interpolation for new_sp_m014

```
tbCan$new_sp_m014 <- na_interpolation(tbCan$new_sp_m014)
```

Shiny App - I combined everything into one cell to make it easier for me to catch mistakes/problems and my ADHD couldnt handle the mutiple code

blocks

```r
library(shiny)
library(ggplot2)


ui <- fluidPage(

    titlePanel("Select from Choices Below"),
    sidebarLayout(
        sidebarPanel(
          selectInput(inputId = "x_axis",
                        label = "Select X-axis Variable:",
                        choices = list("new_sp_m014","new_sp_f014", "new_sp_m65","new_sp_f65")),
          selectInput(inputId = "y_axis",
                        label = "Select Y-axis Variable:",
                        choices = list("new_sp_m014","new_sp_f014","new_sp_m65","new_sp_f65")) ,
          selectInput(inputId = "Color",
                        label = "Color",
                        choices = as.list(c("year")))),

        mainPanel(
            plotOutput("distPlot")
        )
    )
)

server <- function(input, output) {

    output$distPlot <- renderPlot({

      final <- tbCan[ ,c(input$x_axis,input$y_axis,input$Color)]
      final[,3] <- as.factor(final[,3])
      ggplot(data = final, aes(x=final[,1],y=final[,2],color=final[,3]))+
      geom_point()+
      labs(x=colnames(final)[1], y=colnames(final)[2],
      color=colnames(final)[3],
      title = ("Scatter Plot of WHO CSV File "))


    })

}
```

Now run the shiny App

```r
# Run the application
shinyApp(ui = ui, server = server)
```

Select X-axis Variable:

new_sp_m65 ▼

Select Y-axis Variable:

new_sp_m014 ▼

Color

year ▼

Scatter Plot of WHO CSV File

year

● 1980 ● 1995

● 1981 ● 1996