Classwork

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Thursday: Basics of R Shiny

Yesterday's Questions

HW1 How many games in MJ win and lose by division? How many games in MJ win and lose by conference?

HW2 How many games in LJ win and lose by division? How many games in LJ win and lose by conference?

HW3 How many games did each player's team win by more than 10 points?

HW4 Which division was the toughest to play for each player's team? (*Define tough as the average point difference.*) Create a new variable based on this rank and plot how did this player perform in terms *GmSc*.

HW5 - 7 Create three plots based variables that you believe will have a relationship. Use variables that make sense in the context in basketball. Make sure to label the x and y axes as well as the title. Make sure the title is centered. What pattern do you notice in this plot?

Today's Questions

Q1. Create a snippet

Steps:

1. Go to *Tools* → *Global Options…*
2. Code Tab on the right
3. Edit Snippet
4. Scroll to the bottom
5. Define a new snippet named *sc_plot* based on the above examples
6. Tab enter the code under the name

```
df %>%
 ggplot(aes(x = , y = )) +
 geom_point(size = 2, color = 'red') +
 theme_bw() +
 labs(x = '', y = '', title = '') +
 theme(hjust = 0.5)
```

7. Test it out (Make Sure tidyverse is loaded)

Q2. Create a snippet for a blank R Shiny app. Blank in that you have Select Input Widget and a display text display.

```
library(shiny)
# Define UI for application that draws a histogram
ui <- fluidPage(
  # Change title
  titlePanel("Snippet"),
  # Sidebar with a slider input for number of bins
  sidebarLayout(
    sidebarPanel(
      selectInput("user_input",
                  label = h3("Select"),
                  choices = list("Choice 1" = 1,
                                 "Choice 2" = 2,
                                 "Choice 3" = 3),
                  selected = 1) ,
    ),
      # Show Text
      mainPanel(
        verbatimTextOutput("textoutput_1")
      )
    )
  )
)
server <- function(input, output) {
  output$textoutput_1 <- renderPrint({
    paste0('User Selected: ',input$user_input)
  })
}
# Run the application
shinyApp(ui = ui, server = server)
```

Test this out in a new R file. Select all lines and run it.

Q3. Create an R Shiny that is a Temperature Units Converter. Allow the R Shiny to convert Fahrenheit to Celsius. If the user put 97 degrees Fahrenheit, the text output should be 'The temperature in Celsius is: 36.1111'. Plan out a course of action. Use the Numeric Input (example below) to allow the user to input data.

```
numericInput("num", label = h3("Numeric input"), value = 1)
```

Conditional R Shiny Statements

Conditional R Shiny Statements allow you to make widgets appear based on the selection of another widget.

```
 conditionalPanel(
        condition = "input.feelings == 'Happy'",
        selectInput("weather", label = h3("What is the weather?"),
                    choices = list("Just Right" = "Just Right", "Cold" =
"Cold", "Hot" = "Hot"),
                    selected = "Cold")
      )
```

The above code is placed right after the *feeling* widget but a comma must separate both functions.

Combine String Function

The paste0 function allows you to paste text together.

```
paste0("Happy go,", " Lucky")

## [1] "Happy go, Lucky"

var1 = "If you wish upon a star"
var2 = "you can go very far"
paste0(var1,", where are the stars ", var2)

## [1] "If you wish upon a star, where are the stars you can go very far"
```

Q4. Create a new R file. We will create a feeling's R Shiny that tries to diagnose your feelings.

User Input –

The First Question the R Shiny will ask the user is "How do you feel?".

You will provide the user with 3 options:

'Happy', 'Sad', 'Mad'

- If you feel 'Happy' it is going to ask: "What is the weather?". You will provide the user with 3 options: 'Just Right', 'Cold', 'Hot'

- If you feel 'Sad', the R Shiny will ask: "How much sleep did you have last night?" You will provide the user with 3 options: 'Less than 8 hours', 'Around 8 hours', 'More than 8 hours'

- If you feel 'Mad', the R Shiny will ask: "What did you eat for breakfast?" You will provide the user with 3 options: 'Eggs', 'Pancakes', 'Nothing'

Server –

Conditional If Statements in the

- If the user felt Happy, the text should say 'I feel ___ because the weather is ___'

- If the user felt Mad, the text should say 'I feel ___ because I slept ___'

- If the user felt Sad, the text should say 'I feel ___ because I ate ___'

Q4. Create a new R file. Create a conditional R Shiny to either convert Miles to Kilometers (Distance), Pounds to Kilograms (Weight) or Inches to Millimeters (Height). Plan this out.

Q5. Create a new R file. Create another conditional R Shiny that will allow you to convert in both ways. For example, to either convert miles to kilometers or kilometers to miles. Plan this out.

Q6. Lets brain storm together and create a simple R Shiny base on your interest. We will have 15 minutes to do this.

What are stocks?

Stock of a corporation, is all of the shares into which ownership of the corporation is divided. (Wikipedia)

Q7. Install the package 'tidyquant'.

Q8. Lets Explore the basics of tidyquant. What is needed for me to run the function below that is found in *tidyquant*?

```
getSymbols(Symbols = "AMZN", ## Various stock options
                       src = "yahoo", ## or google
                       from = "2007-01-01",
                       to = "2020-01-01")
```

Q9. Plot line of AMZN

Q10. Create a R shiny using tidyquant data to display a line plot of either Google Stock, Apple Stock or Amazon Stock. Give the user the ability to display either high or low. Allow the user the ability to specify the date interval as well