Worksheet 20 - Shiny

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DS 002R - Jo Hardin

Name: _____

Names of people you worked with: _____

What is your favorite flavor of ice cream? Cup or cone? Hot fudge sundae? Milkshake? Banana split? Root beer float?

Task:

Consider a Shiny App that builds a custom ice cream cone. Create the following elements that would be used in the Shiny App:

UI elements (inputs) include:

- flavor (dropdown menu of flavors)
- toppings (checkbox)
- serving style (radio button to choose between cup or cone)
- size in oz (slider)

Server

- Prints a statement repeating the order
- Calculates the price: \$0.10 per oz and \$0.50 per topping
- Draws a picture of an ice-cream cone (pretend there are functions called `geom_cone()`, `geom_scoop()` and `geom_toppings()`)

Solution:

```
library(shiny)

# UI
ui <- fluidPage(
  titlePanel("Ice Cream Order App"),

  sidebarLayout(
    sidebarPanel(
      selectInput(
        inputId = "flavor",
        label = "Select a flavor:",
        choices = c("vanilla", "chocolate", "strawberry", "mint"),
        selected = "vanilla"
      ),
      checkboxGroupInput(
        inputId = "toppings",
        label = "Choose your toppings:",
        choices = c("sprinkles", "whipped cream", "nuts", "cherries")
      ),
      radioButtons(
        inputId = "serving_style",
        label = "Serving Style:",
        choices = c("cup", "cone"),
        selected = "cone"
      ),
      sliderInput(
        inputId = "size",
        label = "Select size (in oz):",
        min = 4,
        max = 16,
        value = 8
      )
    ),

    mainPanel(
      textOutput("order_summary"),
      textOutput("order_price"),
      plotOutput("ice_cream_plot", height = "300px")
    )
  )
)
```

```
# Server
server <- function(input, output) {

  # Generate order summary
  output$order_summary <- renderText({
    toppings_selected <- if (is.null(input$toppings) || length(input$toppings) == 0) {
      "no toppings"
    } else {
      paste(input$toppings, collapse = ", ")
    }
    paste0(
      "You ordered a ", input$size, "oz ",
      input$flavor, " ice cream in a ", input$serving_style,
      " with ", toppings_selected, "."
    )
  })

  # Calculate total price
  output$order_price <- renderText({
    base_price <- input$size * 0.10  # $0.10 per oz
    topping_price <- ifelse(is.null(input$toppings), 0,
                            length(input$toppings) * 0.50)
    total_price <- base_price + topping_price
    paste0("Total price: $", round(total_price, 2))
  })

  # Draw ice cream cone
  output$ice_cream_plot <- renderPlot({
      ggplot(data = NULL) +
      geom_cone(type = input$serving_style) +
      geom_scoop(color = input$color, size = input$size) +
      if (!is.null(input$toppings)) {
        NULL +   # not sure if this would work
      } else {
        for(i in length(input$toppings)){
        geom_toppings(color = input$toppings) + }
      }
      labs(title = "Your Ice Cream!")

  })

# Run the app
```

```
shinyApp(ui, server)
```