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20BDS0374
DATA VISUALIZATION AND PRESENTATION
DIGITAL ASSIGNMENT 2

QUESTION:

Use the 'shiny' module in R to create an interactive dashboard for the dataset assigned to you.

CODE:

```
library(shiny)
library(tidyverse)

# Load the data
df <- read.csv("VehicleFailureData.csv")

# Remove commas and convert Mileage_at_Failure to numeric
df$Mileage_at_Failure <- as.numeric(gsub(",", "", df$Mileage_at_Failure))

# Define UI
ui <- fluidPage(
  titlePanel("Vehicle Failure Data"),
  sidebarLayout(
    sidebarPanel(
      selectInput(inputId = "state",
                  label = "Select State:",
                  choices = unique(df$State),
                  selected = "CA"),
      sliderInput(inputId = "mileage",
                  label = "Mileage Range:",
                  min = 0,
                  max = 50000,
                  value = c(10000, 30000)),
      checkboxInput(inputId = "failed",
                    label = "Show Failed Vehicles Only",
                    value = FALSE),
      hr(),
      helpText("Created by Afraaz Hussain (Admission Number: 20BDS0374)")
    ),
    mainPanel(
      plotOutput(outputId = "scatterplot"),
      tableOutput(outputId = "table")
    )
  )
)

# Define server
server <- function(input, output) {

  # Filter data based on inputs
```

```
  filteredData <- reactive({
    df %>%
      filter(State == input$state,
             Mileage_at_Failure >= input$mileage[1],
             Mileage_at_Failure <= input$mileage[2]) %>%
      if(input$failed) filter(Failure_Month > 0) else .
  })

  # Scatter plot
  output$scatterplot <- renderPlot({
    ggplot(filteredData(), aes(x = Mileage_at_Failure, y = Labor_Cost)) +
      geom_point()
  })

  # Table
  output$table <- renderTable({
    filteredData() %>%
      select(Vehicle_Number, State, Failure_Month, Mileage_at_Failure,
Labor_Cost) %>%
      head(10)
  })
}

# Run the app
shinyApp(ui = ui, server = server)
```

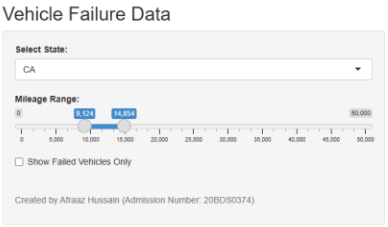
DESCRIPTION:

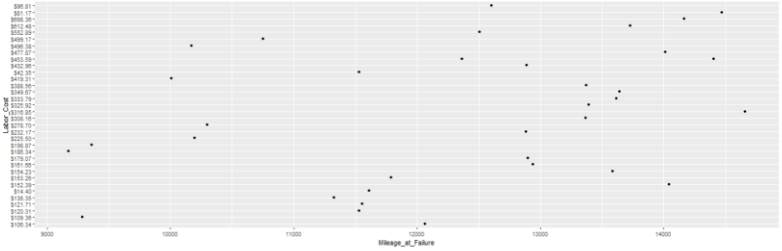
- Numeric Input: *min_mileage* and *max_mileage* - These filters allow the user to specify a minimum and maximum mileage for filtering the data. The app will only show records that have a mileage value within this range.
- Numeric Input: *min_labor_hours* and *max_labor_hours* - These filters allow the user to specify a minimum and maximum labor hours for filtering the data. The app will only show records that have a labor hours value within this range.
- Numeric Input: *min_labor_cost* and *max_labor_cost* - These filters allow the user to specify a minimum and maximum labor cost for filtering the data. The app will only show records that have a labor cost value within this range.
- Numeric Input: *min_material_cost* and *max_material_cost* - These filters allow the user to specify a minimum and maximum material cost for filtering the data. The app will only show records that have a material cost value within this range.
- Select Input: state - This filter allows the user to select a specific state to filter the data by. The app will only show records that belong to the selected state.
- Checkbox Input: *show_summary_stats* - This widget allows the user to toggle the display of summary statistics on or off. If checked, the app will show summary statistics for the current filtered dataset.

- DataTable Output: *vehicle_table* - This output displays the current filtered dataset in a tabular format, with columns for each of the variables in the dataset.
- VerbatimTextOutput: *summary_stats* - This output displays the summary statistics for the current filtered dataset, if the *show_summary_stats* checkbox is checked.

OUTPUT:

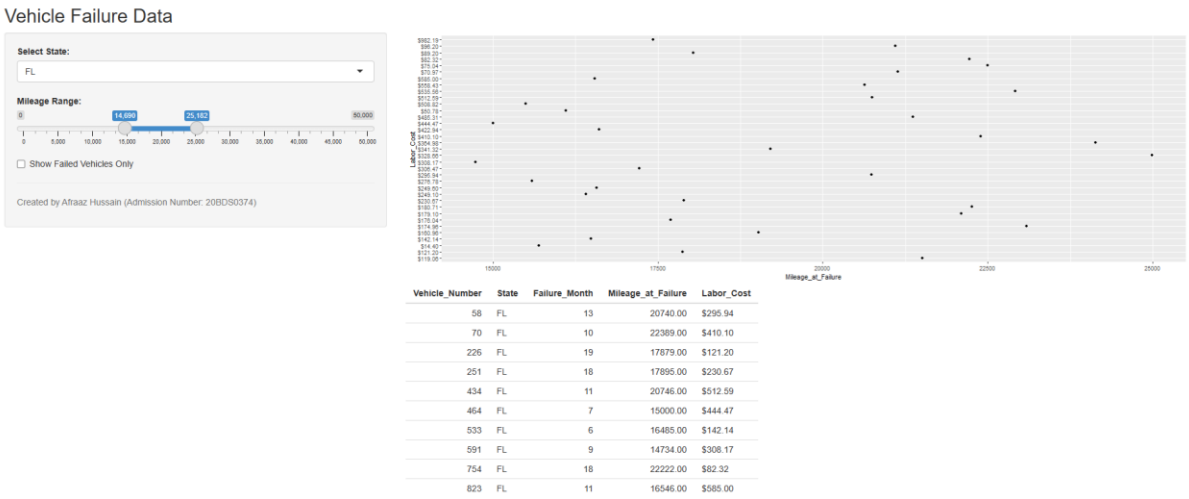
- All the vehicles in CA, with a mileage from 9,124 to 14, 854:





Vehicle_Number	State	Failure_Month	Mileage_at_Failure	Labor_Cost
48	CA	15	13394.00	$325.92
95	CA	11	11558.00	$121.71
218	CA	15	13369.00	$308.16
313	CA	9	14660.00	$316.85
319	CA	13	11612.00	$14.40
332	CA	21	10012.00	$419.31
358	CA	20	14469.00	$81.17
369	CA	10	11788.00	$153.26
441	CA	14	13371.00	$388.56
444	CA	8	9364.00	$198.87

- All the vehicles in FL, with a mileage from 14,690 to 25,182:



Vehicle_Number	State	Failure_Month	Mileage_at_Failure	Labor_Cost
58	FL	13	20740.00	$295.94
70	FL	10	22389.00	$410.10
226	FL	19	17879.00	$121.20
251	FL	18	17895.00	$230.67
434	FL	11	20746.00	$512.59
464	FL	7	15000.00	$444.47
533	FL	6	16485.00	$142.14
591	FL	9	14734.00	$308.17
754	FL	18	22222.00	$82.32
823	FL	11	16546.00	$585.00

LINK TO THE DASHBOARD CODE:

https://github.com/iamafraazhussain/NULL-VOID/blob/main/Data%20Visualization%20and%20Presentation/Digital%20assignment%202/Digital%20assignment%202.R