

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:

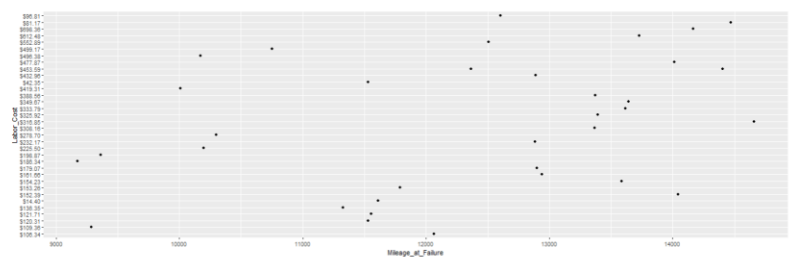
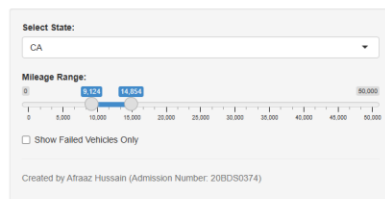
- Numeric Input: *min_mileage* and *max_mileage* - These filters allow the user to specify a minimum and maximum mileage for filtering the data. The app will only show records that have a mileage value within this range.
- Numeric Input: *min_labor_hours* and *max_labor_hours* - These filters allow the 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:

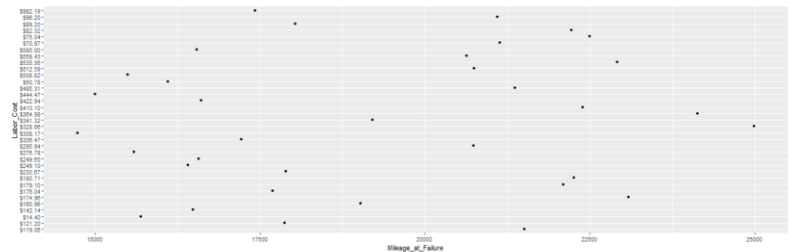
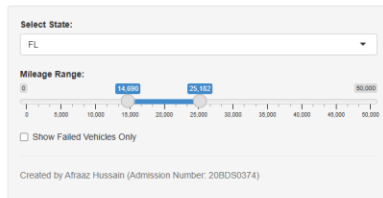
Vehicle Failure Data



| 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 Failure Data



| 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%20assignments/Digital%20assignment%202/Digital%20assignment%202.R>