

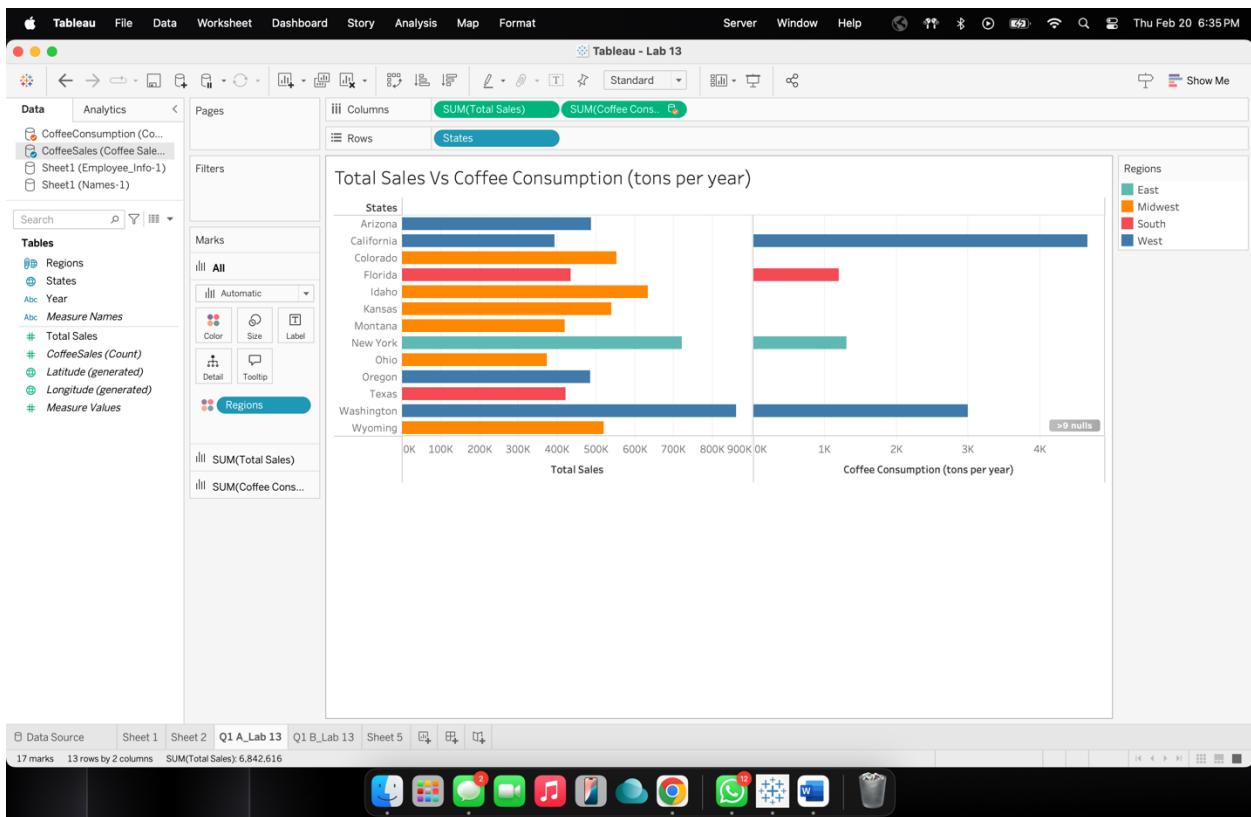
IE 5390 – Assignment - 07

Name: Simran Abhay Sinha

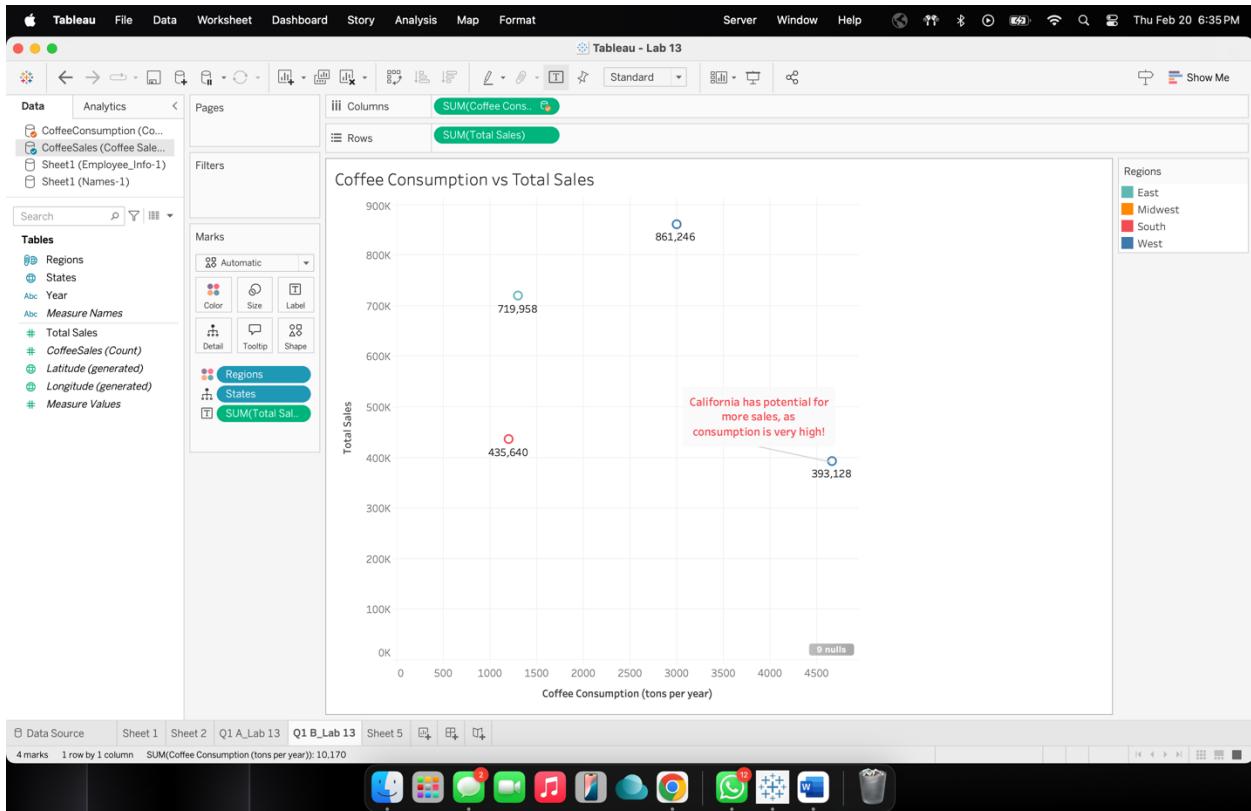
Lab 13

1. Use the Tableau workbook that we have created in class. Data from two different sources have been blended in the in-class exercise. Do the following:

- a. Create a bar chart like the one below. The description provided under the plot gives information on what data is to be used.



b. Create a plot of Coffee Consumption vs Total Sales. Distinguish regions by colors and annotate the point on the plot for the state of California as shown below.



2. Load the “Employee_Data.xlsx” file into Tableau. The Data consists of three columns, Employee Name, Department and Age. Use the SPLIT() function to split the Employee Name into First Name and Last Name. You must use the SPLIT() function in a the Split/Custom Split from the Menu. calculated field to achieve this, and not

The screenshot shows the Tableau interface with the following details:

- Data Source:** Employee_Data.xlsx
- Sheet:** Q2_Lab 13
- Table:** Customer Name
- Marks:** SUM(Age)
- Calculated Field:** Customer Name - Split 2 (highlighted in blue)
- Calculation Dialog:**

```
TRIM( SPLIT( [Customer Name], " ", 2 ) )
```

The calculation is valid.

Employee Name	First Name	Last Name	Age
Catherine Monroe	Catherine	Monroe	44
Chris Lowell	Chris	Lowell	23
Mike Lee	Mike	Lee	51
Olivia Rodriguez	Olivia	Rodriguez	49
Paula Kitter	Paula	Kitter	25
Roger Ibanez	Roger	Ibanez	32
Tim Walker	Tim	Walker	35

The screenshot shows the Tableau interface with the following details:

- Data Source:** Employee_Data.xlsx
- Sheet:** Q2_Lab 13
- Table:** Customer Name
- Marks:** SUM(Age)
- Calculated Field:** Customer Name - Split 1 (highlighted in blue)
- Calculation Dialog:**

```
TRIM( SPLIT( [Customer Name], " ", 1 ) )
```

The calculation is valid.

Employee Name	First Name	Last Name	Age
Catherine Monroe	Catherine	Monroe	44
Chris Lowell	Chris	Lowell	23
Mike Lee	Mike	Lee	51
Olivia Rodriguez	Olivia	Rodriguez	49
Paula Kitter	Paula	Kitter	25
Roger Ibanez	Roger	Ibanez	32
Tim Walker	Tim	Walker	35

Tableau - Lab 13

Server Window Help Mon Feb 24 9:40 PM

Data Analytics

CoffeeConsumption (Co...) CoffeeSales (Coffee Sale...) Sheet1 (Employee_Data...) Sheet1 (Employee_Info-1) Sheet1 (Multiple Connec...) Sheet1 (Names-1)

Search

Tables

Abc Department
Abc Employee Name
Abc First Name
Abc Last Name
Abc Measure Names

Age
Sheet1 (Count)
Measure Values

Pages

Filters

Marks

Automatic

Color Size Text Detail Tooltip

SUM(Age)

Split- Employee Name

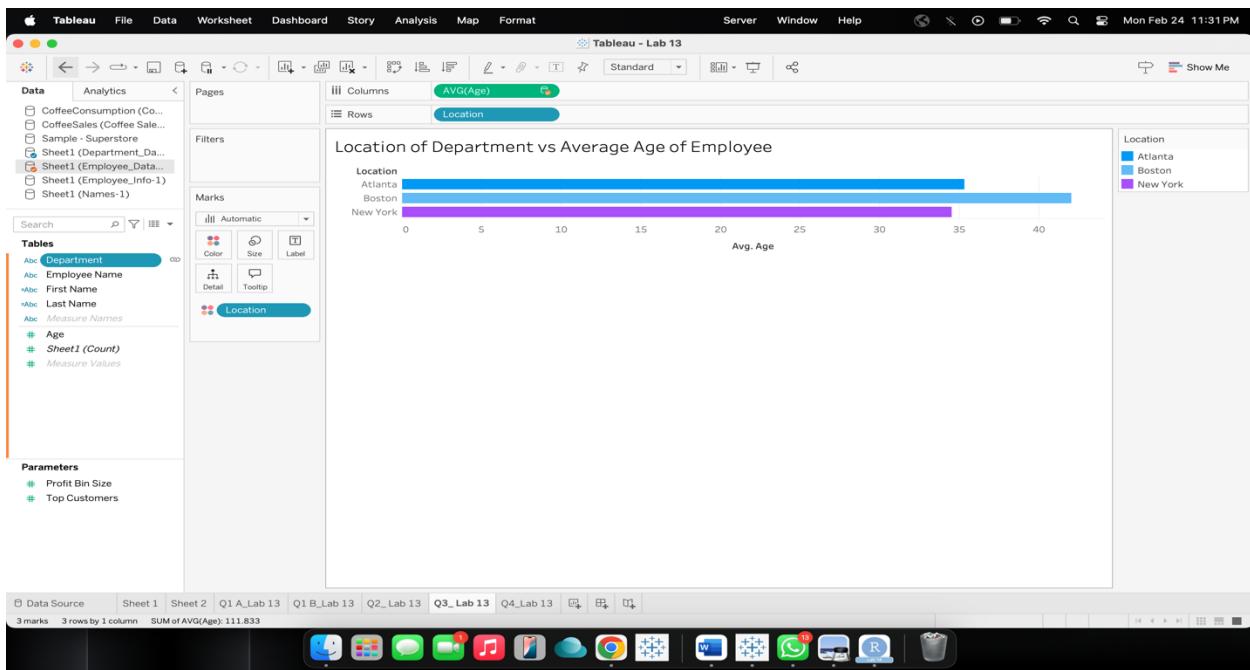
Employee Name	First Name	Last Name	
Catherine Monroe	Catherine	Monroe	44
Chris Lowell	Chris	Lowell	23
Mike Lee	Mike	Lee	51
Olivia Rodriguez	Olivia	Rodriguez	49
Paula Kiltner	Paula	Kiltner	25
Roger Ibanez	Roger	Ibanez	32
Tim Walker	Tim	Walker	35

Data Source Sheet 1 Sheet 2 Q1_A_Lab_13 Q1_B_Lab_13 Q2_Lab_13 Q3_Lab_13 Q4_Lab_13 Sheet 8

7 marks 7 rows by 1 column SUM(Age): 259

3. Load the “Department_Data.xlsx” file into Tableau. Blend the Department_Data.xlsx with the Employee_Data.xlsx. The link between the two data sources will be based on the Department attribute. Note that you may have to establish a link between the two data sources

Create a Bar Chart that shows the Location of Department vs Average Age of Employees. Note that these two fields are from two different data sources, Department_Data.xlsx and Employee_Data.xlsx respectively.

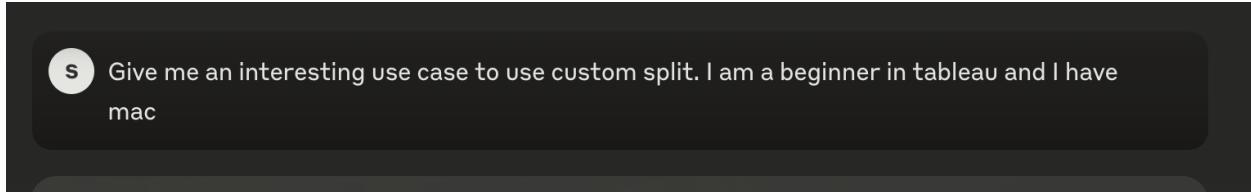


4. Gen AI Prompt Engineering

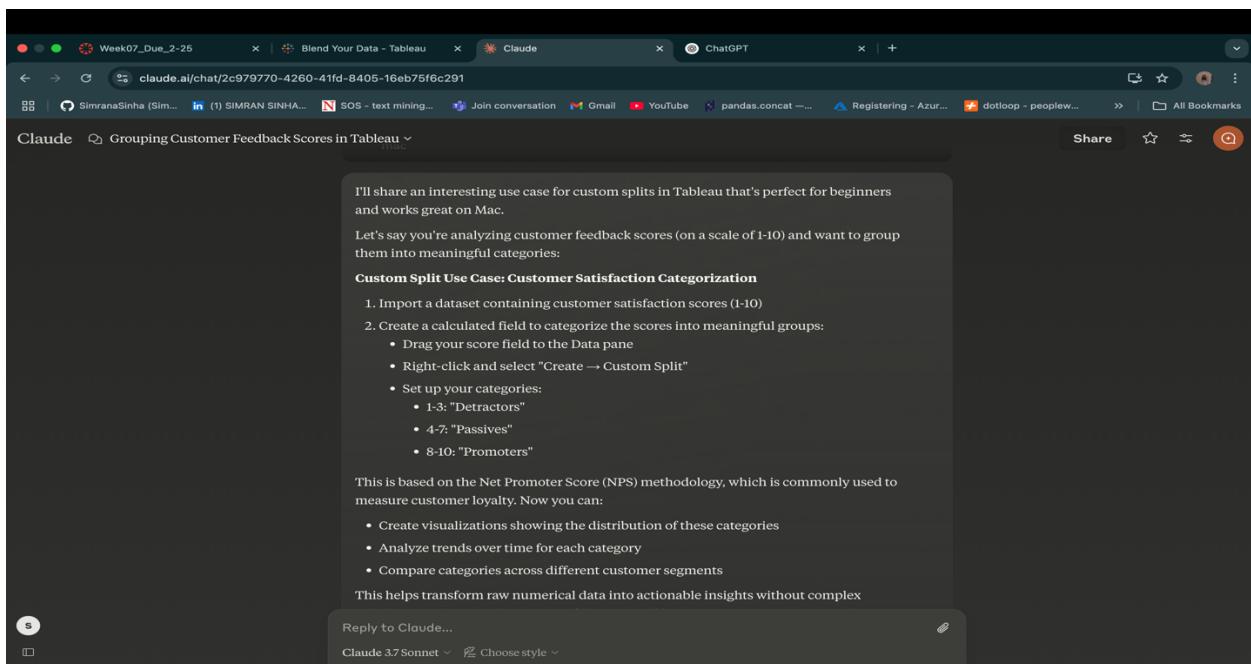
Ask your AI bot to find interesting use case to export data from tableau after some visualization. OR ask your AI bot to find an interesting use case to use custom split.

I am using Claude.ai and ChatGPT

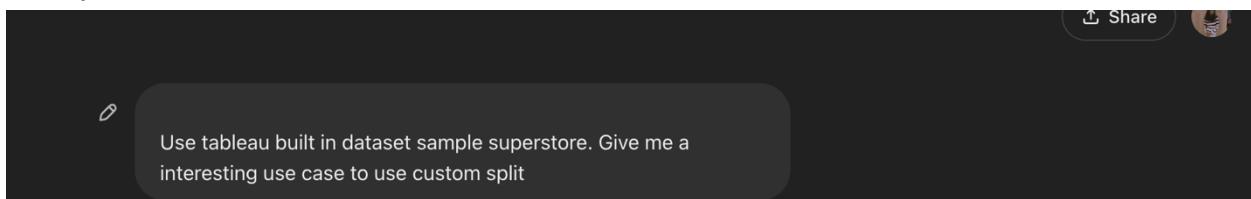
Prompt:



Gen AI:



Prompt:



Gen AI:

An interesting use case for using **Custom Split** in Tableau with the built-in **Sample - Superstore** dataset is to break down the "Customer Name" field to analyze purchasing behavior at a more granular level.

Use Case: First-Time vs. Returning Customer Analysis

Objective:
Analyze sales trends by first name to identify repeat customers and determine if specific names have higher sales contributions.

Steps:

1. Split "Customer Name" into First and Last Name
 - Go to the "Customer Name" field, right-click, and select Transform → **Custom Split**
 - Choose space (" ") as the delimiter
 - Choose **Split off first** to extract only the First Name
2. Analyze Sales Trends by First Name
 - Drag First Name to Rows
 - Drag Sales to Columns
 - Sort descending to see which first names contribute the most to total sales
3. Identify Repeat Customers by First Name

Ask anything

ChatGPT can make mistakes. Check important info.

- Count Distinct Customer IDs per First Name to see which names have more repeat customers.
- Create a calculated field:

```
SCSS
COUNTD([Customer ID])
```

 - If a first name has a high number of unique Customer IDs but low total sales, it may indicate more new customers but lower purchase amounts.

4. Visualize Insights

- Use a bar chart to show top first names by total sales.
- Use a scatter plot (Sales vs. CountD(Customer ID)) to see if certain first names have repeat purchases.

Why This is Useful?

- Helps in **targeted marketing** (e.g., sending personalized promotions based on common customer names).
- Identifies patterns among frequent customers.
- Can be combined with location analysis (e.g., repeat customers with certain first names clustered in specific regions?)

Ask anything

ChatGPT can make mistakes. Check important info.

Solution in Tableau:

Tableau - Lab 13

Mon Feb 24 10:07 PM

Data

- CoffeeConsumption (Co...)
- CoffeeSales (Coffee Sale...)
- Sample : Superstore
- Sheet1 (Employee_Data...)
- Sheet1 (Employee_Info-1)
- Sheet1 (Multiple Connec...)
- Sheet1 (Multiple Connec...)
- Sheet1 (Names-1)

Tables

Orders

- Customer Name
- Customer Name - Split 1
- Customer Name - Split 2
- Location
- Order Date
- Order ID
- Product
- Profit (bin)
- Segment
- Ship Date
- Ship Mode
- Top Customers by Profit
- Discount
- Profit
- Quantity
- Sales
- Orders (Count)

Parameters

- Profit Bin Size
- Top Customers

Marks

- Automatic
- Color
- Size
- Text
- Detail
- Tooltip

Sheet 9

Customer N. Customer Name Customer Nam..

Customer N.	Customer Name	Customer Nam..	
Aaron	Aaron Bergman	Bergman	886
	Aaron Hawkins	Hawkins	1,745
	Aaron Smayling	Smayling	3,051
Adam	Adam Bellavance	Bellavance	7,756
	Adam Hart	Hart	3,250
	Adam Shillingsburg	Shillingsburg	3,255
Adrian	Adrian Barton	Barton	14,474
	Adrian Hane	Hane	1,736
	Adrian Shami	Shami	59
Aimee	Aimee Bixby	Bixby	967
Alan	Alan Barnes	Barnes	1,215
	Alan Dominguez	Dominguez	6,107
	Alan Haines	Haines	1,587
	Alan Hwang	Hwang	4,805
	Alan Schoenberger	Schoenberger	4,261
	Alan Shonely	Shonely	585
Alejandro	Alejandro Ballentine	Ballentine	915
	Alejandro Grove	Grove	2,720
	Alejandro Savely	Savely	3,214
Aleksandra	Aleksandra Gannaway	Gannaway	368
Alex	Alex Avila	Avila	5,564
	Alex Grayson	Grayson	661
	Alex Russell	Russell	1,073
Alice	Alice McCarthy	McCarthy	814
Alien	Allen Arnold	Arnold	1,056
	Allen Goldenen	Goldenen	201
	Allen Rosenblatt	Rosenblatt	2,236
Alyssa	Alyssa Crouse	Crouse	926
	Alyssa Tate	Tate	1,172

800 marks 800 rows by 1 column SUM(Sales): 2,326,534

Lab 14

This lab consists of 3 questions that have a few sub questions. You are required to create an R Notebook that answers all the questions. Add explanations and comments wherever required.

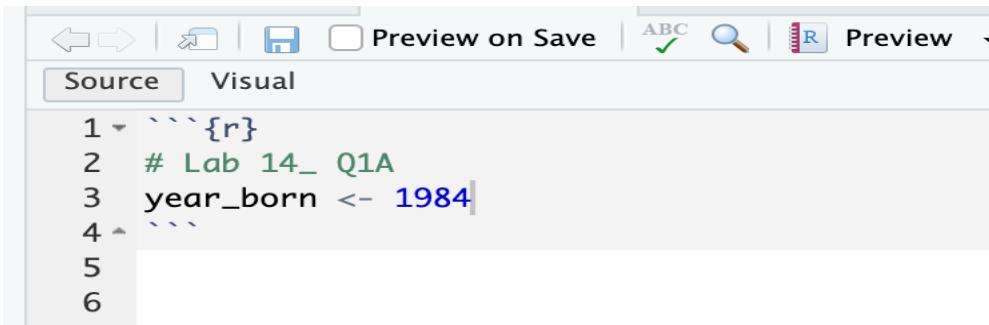
Question 1:

Compute the following:

1. Complete the following:

a. assign a variable year_born to 1984

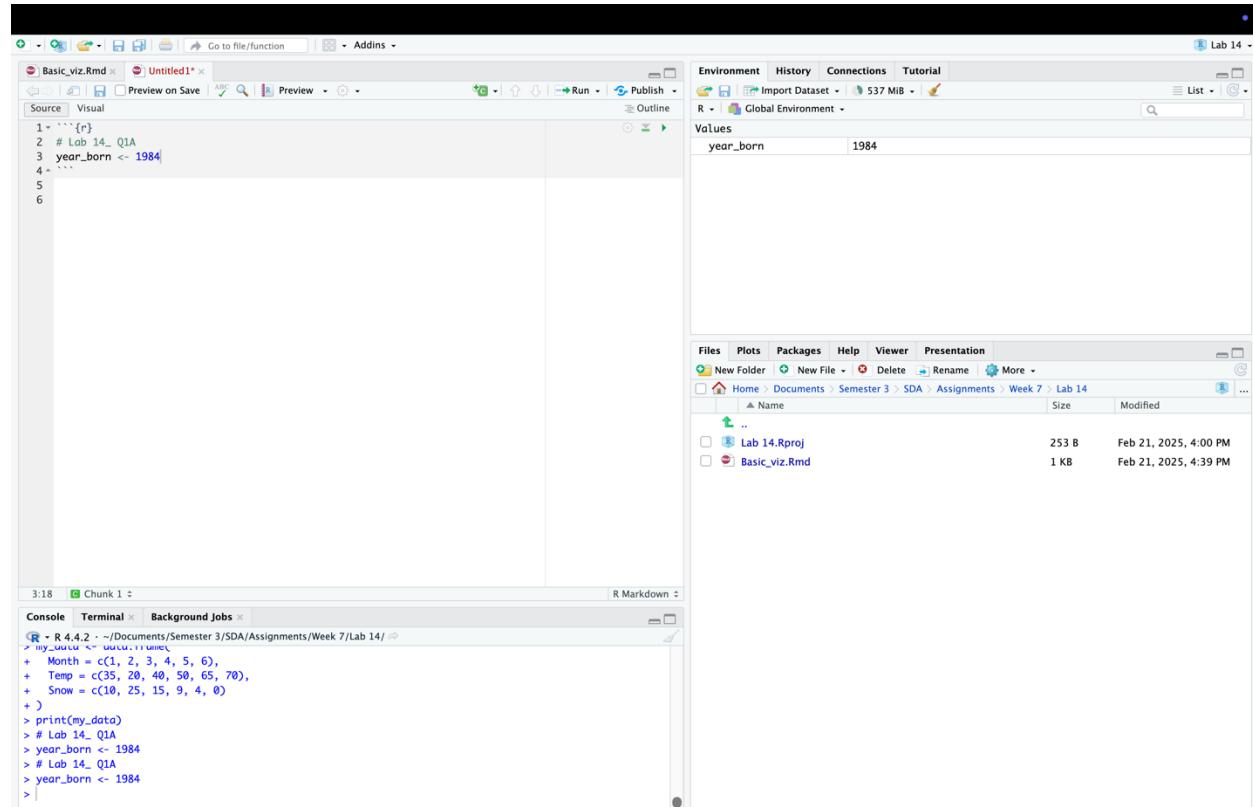
Code:



```

1 ~ ``{r}
2 # Lab 14_ Q1A
3 year_born <- 1984
4 ~``
```

Output:



The screenshot shows the RStudio interface with the following components visible:

- Source View:** Displays the R code for Question 1.
- Environment View:** Shows the variable `year_born` assigned the value `1984` in the Global Environment.
- Files View:** Shows the project structure with files `Lab 14.Rproj` and `Basic_viz.Rmd`.
- Console View:** Displays the R session history, including the assignment of `year_born` to `1984` and the printing of `my_data`.

b. assign a variable year_current to 2025

Code:

```

5
6 ``{r}
7 # Lab 14_Q1B
8 current_year <- 2025
9 ``
10

```

Output:

The screenshot shows the RStudio interface with the following sections:

- Code Editor (Source tab):** Displays the R code provided in the question.
- Environment pane:** Shows the variables defined:

current_year	2025
year_born	1984
- Files pane:** Lists the project files:

Lab 14.Rproj	253 B	Feb 21, 2025, 4:00 PM
Basic_viz.Rmd	1 KB	Feb 21, 2025, 4:39 PM
- Console pane:** Shows the R session output:

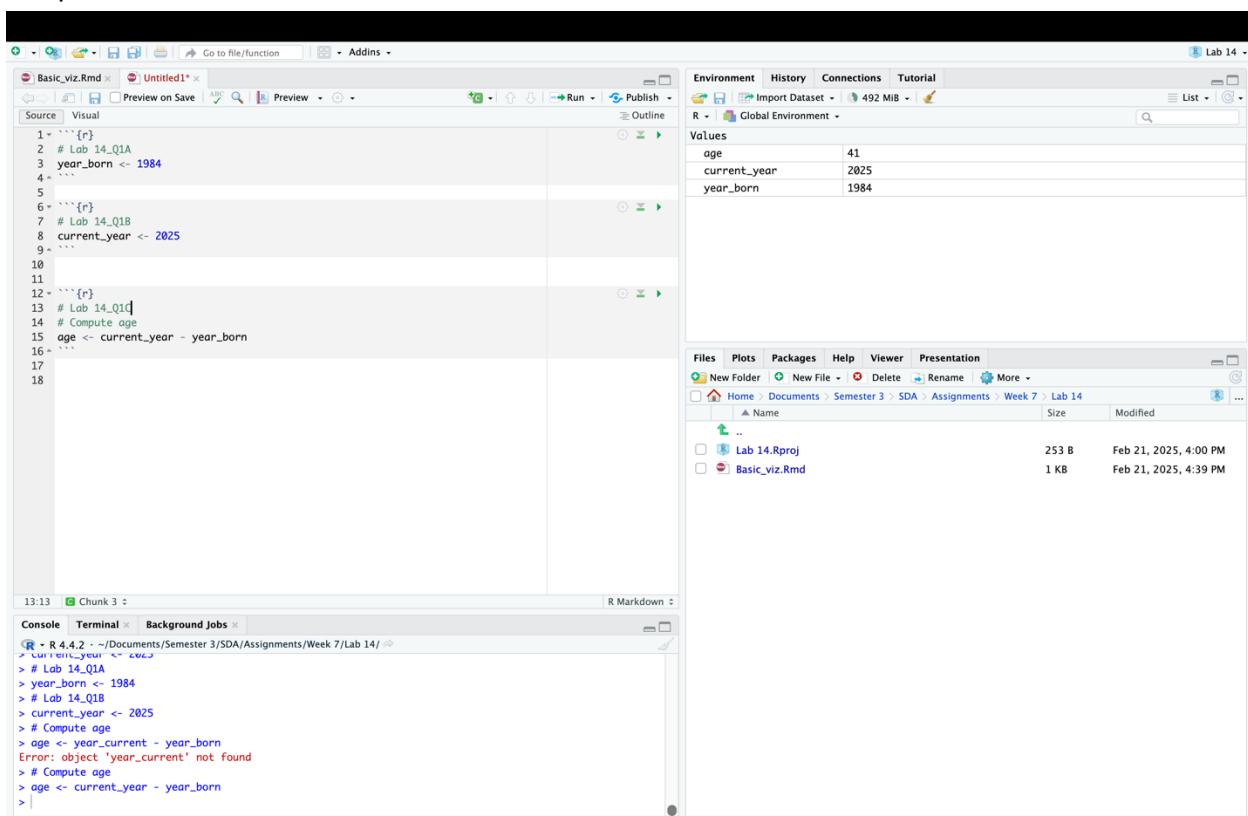

```
R - R 4.4.2 - ~/Documents/Semester 3/SDA/Assignments/Week 7/Lab 14/
> ``{r}
> current_year <- 2023
> # Lab 14_Q1C
> age <- 24
> # Lab 14_Q1B
> current_year <- 2025
> # Lab 14_Q1A
> year_born <- 1984
> # Lab 14_Q1B
> current_year <- 2025
> |
```

c. assign a variable age and compute it

Code:

```
11  
12 - ````{r}  
13 # Lab 14_Q10|  
14 # Compute age  
15 age <- current_year - year_born  
16 ````  
17  
18
```

Output:



d. return True / False if person is eligible to vote in US (if age is greater than or equal to 18)

Code:

```

18
19 - ````{r}
20 # Lab 14_Q1D
21 # Check voting eligibility
22 is_eligible_to_vote <- age >= 18
23
24 # Output results
25 age
26 is_eligible_to_vote
27 ````
```

```
[1] 41
[1] TRUE
```

Output:

The screenshot shows the RStudio interface with the following sections:

- Code Editor:** Displays the R code for Lab 14_Q1D.
- Environment:** Shows the global environment variables:

age	41
current_year	2025
is_eligible_to_vote	TRUE
year_born	1984
- Files:** Shows the project structure:

Lab 14.Rproj	253 B	Feb 21, 2025, 4:00 PM
Basic_viz.Rmd	1 KB	Feb 21, 2025, 4:39 PM
- Console:** Displays the R session output:


```
R > age <- current_year - year_born
> # Lab 14_Q1D
> # Check voting eligibility
> is_eligible_to_vote <- age >= 18
>
> # Output results
> age
[1] 41
> is_eligible_to_vote
[1] TRUE
>
```

2. Given: went to lunch and pre-tax bill was \$45.90

Code:

```

30 ````{r}
31 # Lab 14_Q1-2
32 # Given pre-tax bill
33 pre_tax_bill <- 45.90
34 ````
```

Output:

The screenshot shows the RStudio interface with the following sections:

- Code Editor (Source tab):** Displays the R code provided in the question.
- Environment pane:** Shows the global environment variables:

age	41
current_year	2025
is_eligible_to_vote	TRUE
pre_tax_bill	45.9
year_born	1984
- File Browser (Files tab):** Lists files in the project directory:

Name	Size	Modified
Lab 14.Rproj	253 B	Feb 21, 2025, 4:00 PM
Basic_viz.Rmd	1.1 KB	Feb 21, 2025, 4:53 PM
Lab14_Q1.Rmd	360 B	Feb 21, 2025, 4:52 PM
- Console:** Shows the R session history:


```
R 4.4.2 : ~ /Documents/Semester 3/SDA/Assignments/Week 7/Lab 14/ 
> # Lab 14_Q1-2
> # Given pre-tax bill
> pre_tax_bill <- 45.90
> |
```

a. compute subtotal: add City of Boston tax of 8.875%

Code:

```

35
36 - ``{r}
37 # Lab 14_Q1-2A
38 # Compute subtotal with Boston tax (8.875%)
39 tax_rate <- 8.875 / 100
40 subtotal <- pre_tax_bill * (1 + tax_rate)
41 -
42

```

Output:

The screenshot shows the RStudio interface with the following sections:

- Code Editor (Source tab):** Displays the R code for Lab 14_Q1.Rmd, specifically the section for computing subtotal.
- Environment pane:** Shows the values assigned in the R session:

pre_tax_bill	45.9
subtotal	49.973625
tax_rate	0.08875
- Files pane:** Lists the files in the project directory:

Name	Size	Modified
Lab 14.Rproj	253 B	Feb 21, 2025, 4:00 PM
Basic_viz.Rmd	1.1 KB	Feb 21, 2025, 4:53 PM
Lab14_Q1.Rmd	360 B	Feb 21, 2025, 4:52 PM
- Console:** Shows the R session history with the commands entered and their results.

b. compute 15% tip on subtotal. Round to 2 decimal places.

Code:

```

44 ````{r}
45 # Lab 14_Q1-2B
46 # Compute 15% tip on subtotal (rounded to 2 decimal places)
47 tip_15 <- round(subtotal * 0.15, 2)
48 ``
49

```

Output:

The screenshot shows the RStudio interface with the following sections:

- Code Editor (Source tab):** Displays the R code for Lab 14_Q1.Rmd, including the 15% tip calculation.
- Environment pane:** Shows the global environment with variables and their values:

Variable	Value
pre_tax_bill	45.9
subtotal	49.973625
tax_rate	0.08875
tip_15	7.5
- Files pane:** Lists the project structure under "Lab 14" with files like Lab 14.Rproj, Basic_viz.Rmd, and Lab14_Q1.Rmd.
- Console:** Shows the R session history with commands related to the tax calculations.

c. compute 20% tip on subtotal. Round to 2 decimal places.

Code:

```

49
50
51 ~ ``{r}
52 # Lab 14_Q1-2C
53 # Compute 20% tip on subtotal (rounded to 2 decimal places)
54 tip_20 <- round(subtotal * 0.20, 2)
55 ~ ``
56

```

Output:

The screenshot shows the RStudio interface with the following sections:

- Code Editor:** Displays the R code for Lab 14_Q1.Rmd, specifically chunk 8, which includes the computation of a 20% tip on the subtotal.
- Environment:** Shows the global environment with variables and their values:

Variable	Value
pre_tax_bill	45.9
subtotal	49.973625
tax_rate	0.08875
tip_15	7.5
tip_20	9.99
- Files:** Shows the project structure under "Semester 3 > SDA > Assignments > Week 7 > Lab 14".
- Console:** Displays the R session history, including the commands run and their outputs.

Question 2:

Use the descriptive_gss.Rdata file. Note that this is a special type of R data file. To import it, use this code: `load(file="descriptive_gss.Rdata")`

Complete the following tasks:

1. Produce a basic histogram of the distribution of hrs1 using the R-base package.

The screenshot shows the RStudio interface with the following components:

- Code Editor (Source tab):** Contains the R code for generating a histogram. The histogram parameters are highlighted in blue.
- Plot Area:** Displays a histogram titled "Basic Histogram of hrs1". The x-axis is labeled "Hours" and ranges from 0 to 80. The y-axis is labeled "Frequency" and ranges from 0 to 700. The bars are light blue with black borders.
- R Environment Pane:** Shows the "descriptive_gss" dataset loaded into the Global Environment. It contains 2765 observations and 16 variables.
- File Explorer (Files tab):** Shows the project structure and files in the current directory, including various Excel and Word documents, and R scripts like "Basic_viz.Rmd", "Lab14_Question1.Rmd", "Lab14_Question3.Rmd", and "Lab14_Question2.Rmd".
- Console:** Displays the R session history, including the command to load the dataset and the histogram code.

2. Produce a 2nd histogram of the distribution of hrs1, this time overlay the normal distribution curve plus any aesthetics that you choose. The histogram and the normal curve should have different colors, and the axes must be clearly labelled. The plot should have a title “Histogram of Hrs1 with Normal Distribution”.

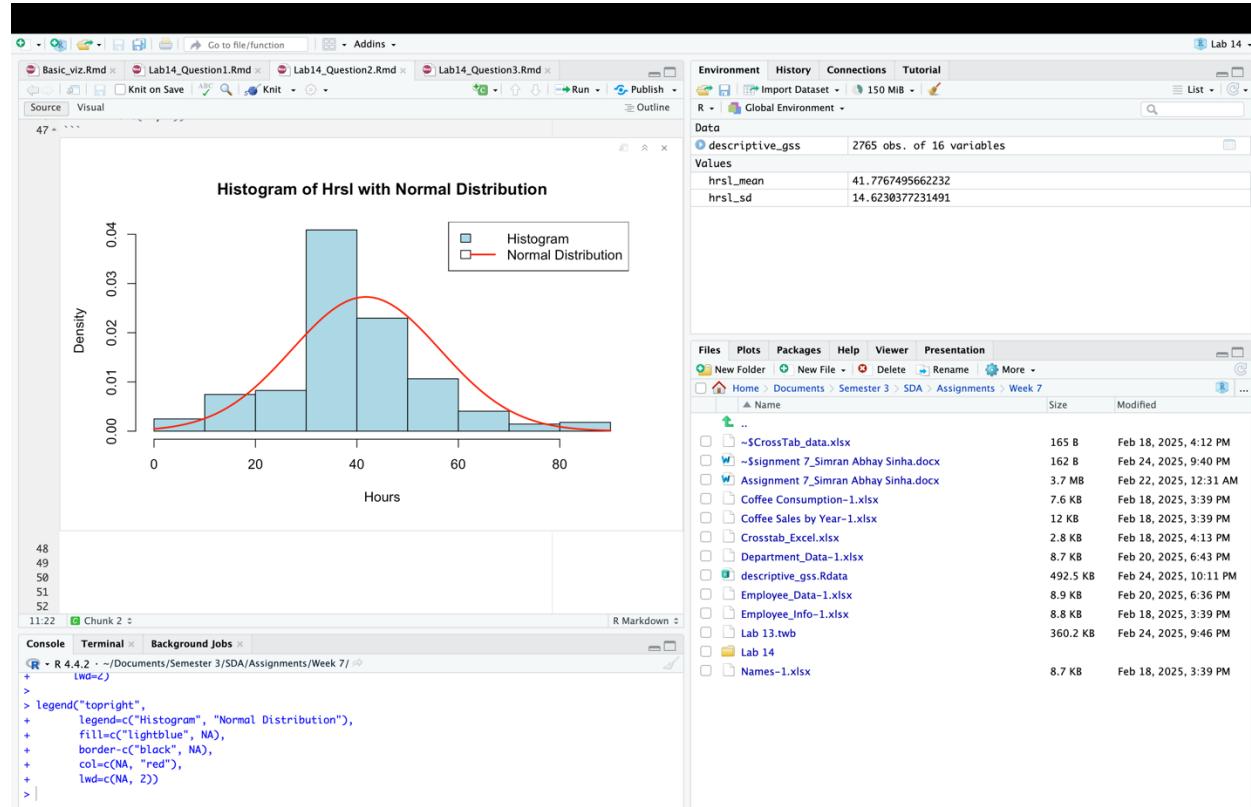
Code:

```

1
2
3 ~ ``{r}
4 # Lab 14_Q1_B
5 hrs1_mean <- mean(descriptive_gss$hrs1, na.rm=TRUE)
6 hrs1_sd <- sd(descriptive_gss$hrs1, na.rm=TRUE)
7
8 hist(descriptive_gss$hrs1,
9      main="Histogram of Hrs1 with Normal Distribution",
10     xlab="Hours",
11     ylab="Density",
12     col="Lightblue",
13     border="black",
14     prob=TRUE)
15
16 curve(dnorm(x, mean=hrs1_mean, sd=hrs1_sd),
17        add=TRUE, # add to existing plot
18        col="red",
19        lwd=2)
20
21 legend("topright",
22        legend=c("Histogram", "Normal Distribution"),
23        fill=c("lightblue", NA),
24        border=c("black", NA),
25        col=c(NA, "red"),
26        lwd=c(NA, 2))
27
28 ~

```

Output:



3. Produce a basic boxplot of wwwhr by sex.

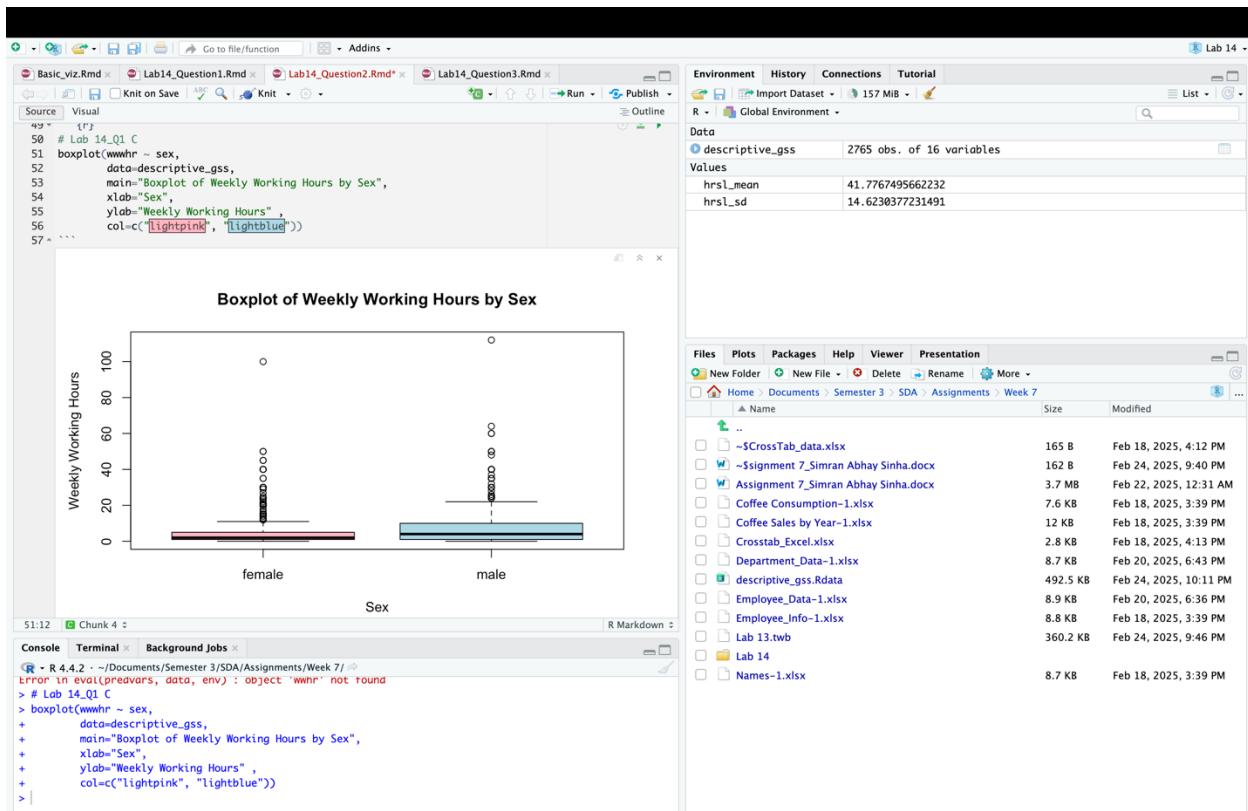
Code:

```

48
49 ```{r}
50 # Lab 14_Q1 C
51 boxplot(wwwhr ~ sex,
52     data=descriptive_gss,
53     main="Boxplot of Weekly Working Hours by Sex",
54     xlab="Sex",
55     ylab="Weekly Working Hours" ,
56     col=c("lightpink", "lightblue"))
57 ```

```

Output:



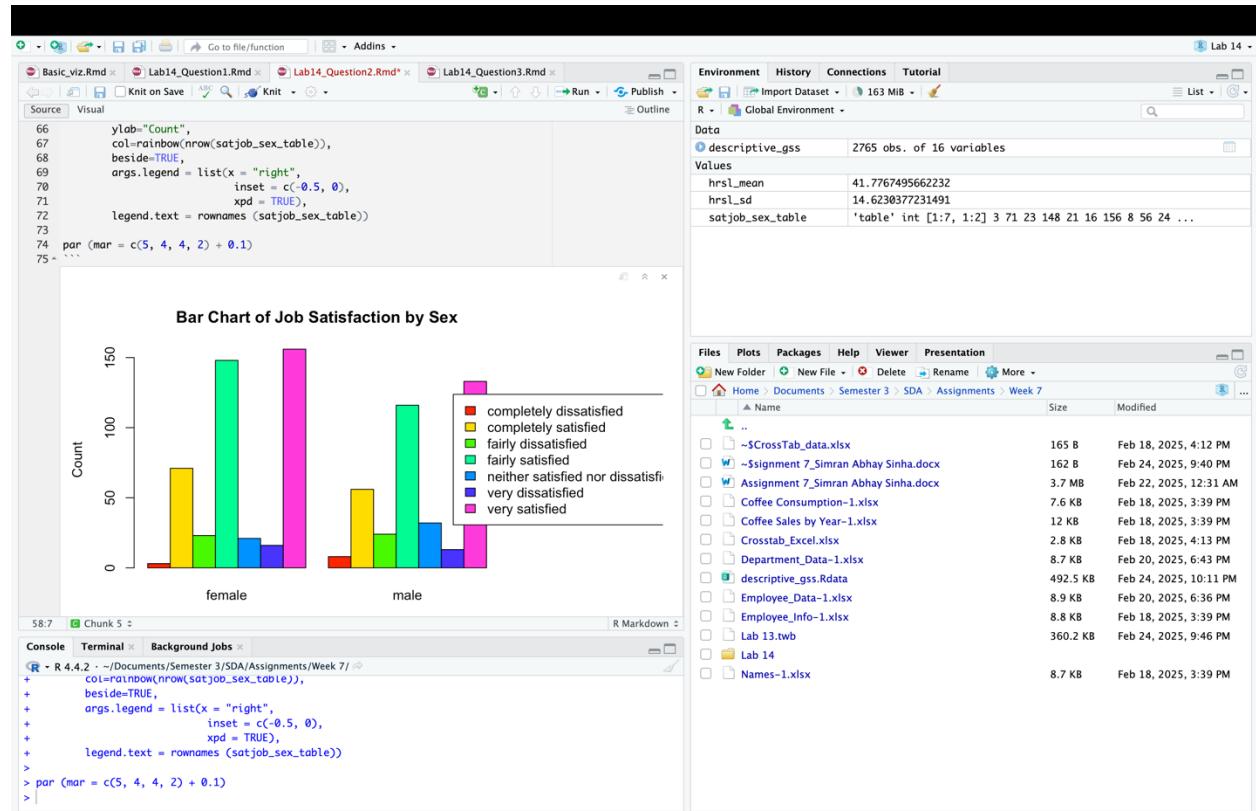
4. Produce a basic bar chart of satjob7 by sex.

Code:

```

58 ````{r}
59 # Lab 14_Q1 D
60 satjob_sex_table <- table(descriptive_gss$satjob7, descriptive_gss$sex)
61
62 par(mar = c(5, 4, 4, 10))
63 barplot(satjob_sex_table,
64         main="Bar Chart of Job Satisfaction by Sex",
65         xlab="Sex",
66         ylab="Count",
67         col=rainbow(nrow(satjob_sex_table)),
68         beside=TRUE,
69         args.legend = list(x = "right",
70                             inset = c(-0.5, 0),
71                             xpd = TRUE),
72         legend.text = rownames (satjob_sex_table))
73
74 par (mar = c(5, 4, 4, 2) + 0.1)
75 ````
```

Output:



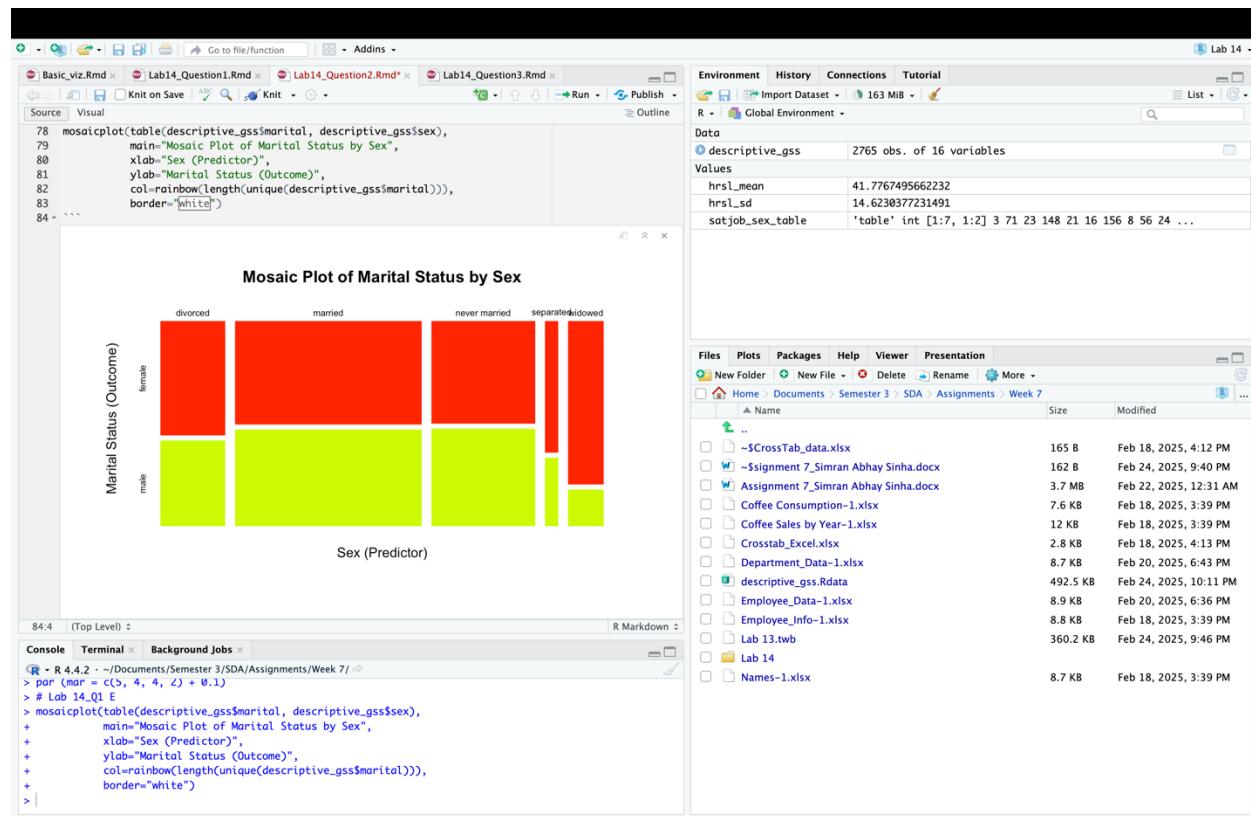
5. Produce a mosaic plot of the cross-tabulation of marital and sex. In designing your graph, treat marital as the outcome of interest and sex as the predictor of interest.

Code:

```

76 ````{r}
77 # Lab 14_Q1 E
78 mosaicplot(table(descriptive_gss$marital, descriptive_gss$sex),
79             main="Mosaic Plot of Marital Status by Sex",
80             xlab="Sex (Predictor)",
81             ylab="Marital Status (Outcome)",
82             col=rainbow(length(unique(descriptive_gss$marital))),
83             border="white")
84 ````
```

Output:



Question 3:

Dataset: Use the ‘mtcars’ dataset that is in-built in R. The dataset can be accessed the same way the ‘cars’ dataset was accessed in the class.

Code:

```

1
2  ````{r}
3  # Lab 14_Q3
4  # Load the mtcars dataset
5  data(mtcars)
6  ````
```

Output:

The screenshot shows the RStudio interface with the following components:

- Code Editor (Source tab):** Displays the R code provided in the question.
- Environment pane:** Shows the variable `mtcars` defined in the Global Environment.
- Files pane:** Lists the contents of the current directory, including RData, .Rhistory, Basic_viz.html, Basic_viz.log, Basic_viz.Rmd, Basic_viz.tex, Lab 14.Rproj, Lab14_Q1.log, Lab14_Q1.tex, Lab14_Question1.Rmd, Lab14_Question2.Rmd, and Lab14.RData.
- Console pane:** Shows the R session output, including the workspace loading message and the execution of the R code to load the mtcars dataset.

Complete the following tasks:

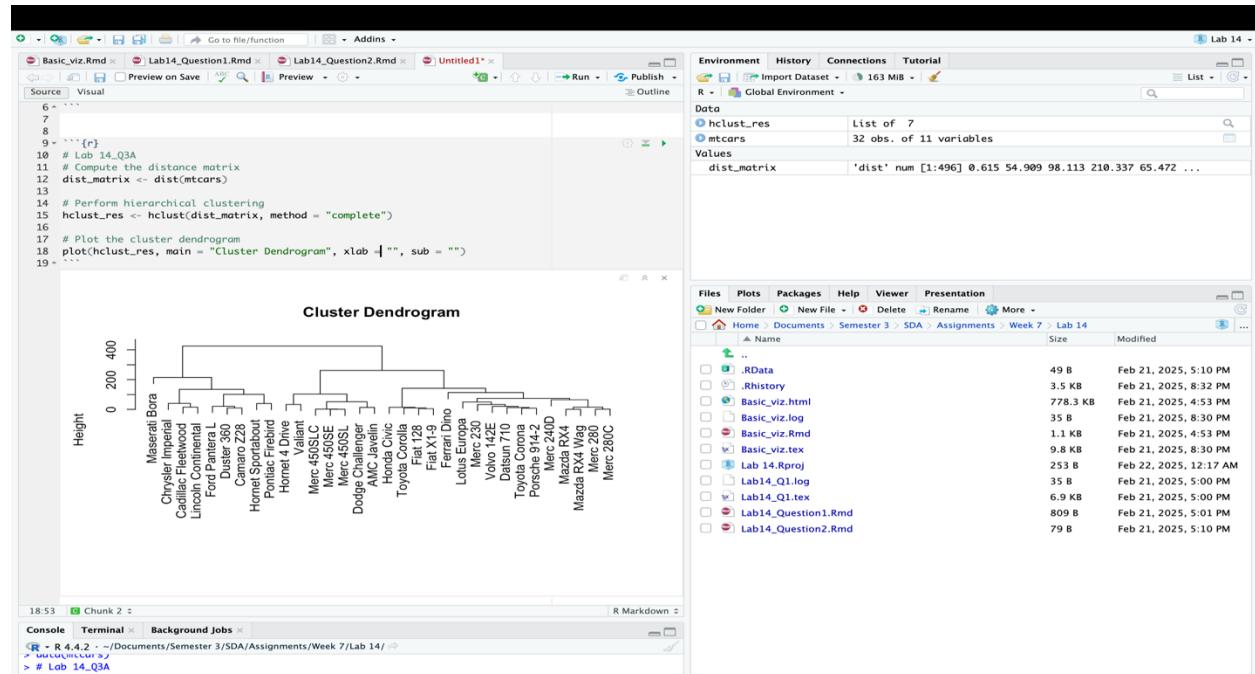
1. Produce a cluster dendrogram of the mtcars data.

Code:

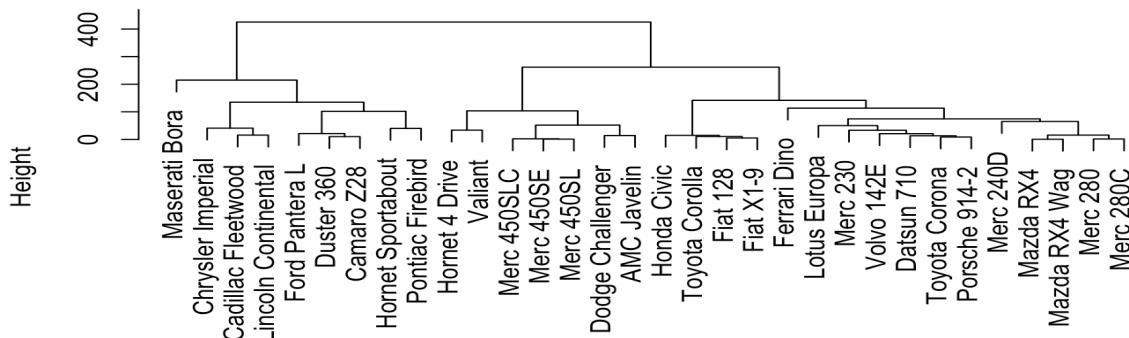
```

9 ~ ````{r}
10 # Lab 14_Q3A
11 # Compute the distance matrix
12 dist_matrix <- dist(mtcars)
13
14 # Perform hierarchical clustering
15 hclust_res <- hclust(dist_matrix, method = "complete")
16
17 # Plot the cluster dendrogram
18 plot(hclust_res, main = "Cluster Dendrogram", xlab = "", sub = "")
19 ~````
```

Output:



Cluster Dendrogram



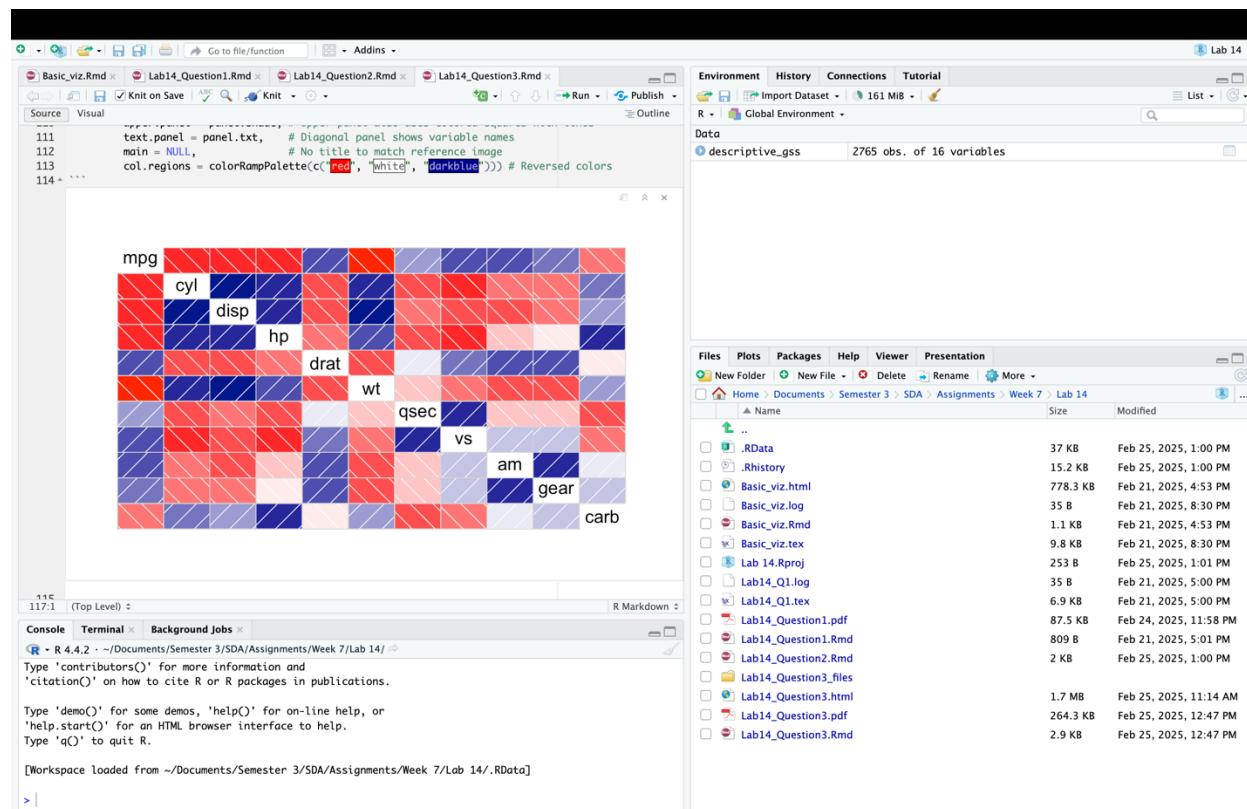
2. Produce a correlation plot known as ‘corrgram’ for the mtcars data. You will need to use the ‘corrgram’ package.

Code:

```

96+ ````{r}
97 # Lab 14_Q3B
98+ if (!require(corrgram)) {
99   install.packages("corrgram")
100 library(corrgram)
101 }
102
103 # Load the mtcars dataset (already available in R)
104 data(mtcars)
105
106 # Create the correlation plot with color mapping reversed to match reference image
107 corrgram(mtcars,
108           order = FALSE,                  # Don't reorder automatically
109           lower.panel = panel.shade,      # Lower panel uses colored squares
110           upper.panel = panel.shade,     # Upper panel also uses colored squares with lines
111           text.panel = panel.txt,        # Diagonal panel shows variable names
112           main = NULL,                  # No title to match reference image
113           col.regions = colorRampPalette(c("red", "white", "darkblue")) # Reversed colors
114 ````
```

Output:

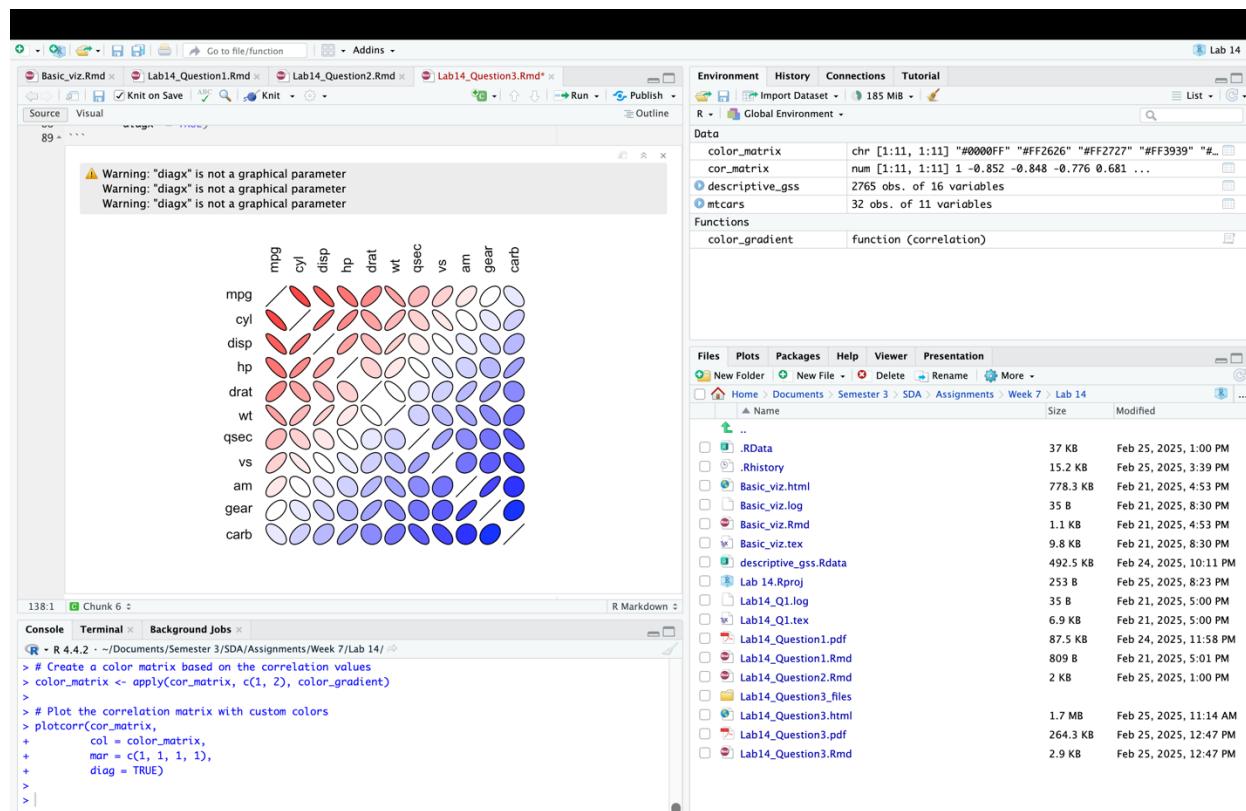


3. Use the ‘ellipse’ package and produce ellipse shaped corrgrams with colors.

Code:

```
32 # Install and load the ellipse package
33
34 library(corrgram)
35
36 install.packages("ellipse")
37 library(ellipse)
38
39
40
41 ````{r}
42 # Lab 14_Q3C
43 # Calculate correlation matrix
44 cor_matrix <- cor(mtcars)
45
46 # Create a color palette function from red to white to blue
47 col_palette <- colorRampPalette(c("red", "white", "blue"))
48
49 # Set up the plotting area
50 plotcorr(cor_matrix,
51           type = "full", #Show only lower triangle
52           col = col_palette(100), # Use 100 color levels
53           mar = c(1,1,1,1), # Adjust margins
54           order = TRUE, # Order variables by correlation
55           diag = TRUE) # Show diagonal
56
57 # Add variable names
58 colnames(mtcars) -> dimnames(cor_matrix)[[1]]
59 ````
```

Output:



Question 4:

Gen AI Prompt Engineering

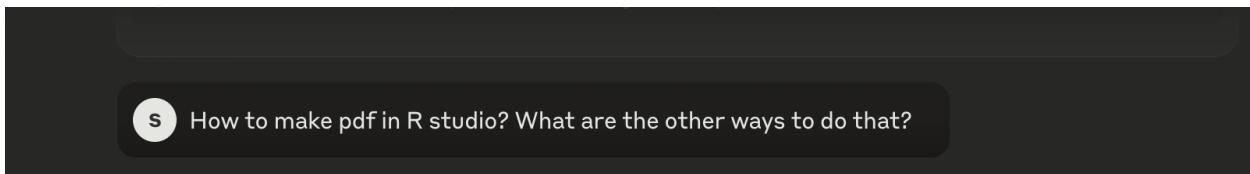
R Knitting a notebook file to PDF fails. You get message that LateX is not installed. Use your AI bot to find a solution. Summarize the solution so we can use it in class.

I didn't get any error while making the pdf using R Knitting.

Bot Used: Claude.ai

These are the other ways of making PDF

Prompt:



Gen AI:

The screenshot shows a web browser window with a dark theme. The address bar says "claude.ai/chat/ce1a889a-ee9f-496f-b036-84a80cf5c190". The main content area displays a response from Claude AI:

To create a PDF of your correlation plot in RStudio, you have several options:

Direct PDF Export

```
r
# Open a PDF device
pdf("correlation_plot.pdf", width = 8, height = 8)

# Run your plotting code here
plotCorr(corr_matrix) # Your correlation plotting function

# Close the PDF device
dev.off()
```

Other Ways to Create PDFs in RStudio

- Using the Export button in RStudio:**
 - Create your plot in the Plots panel
 - Click "Export" > "Save as PDF..."
 - Adjust dimensions and resolution as needed
- Using ggsave (if using ggplot2):**

```
r
library(ggplot2)
# Assuming your plot is stored in a variable called 'p'
ggsave("correlation_plot.pdf", plot = p, width = 8, height = 8, units = "in")
```

- Using Cairo package** (for high-quality graphics):

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Claude Q Ellipse-based Correlation Visualization

3. Using Cairo package (for high-quality graphics):

```
r
library(Cairo)
CairoPDF("correlation_plot.pdf", width = 8, height = 8)
plotCorr(corr_matrix)
dev.off()
```

4. Using knitr/R Markdown:

- Create an R Markdown document
- Include your plotting code in a code chunk
- Knit to PDF (requires LaTeX installation)

5. Using grDevices for different formats:

```
r
# For PNG
png("correlation_plot.png", width = 800, height = 800)
plotCorr(corr_matrix)
dev.off()

# For SVG
svg("correlation_plot.svg", width = 8, height = 8)
plotCorr(corr_matrix)
dev.off()

# For JPEG
jpeg("correlation_plot.jpg", width = 800, height = 800, quality = 100)
plotCorr(corr_matrix)
dev.off()
```

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```
r
# For PNG
png("correlation_plot.png", width = 800, height = 800)
plotCorr(corr_matrix)
dev.off()

# For SVG
svg("correlation_plot.svg", width = 8, height = 8)
plotCorr(corr_matrix)
dev.off()

# For JPEG
jpeg("correlation_plot.jpg", width = 800, height = 800, quality = 100)
plotCorr(corr_matrix)
dev.off()
```

If you're having issues with PDF creation, you might need to install additional dependencies:

- For R Markdown PDF output: Install TinyTeX with `install.packages("tinytex"); tinytex::install_tinytex()`
- For Cairo: You might need system libraries depending on your OS

Would you like more details on any of these methods?

Claude does not have the ability to run the code it generates yet.

Claude can make mistakes. Please double-check responses.

Reply to Claude...

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I have submitted the pdf of my Lab 14.