

MVLU COLLEGE
R PROGRAMMING
PRACTICAL NO. 10 TO 12 (MODULE 2)

AIM : 10: Creating graphical reports using ,ggplot2 (R).

```
library(ggplot2)
library(dplyr)
print("Siya Poipkar S105")
data <- read.csv("~/S105/DATASET/Cardiovascular_Disease_Dataset.csv")
names(data)
# 1. Scatter Plot
# Age vs Serum Cholesterol
ggplot(data, aes(x = age, y = serumcholesterol)) +
  geom_point(color = "pink") +
  labs(
    title = "Scatter Plot of Age vs Serum Cholesterol",
    x = "Age",
    y = "Serum Cholesterol"
  ) +
  theme_minimal()

# 2. Pie Chart
# Gender Distribution
gender_data <- data %>%
  count(gender)

ggplot(gender_data, aes(x = "", y = n, fill = factor(gender))) +
  geom_bar(stat = "identity", width = 1) +
  coord_polar("y") +
  labs(
    title = "Gender Distribution",
    fill = "Gender"
  ) +
  theme_void()

# 3. High–Low Chart
# Heart Rate Range by Age
hl_data <- data %>%
  group_by(age) %>%
  summarise(
    min_hr = min(maxheartrate),
    max_hr = max(maxheartrate)
  )

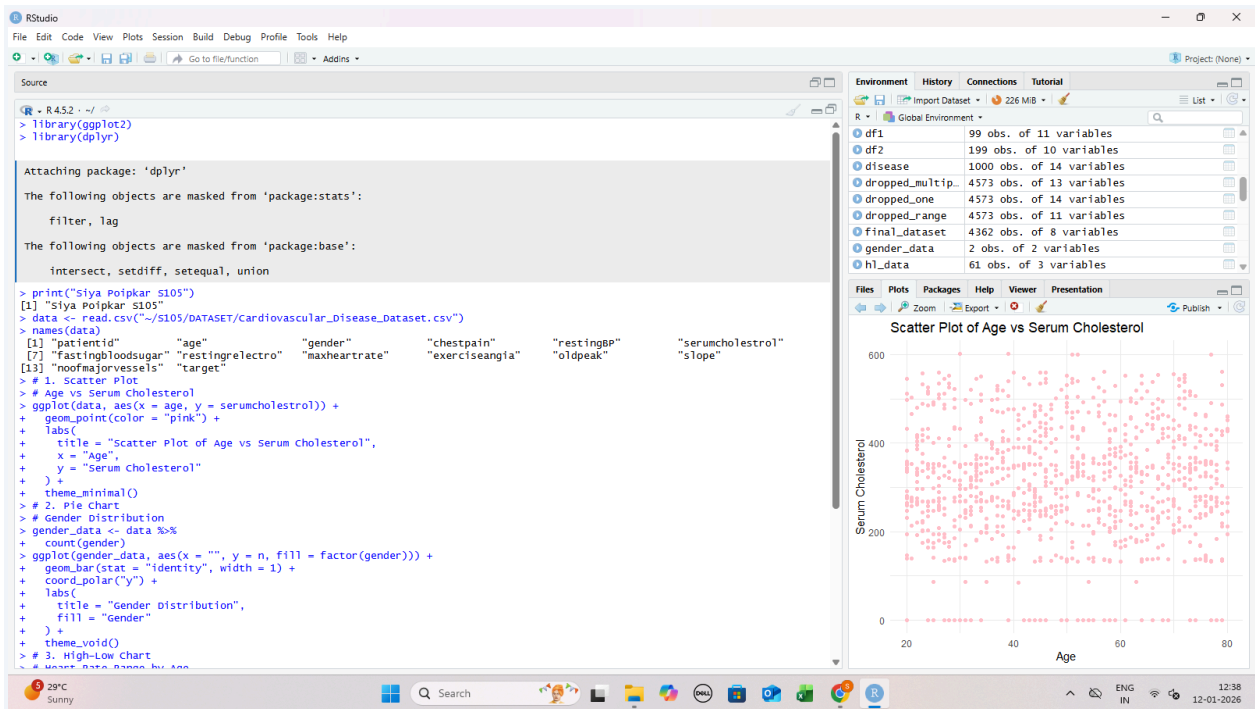
ggplot(hl_data, aes(x = age)) +
```

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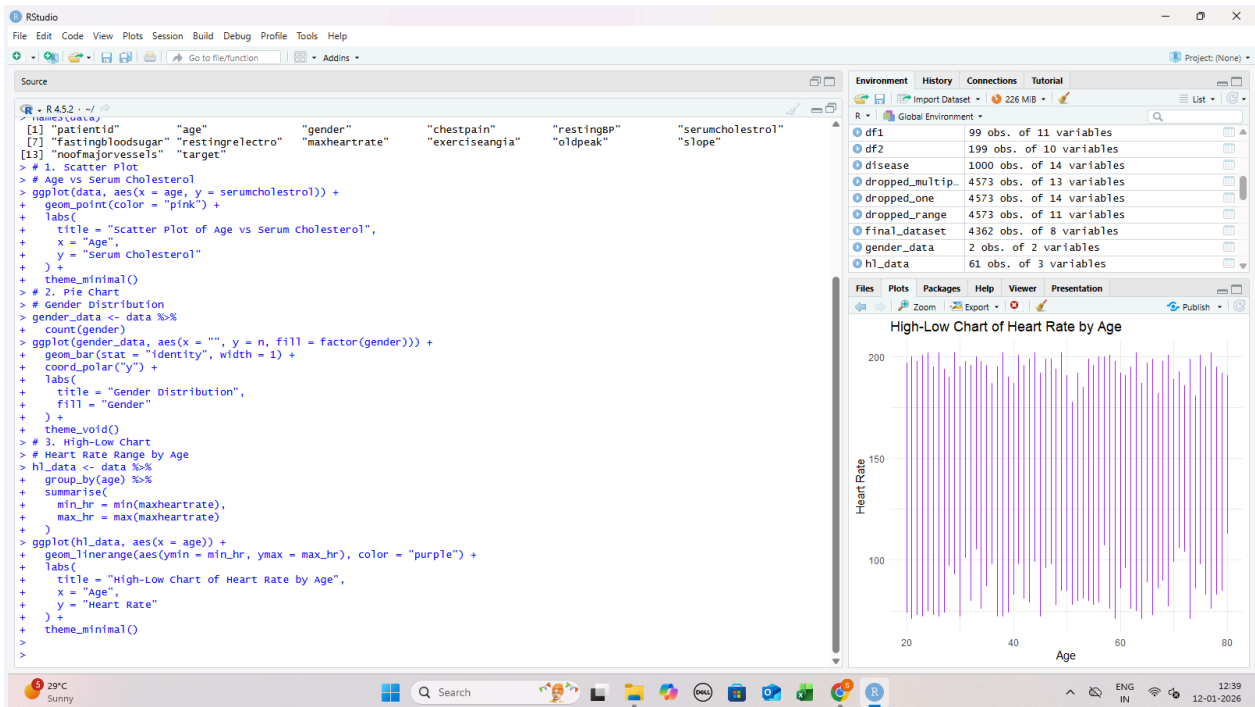
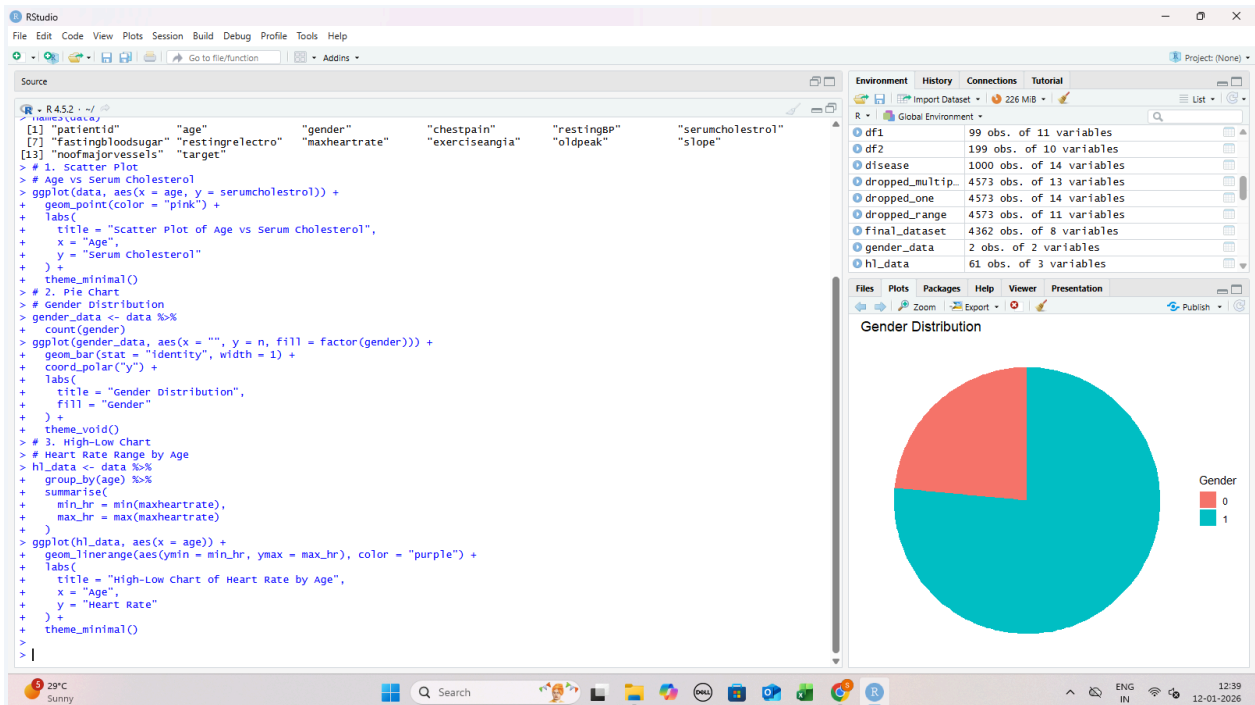
```
geom_linerange(aes(ymin = min_hr, ymax = max_hr, color = "purple")) +  
labs(  
  title = "High-Low Chart of Heart Rate by Age",  
  x = "Age",  
  y = "Heart Rate"  
) +  
theme_minimal()
```



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AIM 11: Generating histograms and box plots using ggplot2 (R).

```
library(ggplot2)
print("Siya Poipkar S105")
weather <- read.csv("C:/Users/DELL/Desktop/siya/DATASET/Weather.csv")
names(weather)

ggplot(weather, aes(x = Temp3pm)) +
  geom_histogram(binwidth = 2, fill = "blue") +
  labs(
    title = "Histogram of Temperature at 3 PM",
    x = "Temperature (Temp3pm)",
    y = "Frequency"
  )

ggplot(weather, aes(y = Temp3pm)) +
  geom_boxplot(fill = "green") +
  labs(
    title = "Box Plot of Temperature at 3 PM",
    y = "Temperature (Temp3pm)"
  )
```

The screenshot displays the RStudio interface. The console on the left shows the following R code:

```
> library(ggplot2)
> print("Siya Poipkar S105")
[1] "Siya Poipkar S105"
> weather <- read.csv("C:/Users/DELL/Desktop/siya/DATASET/Weather.csv")
> names(weather)
 [1] "MinTemp"      "MaxTemp"      "Rainfall"      "Evaporation"   "Sunshine"      "WindDir9am"
 [7] "WindDir3pm"   "WindSpeed9am" "WindSpeed3pm"  "Temp9am"       "Temp3pm"       "RainToday"
[13] "RISK_MM"      "RainTomorrow"
> ggplot(weather, aes(x = Temp3pm)) +
+   geom_histogram(binwidth = 2, fill = "blue") +
+   labs(
+     title = "Histogram of Temperature at 3 PM",
+     x = "Temperature (Temp3pm)",
+     y = "Frequency"
+   )
> ggplot(weather, aes(y = Temp3pm)) +
+   geom_boxplot(fill = "green") +
+   labs(
+     title = "Box Plot of Temperature at 3 PM",
+     y = "Temperature (Temp3pm)"
+   )
>
```

The Environment pane on the right shows the loaded data frame:

Environment	History	Connections	Tutorial
R - Global Environment	Import Dataset - 275 MiB		
placement	num [1:3, 1:2]	20 15 25 10 15 5	
sales_data	1000 obs. of 14 variables		
scores	9 obs. of 1 variable		
t_test_one	List of 10		
t_testpaired	List of 10		
t_test_two	List of 10		
weather	99 obs. of 14 variables		

The plot area on the right shows a histogram titled "Histogram of Temperature at 3 PM". The x-axis is labeled "Temperature (Temp3pm)" and ranges from 15 to 35. The y-axis is labeled "Frequency" and ranges from 0 to 15. The histogram bars are blue.



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AIM 12: Generating correlation matrices using `cor()` (R).

```
print("Siya Poipkar S105")
mall <- read.csv("C:/Users/DELL/Desktop/siya/DATASET/Mall_Customers.csv")

mall_numeric <- mall[, c("Age", "Annual.Income..k..", "Spending.Score..1.100.")]

cor_matrix <- cor(mall_numeric)

print(cor_matrix)
```

