1) APPROXIMATE MEDIAN


```
11  f <- frequencies[median_index]
12  h <- c(4, 10, 5, 30, 30, 30)[median_index]
13
14  median_value <- L + ((N_half - F) / f) * h
15  cat("Approximate Median:", median_value, "\n")
```

```
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  Natural language support but running in an English locale

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[Workspace loaded from ~/.RData]

> intervals <- c("1-5", "5-15", "15-20", "20-50", "50-80", "80-110")
> frequencies <- c(200, 450, 300, 1500, 700, 44)
>
> cum_freq <- cumsum(frequencies)
> N <- sum(frequencies)
> N_half <- N / 2  # Median position
>
> median_index <- which(cum_freq >= N_half)[1]
> L <- c(1, 5, 15, 20, 50, 80)[median_index]
> F <- ifelse(median_index == 1, 0, cum_freq[median_index - 1])
> f <- frequencies[median_index]
> h <- c(4, 10, 5, 30, 30, 30)[median_index]
>
> median_value <- L + ((N_half - F) / f) * h
> cat("Approximate Median:", median_value, "\n")
Approximate Median: 32.94
>
```

2) MEAN , MEDIAN , MODE , IQR


```
24  cat("Mode:", modes, "\n")
25  cat("Modality:", modality, "\n")
26  cat("Midrange:", midrange_value, "\n")
27  cat("First Quartile (Q1):", Q1, "\n")
28  cat("Third Quartile (Q3):", Q3, "\n")
```
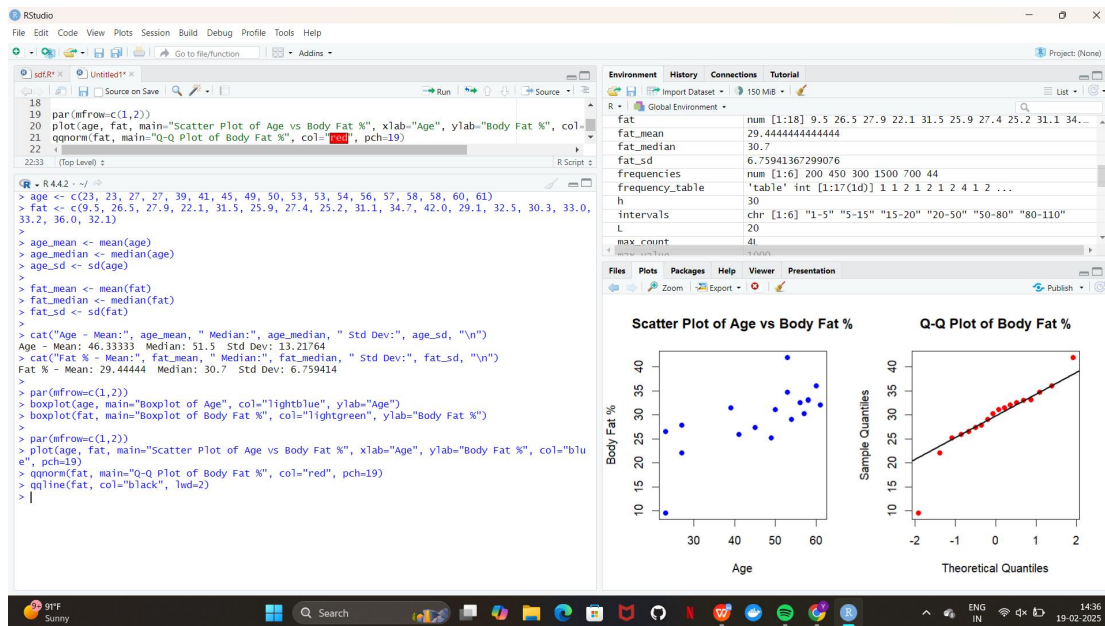
```
>
> mean_value <- mean(ages)
> median_value <- median(ages)
> mode_value <- names(sort(table(ages), decreasing = TRUE))[1]
> mode_value <- as.numeric(mode_value)
>
> frequency_table <- table(ages)
> max_count <- max(frequency_table)
> modes <- as.numeric(names(frequency_table[frequency_table == max_count]))
> modality <- ifelse(length(modes) == 1, "Unimodal",
+              ifelse(length(modes) == 2, "Bimodal",
+                ifelse(length(modes) == 3, "Trimodal", "Multimodal")))
>
> midrange_value <- (min(ages) + max(ages)) / 2
>
> quartiles <- quantile(ages, probs = c(0.25, 0.75))
> Q1 <- quartiles[1]
> Q3 <- quartiles[2]
>
> cat("Mean:", mean_value, "\n")
Mean: 29.96296
> cat("Median:", median_value, "\n")
Median: 25
> cat("Mode:", modes, "\n")
Mode: 25 35
> cat("Modality:", modality, "\n")
Modality: Bimodal
> cat("Midrange:", midrange_value, "\n")
Midrange: 41.5
> cat("First Quartile (Q1):", Q1, "\n")
First Quartile (Q1): 20.5
> cat("Third Quartile (Q3):", Q3, "\n")
Third Quartile (Q3): 35
>
```

3) MINMAX AND Z

4) SMOOTHING , MEAN , MEDIAN , BOUNDARIES

5) MEAN , MEDIAN , SD , BOX SCATTER

6) MINMAX , Z , DECIMAL

7) MEAN , MEDIAN , MODE

8) SCATTER PLOT


```
> x <- c(4, 1, 5, 7, 10, 2, 50, 25, 90, 36)
> y <- c(12, 5, 13, 19, 31, 7, 153, 72, 275, 110)
>
> plot(x, y,
+      main = "Scatter Plot: Mobile Phones Sold vs. Money Earned",
+      xlab = "Number of Mobile Phones Sold",
+      ylab = "Money Earned",
+      col = "blue",
+      pch = 16,   # Solid circle points
+      cex = 1.5)  # Point size
>
> abline(lm(y ~ x), col = "red", lwd = 2, lty = 2)
> |
```
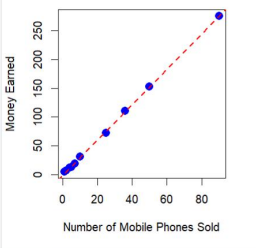
9) FREQUENCY , DEPTH
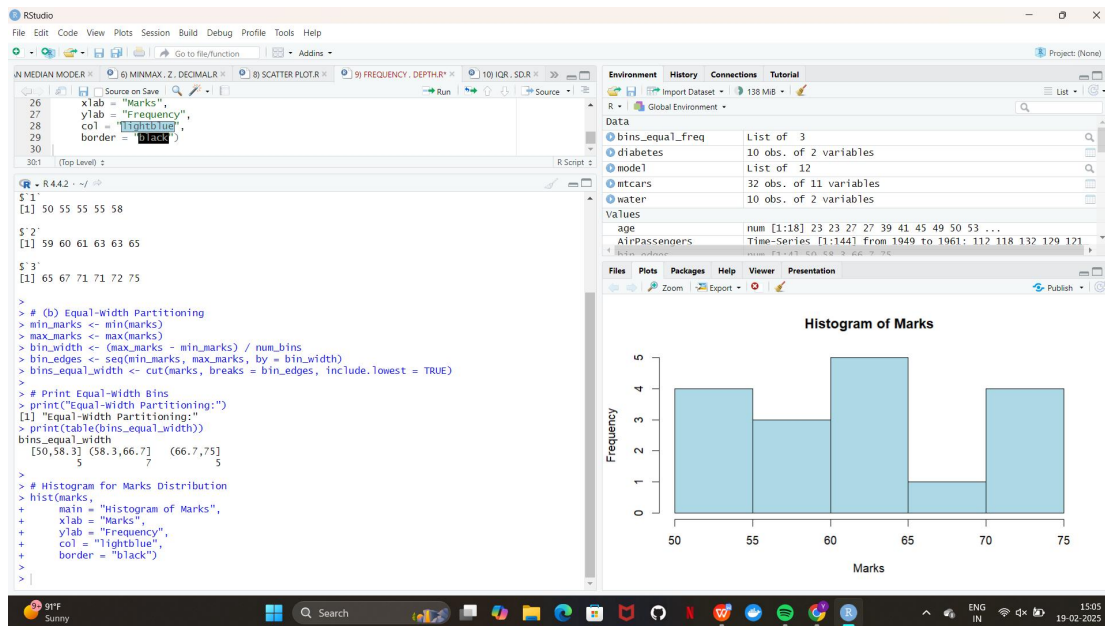
10) IQR , SD

11) Q1 , Q3

12) HISTOGRAM

13) LINECHART

14) LINEAR REGRESSION

15) BOXPLOT OF MPG VS CYL

16) BOXPLOT OF TENNIS PLAYERS SCORE

17) SCATTER AND BOX CHART

```
18          main = "Blood Pressure by Age",
19          xlab = "Age",
20          ylab = "Blood Pressure",
21          col = "lightblue")
22
```
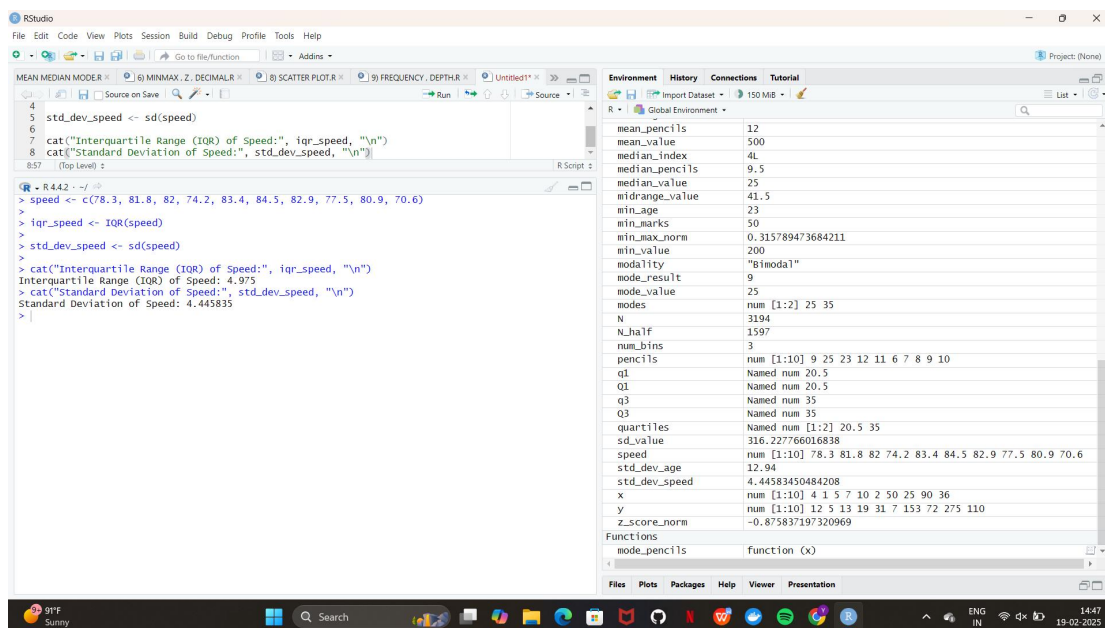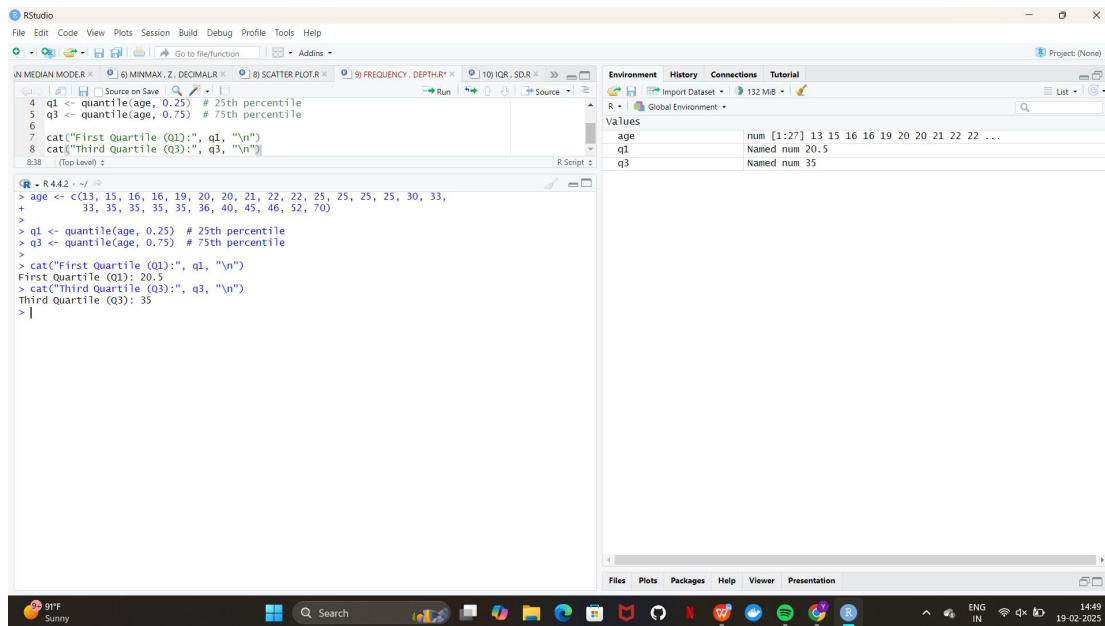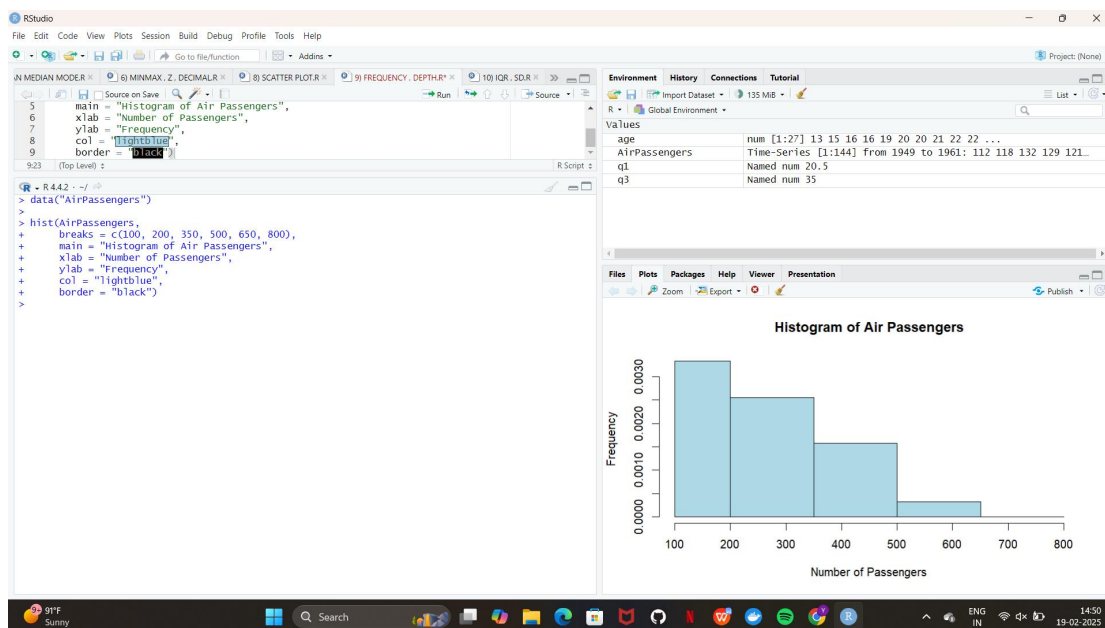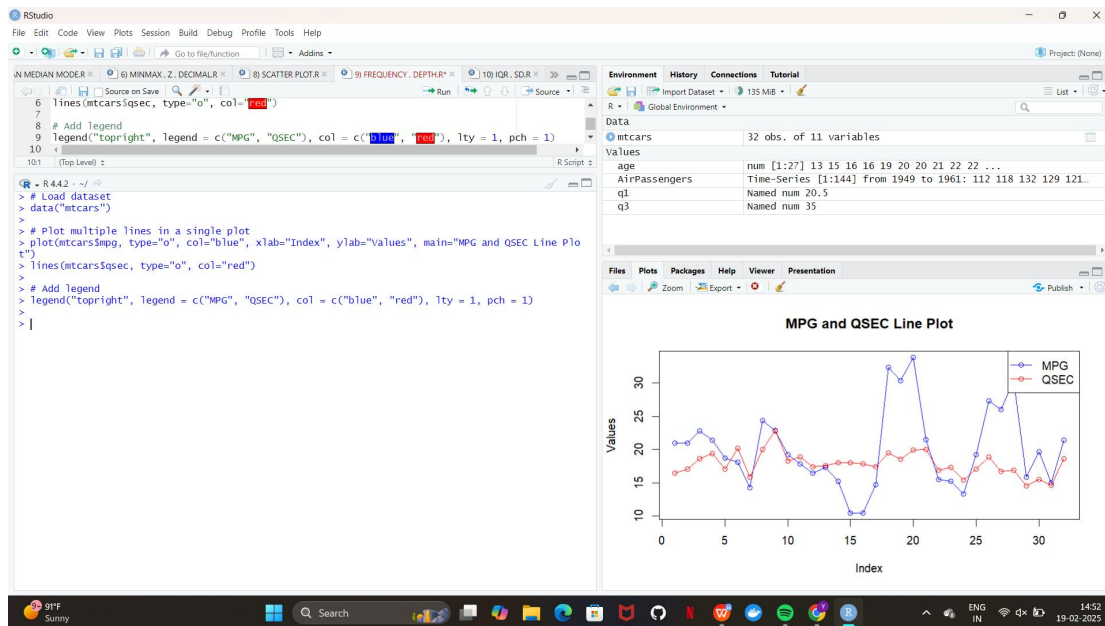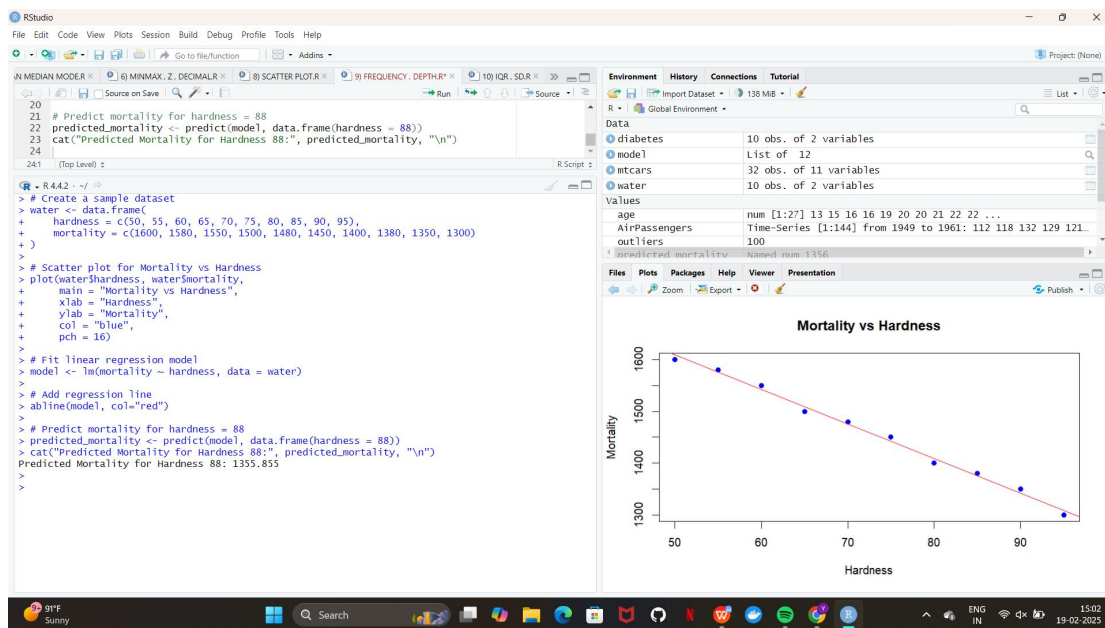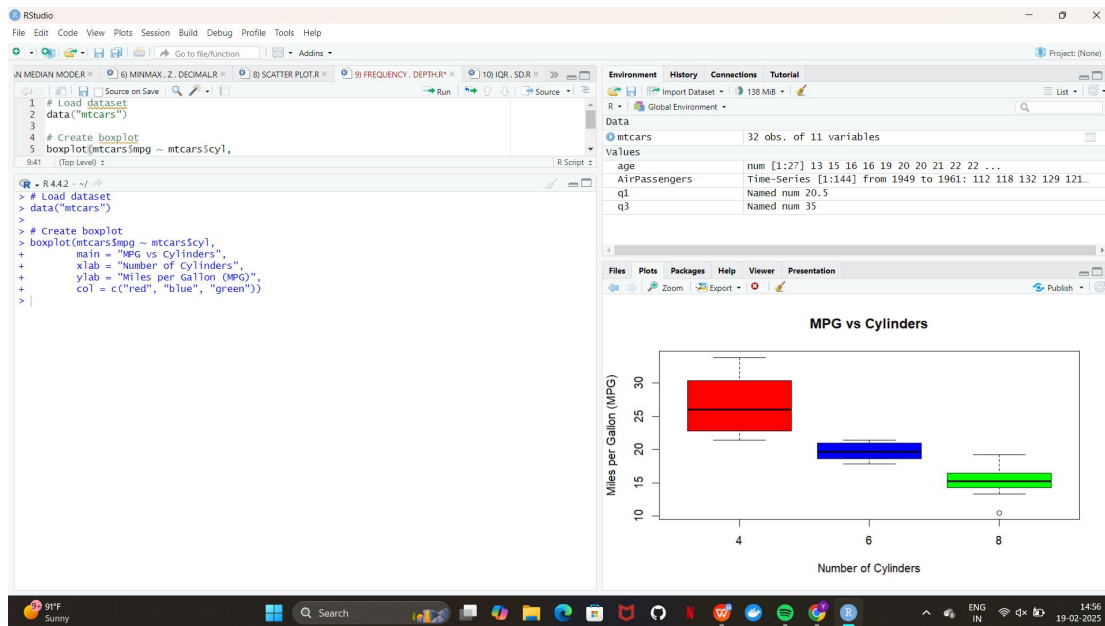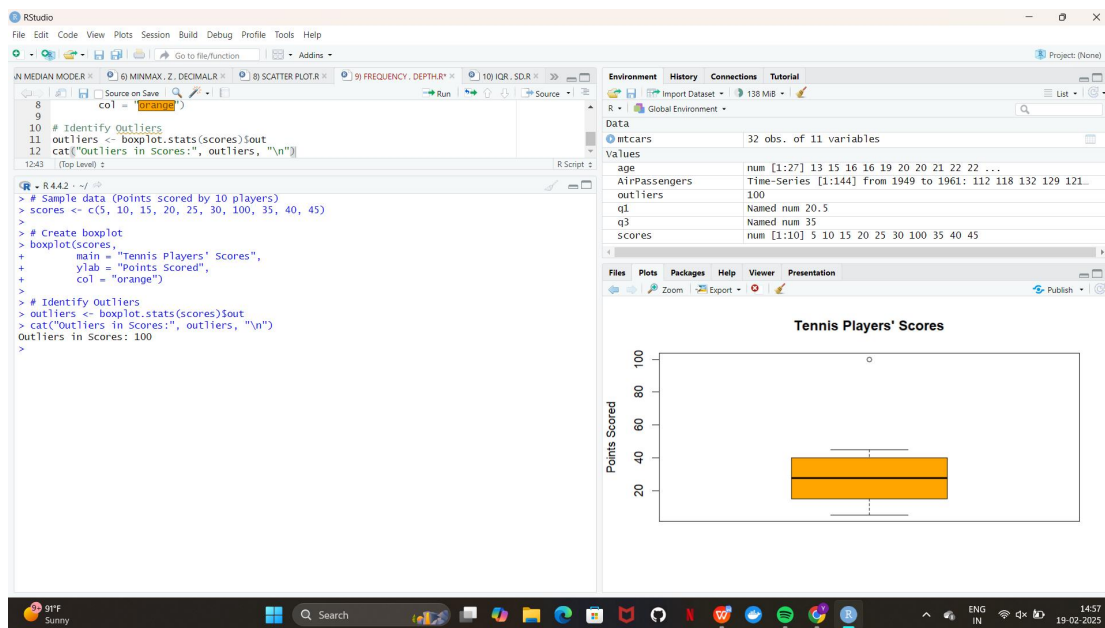
```
> # Create a sample diabetes dataset
> diabetes <- data.frame(
+     Age = c(25, 30, 35, 40, 45, 50, 55, 60, 65, 70),
+     BloodPressure = c(120, 125, 130, 135, 140, 145, 150, 155, 160, 165)
+ )
>
> # Scatter Plot
> plot(diabetes$Age, diabetes$BloodPressure,
+     main = "Blood Pressure vs Age",
+     xlab = "Age",
+     ylab = "Blood Pressure",
+     col = "blue",
+     pch = 16)
>
> # Bar Chart
> barplot(diabetes$BloodPressure,
+         names.arg = diabetes$Age,
+         main = "Blood Pressure by Age",
+         xlab = "Age",
+         ylab = "Blood Pressure",
+         col = "lightblue")
>
> |
```

Environment History Connections Tutorial

Import Dataset | 138 MiB | List
R | Global Environment

Data
diabetes   10 obs. of 2 variables
mtcars   32 obs. of 11 variables
Values
age   num [1:27] 13 15 16 16 19 20 20 21 22 22 ...
AirPassengers   Time-Series [1:144] from 1949 to 1961: 112 118 132 129 121...
outliers   100
q1   Named num 20.5
q3   Named num 35
scores   num [1:10] 5 10 15 20 25 30 100 35 40 45

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Blood Pressure by Age