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FacultyofComputing
Year 2 Semester 1 (2025)
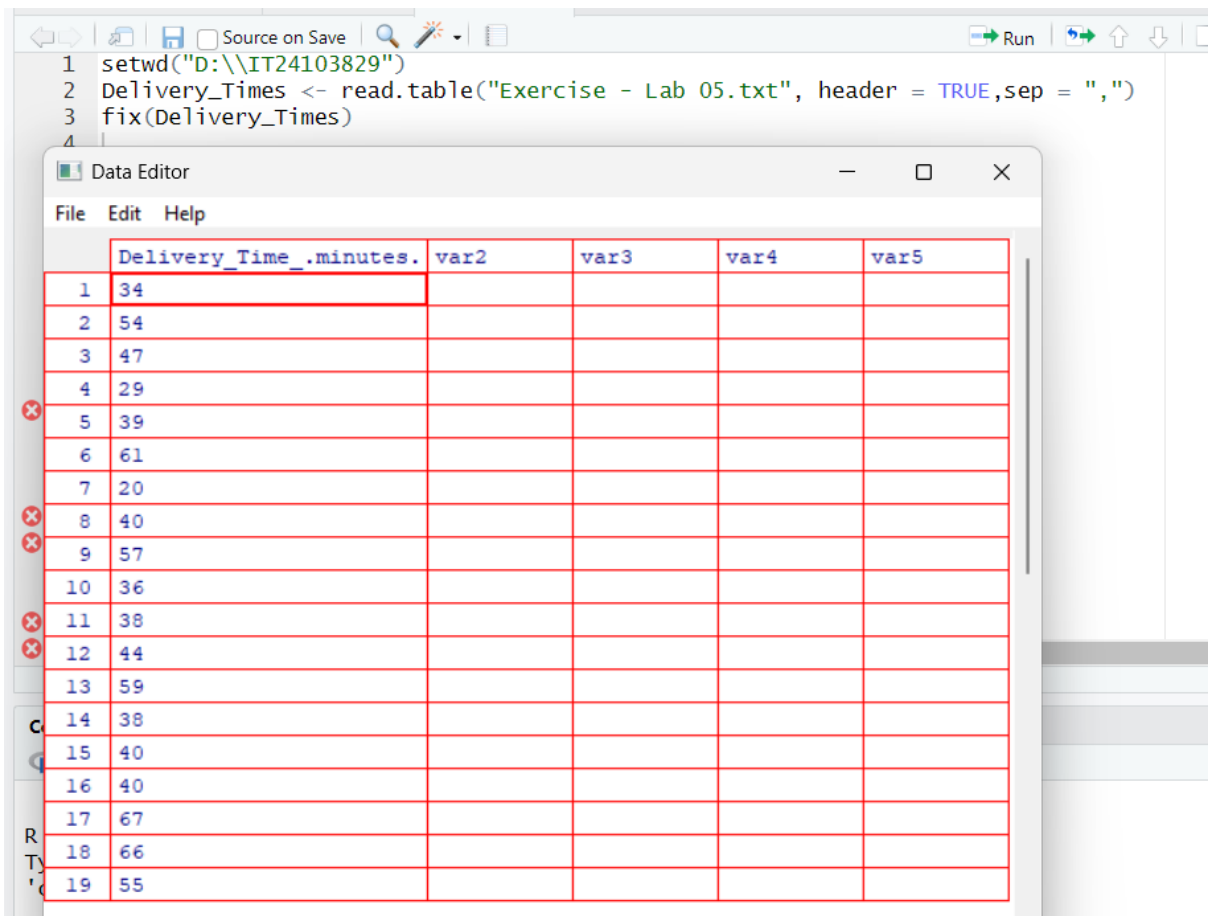
IT2120 - Probability and Statistics

Lab Sheet 05

Exercise

Instructions: Create a folder in your desktop with your registration number (Eg: "IT......."). You need to save the R script file and take screenshots of the command prompt with answers and save it in a word document inside the folder. Save both R script file and word document with your registration number (Eg: "IT........"). After you finish the exercise, zip the folder and upload the zip file to the submission link.

1. Import the dataset ('Exercise – Lab 05.txt') into R and store it in a data frame called "Delivery Times".

2. Draw a histogram for deliver times using nine class intervals where the lower limit is 20 and upper limit is 70. Use right open intervals.

```
histogram <- hist(X1,
                  main = "Histogram for Delivery Times",
                  xlab = "Delivery Time",
                  breaks = seq(20, 70, length.out = 10),
                  right = FALSE,
                  col = "lightblue",
                  border = "black")
```


Histogram for Delivery Times

3. Comment on the shape of the distribution.

```
> summary(Delivery_Times$X1)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  20.00   36.00   42.50   43.75   54.00   67.00
```

4. Draw a cumulative frequency polygon (ogive) for the data in a separate plot.

```r
# Q4: Cumulative Frequency Polygon (Ogive)
# Use same breaks to build a frequency table, then cumulative sum
breaks_seq <- seq(20, 70, length.out = 10)

freq_obj <- hist(Delivery_Times$X1,
                 breaks = breaks_seq,
                 right = FALSE,
                 plot = FALSE)

cum_freq <- cumsum(freq_obj$counts)

# x-values for ogive points are the UPPER class boundaries (right-open breaks)
x_points <- freq_obj$breaks[-1]

# Plot ogive
plot(x_points, cum_freq, type = "o", pch = 16,
     xlab = "Delivery Time",
     ylab = "Cumulative Frequency",
     main = "Cumulative Frequency Polygon (Ogive)")
grid()
```


Cumulative Frequency Polygon (Ogive)