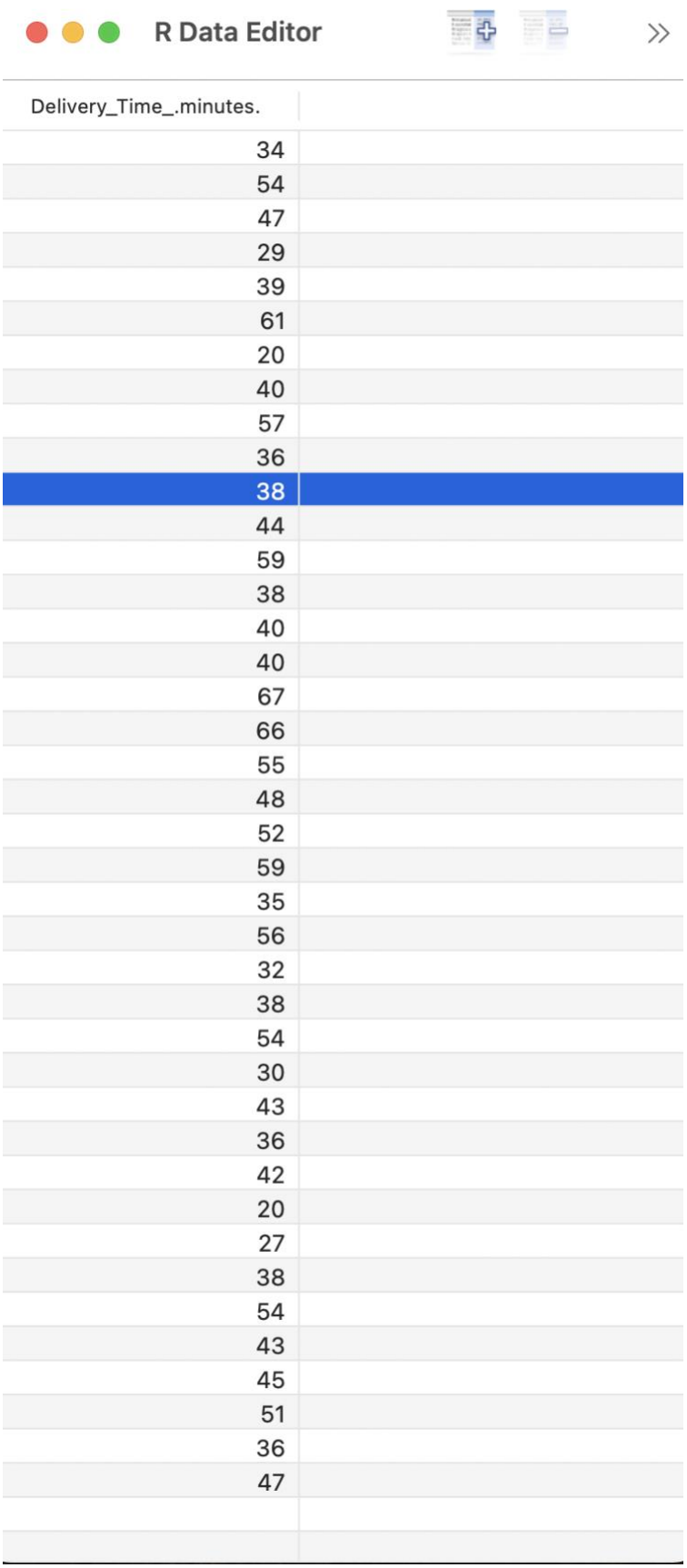
Exercise

1


```
> Delivery_Times <- read.table("Exercise - Lab 05.txt", header = TRUE)
> str(Delivery_Times)
'data.frame':  40 obs. of  1 variable:
 $ Delivery_Time_.minutes.: int  34 54 47 29 39 61 20 40 57 36 ...
> fix(Delivery_Times)
```


R Data Editor
Delivery_Time_.minutes.
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47

2

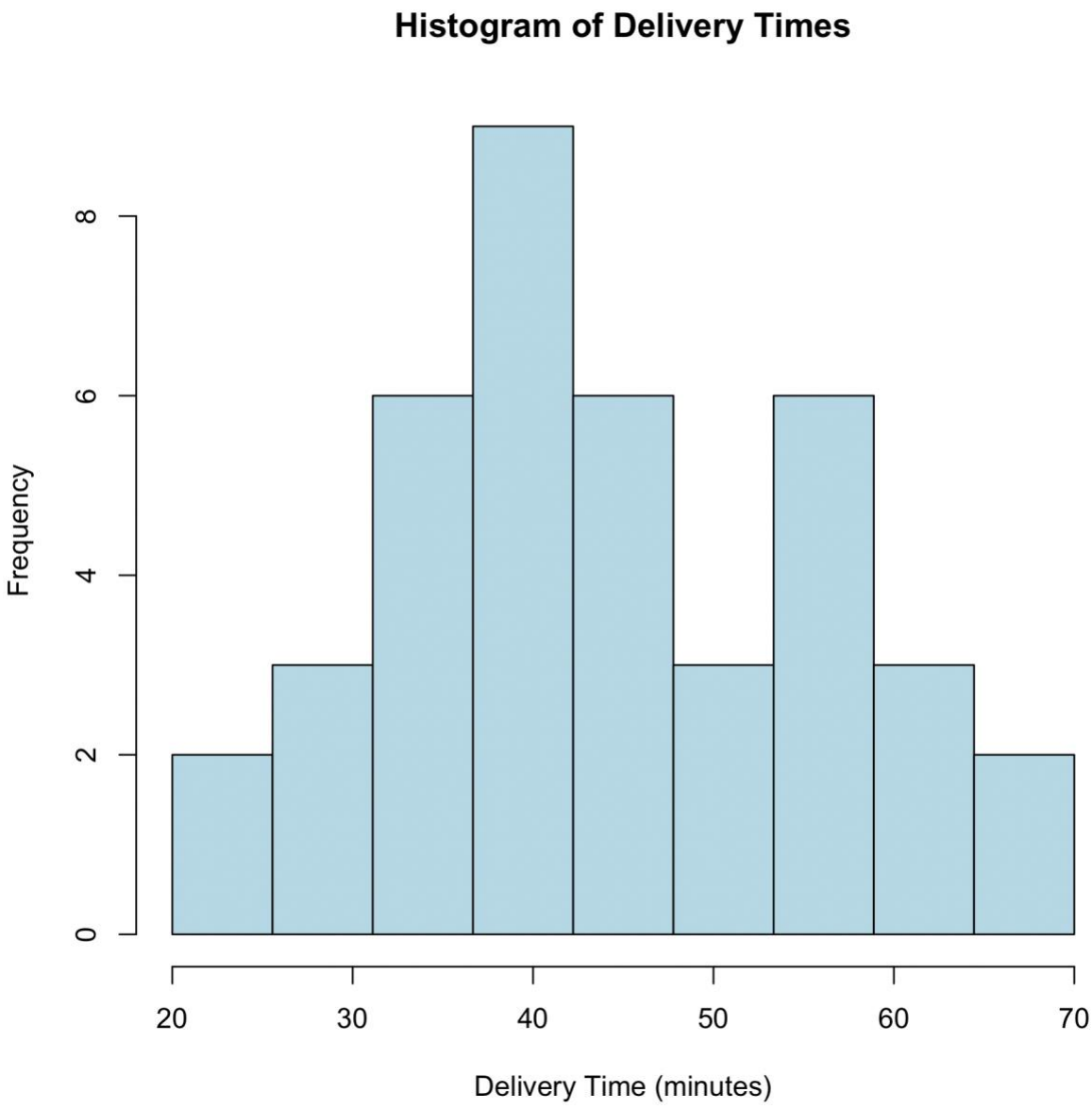
Untitled

<functions>

Help search

```
8
9
10  aw_data <- readLines("Exercise - Lab 05.txt")
11
12
13  elivery_times_numeric <- as.numeric(raw_data[-1])
14
15
16  r(delivery_times_numeric)
17
18
19  istogram <- hist(delivery_times_numeric,
20                   main = "Histogram of Delivery Times",
21                   xlab = "Delivery Time (minutes)",
22                   breaks = seq(20, 70, length = 10),
23                   right = FALSE,
24                   col = "lightblue")
```

hist(x, ...)



3

The distribution is approximately normal with a slight right skew, showing most deliveries cluster around 35–50 minutes with occasional longer times.

4

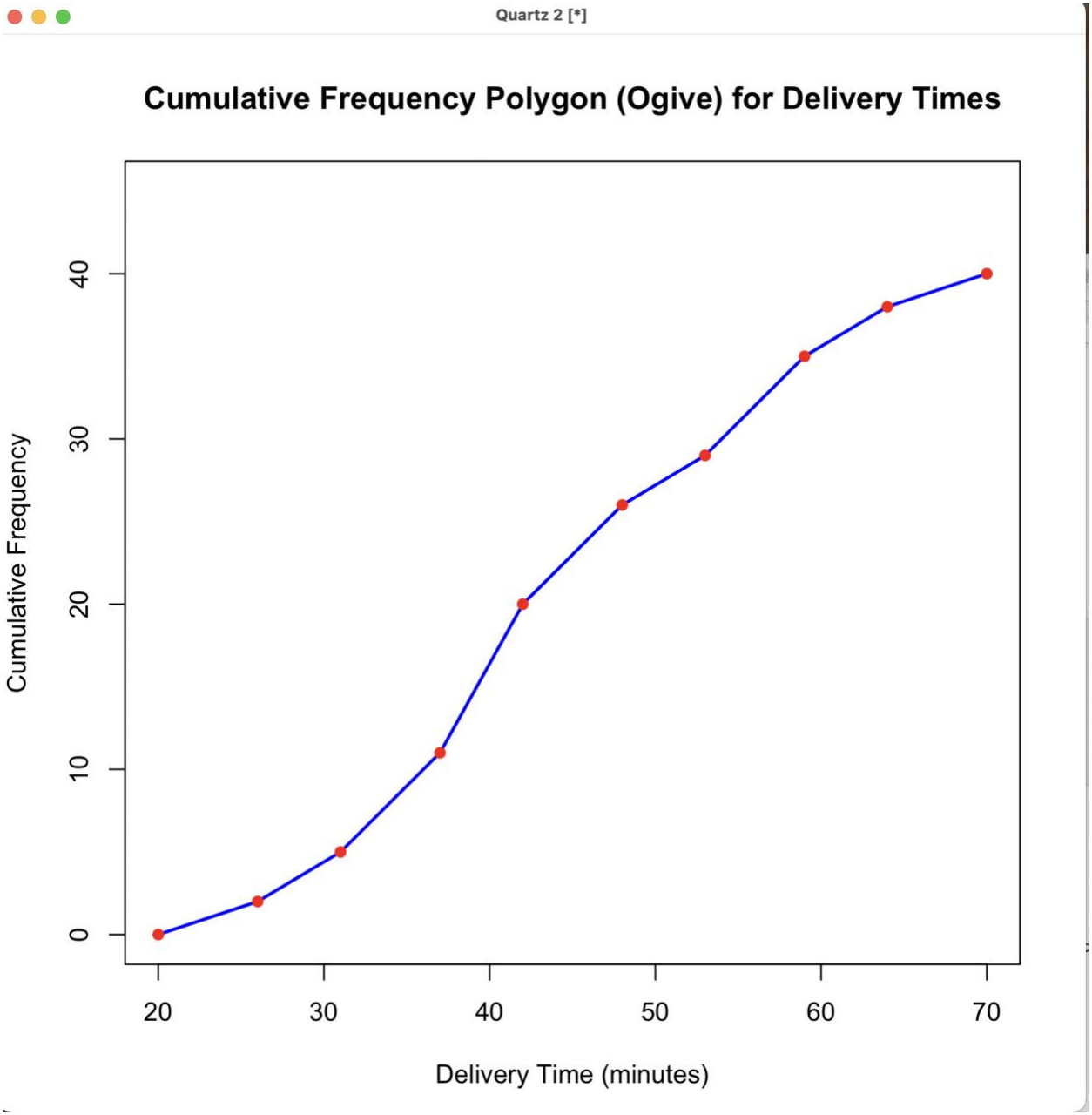
```r
breaks <- round(histogram$breaks)
freq <- histogram$counts
cum_freq <- cumsum(freq)


new <- c(0, cum_freq)  # Start with 0 cumulative frequency

plot(breaks, new,
     type = "l",
     main = "Cumulative Frequency Polygon (Ogive) for Delivery Times",
     xlab = "Delivery Time (minutes)",
     ylab = "Cumulative Frequency",
     ylim = c(0, max(cum_freq) + 5),
     col = "blue",
     lwd = 2)


points(breaks, new, pch = 16, col = "red")


cumulative_table <- cbind(Upper_Limit = breaks, Cumulative_Frequency = new)
print(cumulative_table)
```


Quartz 2 [*]
Cumulative Frequency Polygon (Ogive) for Delivery Times
Cumulative Frequency
0
10
20
30
40
20
30
40
50
60
70
Delivery Time (minutes)