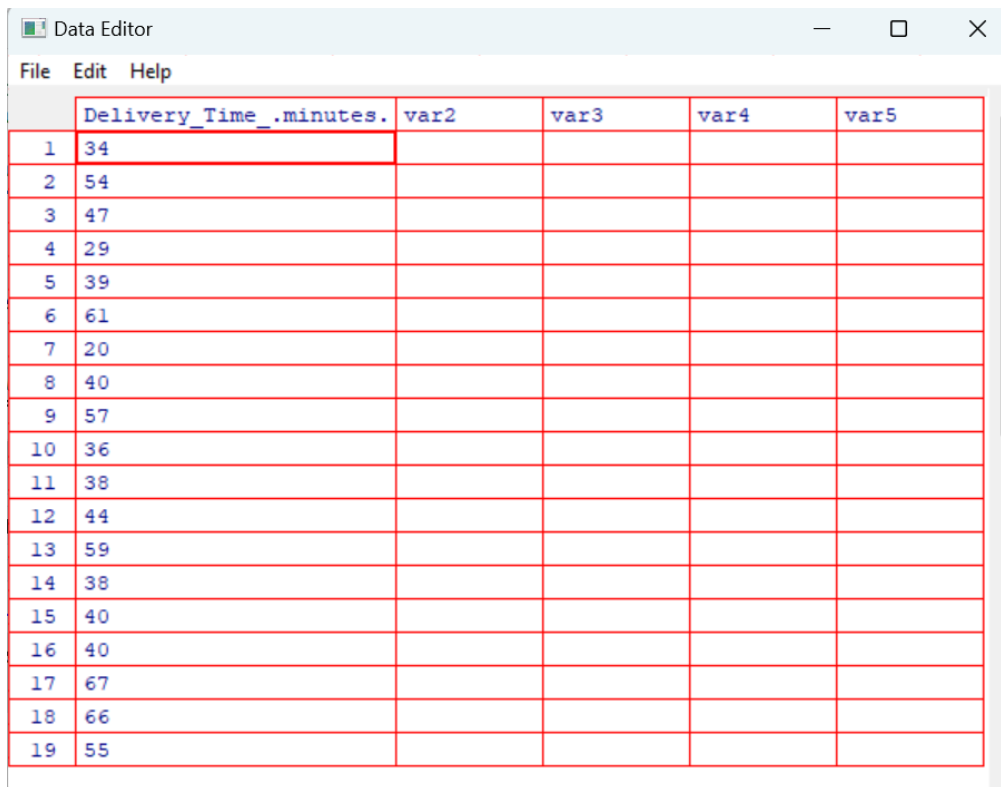# Lab sheet 5

Q1)

```
#Q1
#Setting the directory
setwd("C:\\Users\\aa\\Desktop\\IT24100463")

#Importing the data set
delivery_times <- read.table("Exercise - Lab 05.txt",header=TRUE, sep=",")
fix(delivery_times)
```

```
> #Q1
> #Setting the directory
> setwd("C:\\Users\\aa\\Desktop\\IT24100463")
> #Importing the data set
> delivery_times <- read.table("Exercise - Lab 05.txt",header=TRUE, sep=",")
> fix(delivery_times)
```

Data Editor						— ☐ ✕

File   Edit   Help

	Delivery_Time_.minutes.	var2	var3	var4	var5	
1	34					
2	54					
3	47					
4	29					
5	39					
6	61					
7	20					
8	40					
9	57					
10	36					
11	38					
12	44					
13	59					
14	38					
15	40					
16	40					
17	67					
18	66					
19	55					

```
#Check the data
print(delivery_times)
```

```
> #Check the data
> print(delivery_times)
   Delivery_Time_.minutes.
1                       34
2                       54
3                       47
4                       29
5                       39
6                       61
7                       20
8                       40
9                       57
10                      36
11                      38
12                      44
13                      59
14                      38
15                      40
16                      40
17                      67
18                      66
19                      55
20                      48
21                      52
22                      59
23                      35
24                      56
25                      32
26                      38
27                      54
28                      30

29                      43
30                      36
31                      42
32                      20
33                      27
34                      38
35                      54
36                      43
37                      45
38                      51
39                      36
40                      47
>
```

Q2)

```
#Q2
#Draw a histogram where the lower limit is 20 and upper limit is 70.
histogram<-hist.default(delivery_times$Delivery_Time_.minutes,main = "Histrogram of Delivery Times",
                        breaks = seq(20,70, length=10), xlab = "Delivery Times(minutes)",
                        ylab = "Frequency",right = FALSE,col = "lightblue",border = "black")
```

```
> #Q2
> #Draw a histogram where the lower limit is 20 and upper limit is 70.
> histogram<-hist.default(delivery_times$Delivery_Time_.minutes,main = "Histrogram of Delivery Times",
+                         breaks = seq(20,70, length=10), xlab = "Delivery Times(minutes)",
+                         ylab = "Frequency",right = FALSE,col = "lightblue",border = "black")
> |
```

Histrogram of Delivery Times

Delivery Times(minutes)
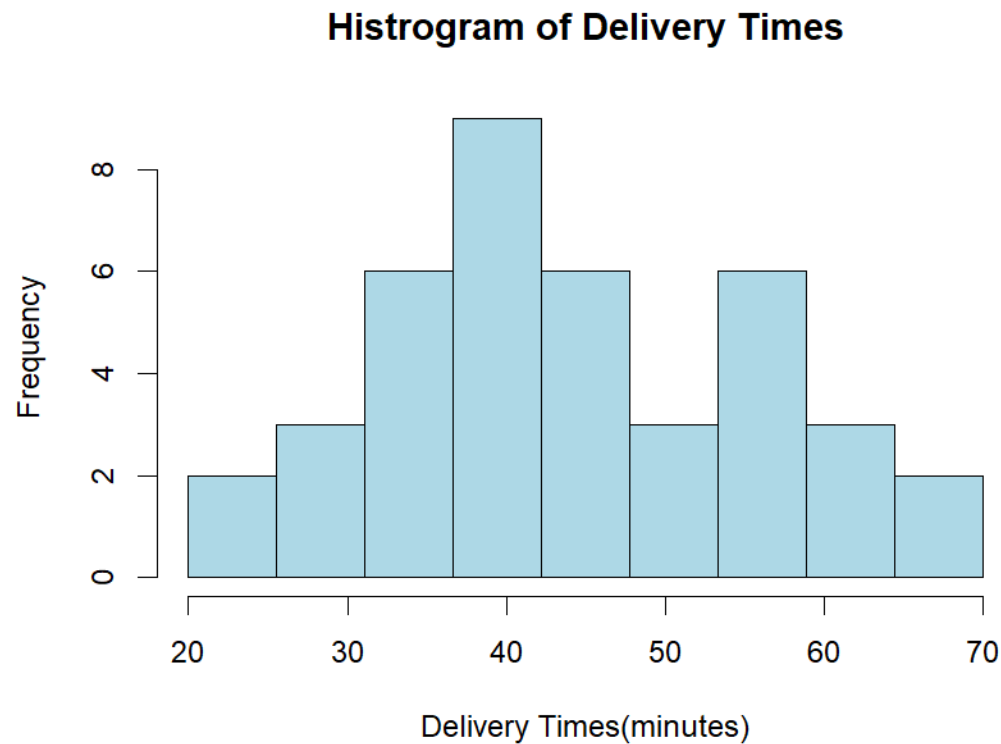
```
freq <- histogram$counts
freq
```

```
> freq <- histogram$counts
> freq
[1] 2 3 6 9 6 3 6 3 2
```

```
cum_freq <- cumsum(freq)
cum_freq
```

```
> cum_freq <- cumsum(freq)
> cum_freq
[1]  2  5 11 20 26 29 35 38 40
```

```
breaks <- histogram$breaks
breaks
```

```
> breaks <- histogram$breaks
> breaks
 [1] 20.00000 25.55556 31.11111 36.66667 42.22222 47.77778 53.33333 58.88889
 [9] 64.44444 70.00000
```
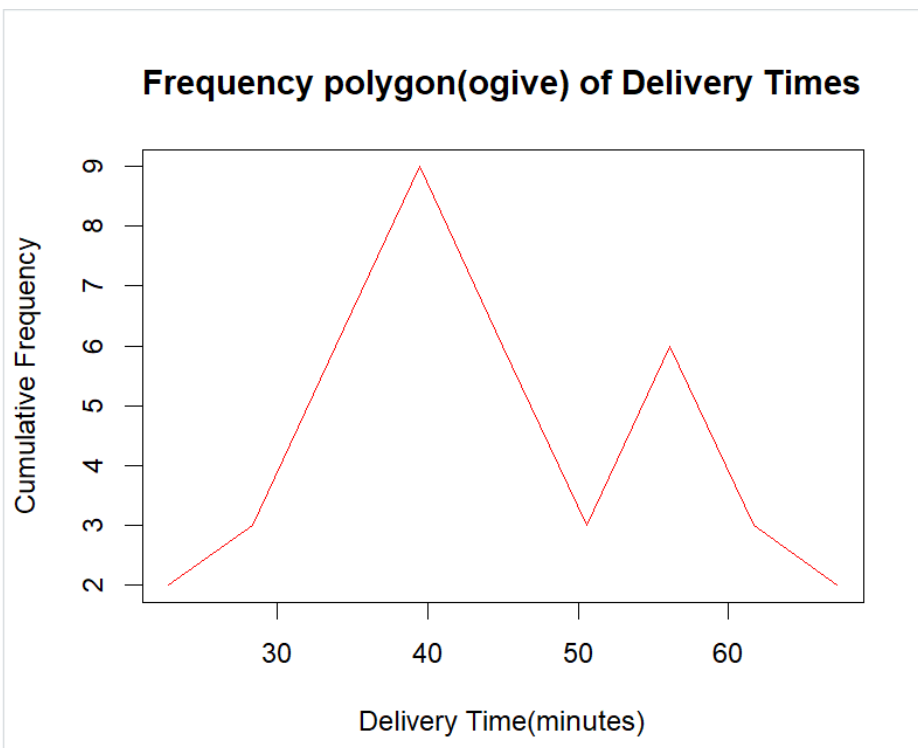
```
plot(mids,freq, type = "l",main = "Frequency polygon(ogive) of Delivery Times",
     xlab = "Delivery Time(minutes)",
     ylab = "Cumulative Frequency",
     col = "red",
     pch = 16)
```

```
> plot(mids,freq, type = "l",main = "Frequency polygon(ogive) of Delivery Times",
+        xlab = "Delivery Time(minutes)",
+        ylab = "Cumulative Frequency",
+        col = "red",
+        pch = 16)
```

Frequency polygon(ogive) of Delivery Times

Q3)

The shape of the histogram is **approximately symmetric and bell-shaped**, with most delivery times clustering around the middle (35–45 minutes) and fewer at the lower and higher ends.

Q4)

```
#Q4
#Draw a cumulative frequency polygon(ogive)

#creating a null variable called "new"
new<-c()
for(i in 1:length(breaks)){
  if(i==1){
    new[i]=0
  }else{
    new[i]=cum_freq[i-1]
  }

}

plot(breaks,new, type = "l",main = "Frequency polygon(ogive) of Delivery Times",
     xlab = "Delivery Time(minutes)",
     ylab = "Cumulative Frequency",
     ylim = c(0, max(cum_freq)))
```

```
> #Q4
> #Draw a cumulative frequency polygon(ogive)
>
> #creating a null variable called "new"
> new<-c()
> for(i in 1:length(breaks)){
+    if(i==1){
+      new[i]=0
+    }else{
+      new[i]=cum_freq[i-1]
+    }
+
+ }
>
> plot(breaks,new, type = "l",main = "Frequency polygon(ogive) of Delivery Times",
+      xlab = "Delivery Time(minutes)",
+      ylab = "Cumulative Frequency",
+      ylim = c(0, max(cum_freq)))
>
```


Frequency polygon(ogive) of Delivery Times