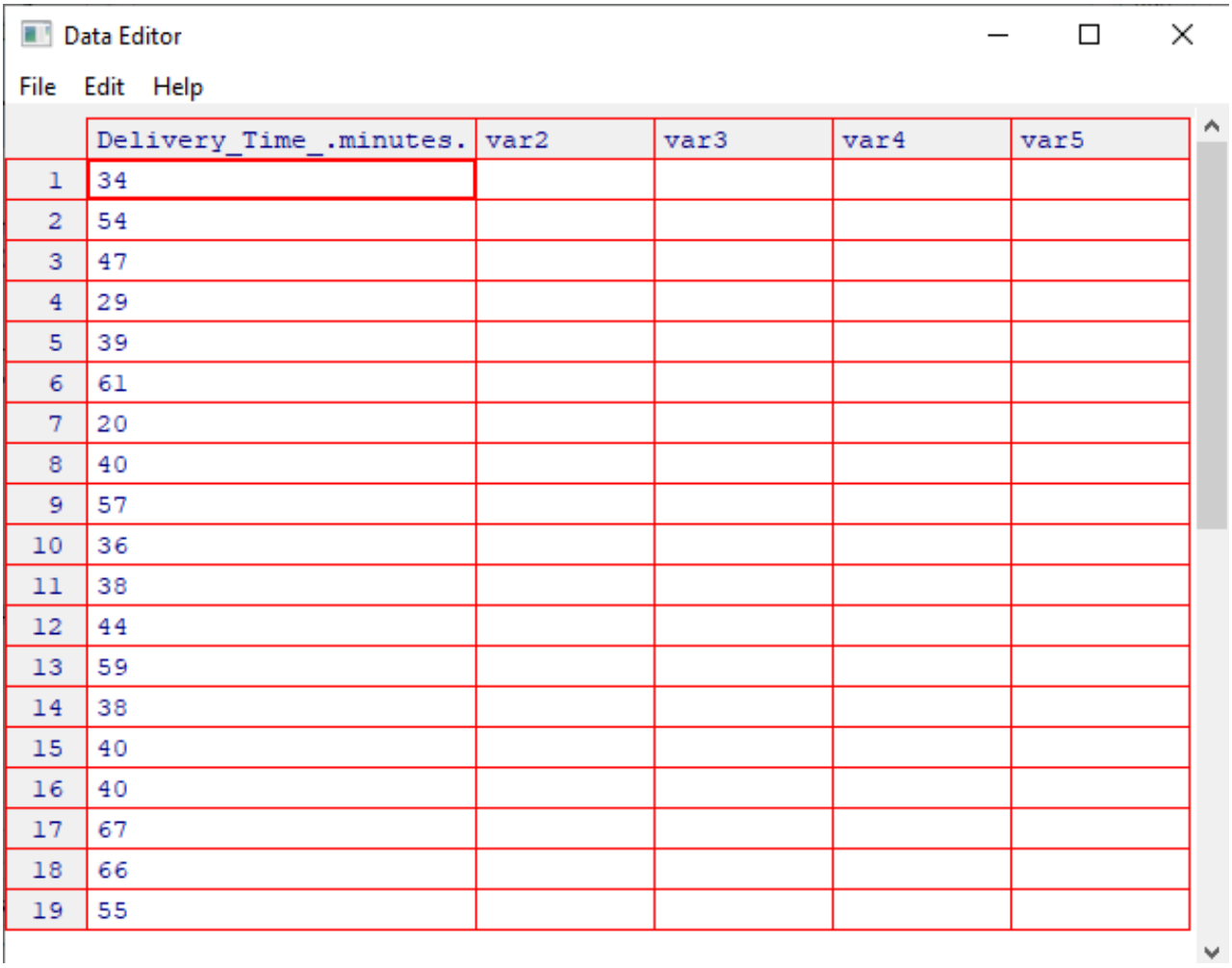
Probability and Statistics

LAB 05

Q1.

```
setwd("C:\\Users\\it24100263\\Desktop\\IT24100263")
#Q1
Delivery_Times <- read.table("Exercise - Lab 05.txt", header = TRUE)
fix(Delivery_Times)
print(Delivery_Times)
```



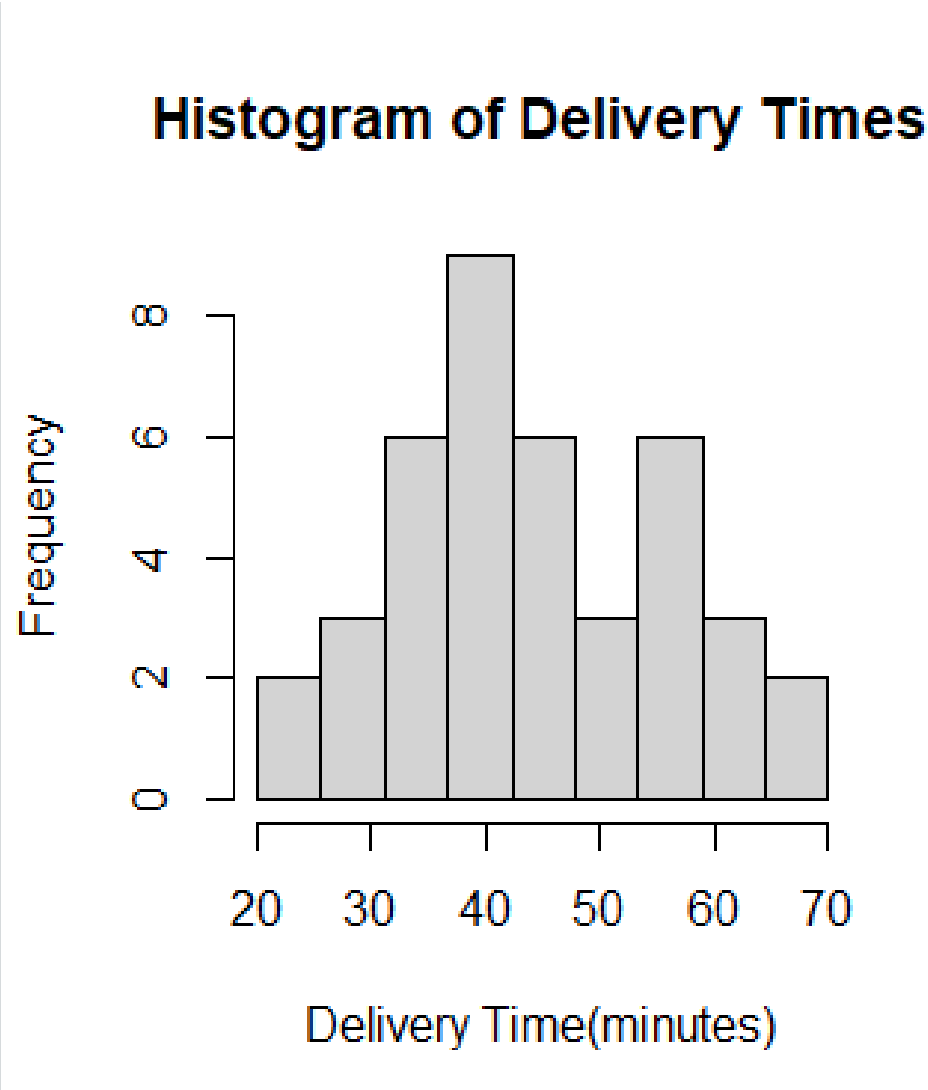
Data Editor

File Edit Help

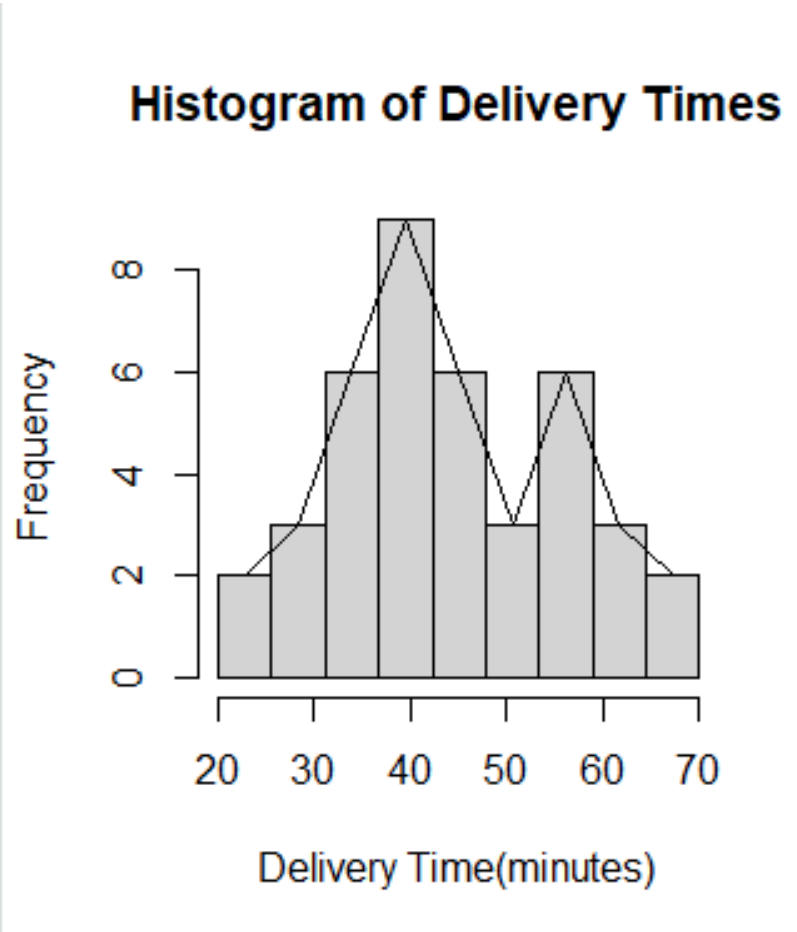
	Delivery_Time_.minutes.	var2	var3	var4	var5
1	34				
2	54				
3	47				
4	29				
5	39				
6	61				
7	20				
8	40				
9	57				
10	36				
11	38				
12	44				
13	59				
14	38				
15	40				
16	40				
17	67				
18	66				
19	55				

Q2.

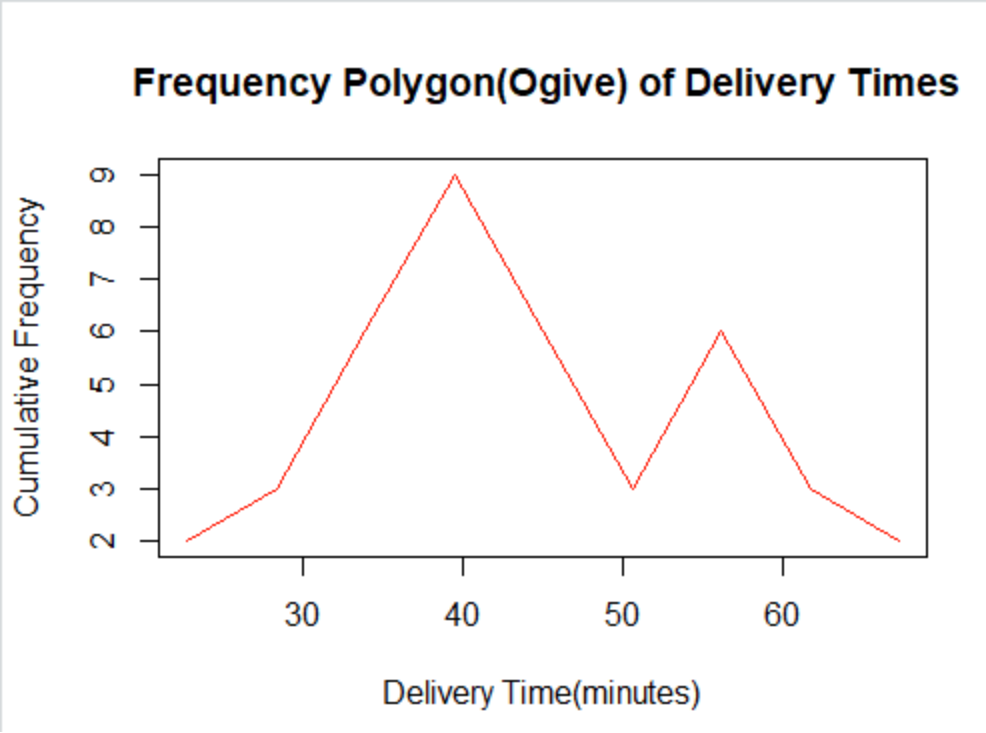
```
#Q2
histrogam<-hist(Delivery_Times$Delivery_Time_.minutes.,
     breaks = seq(20,70, length=10),
     right = FALSE,
     main = "Histogram of Delivery Times",
     xlab = "Delivery Time(minutes)",
     ylab = "Frequency",

     )
```



```
freq<-histrogam$counts
freq
cum_freq<-cumsum(freq)
cum_freq
breaks<-histrogam$breaks
breaks
mids<-histrogam$mids
lines(mids,freq)
```




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

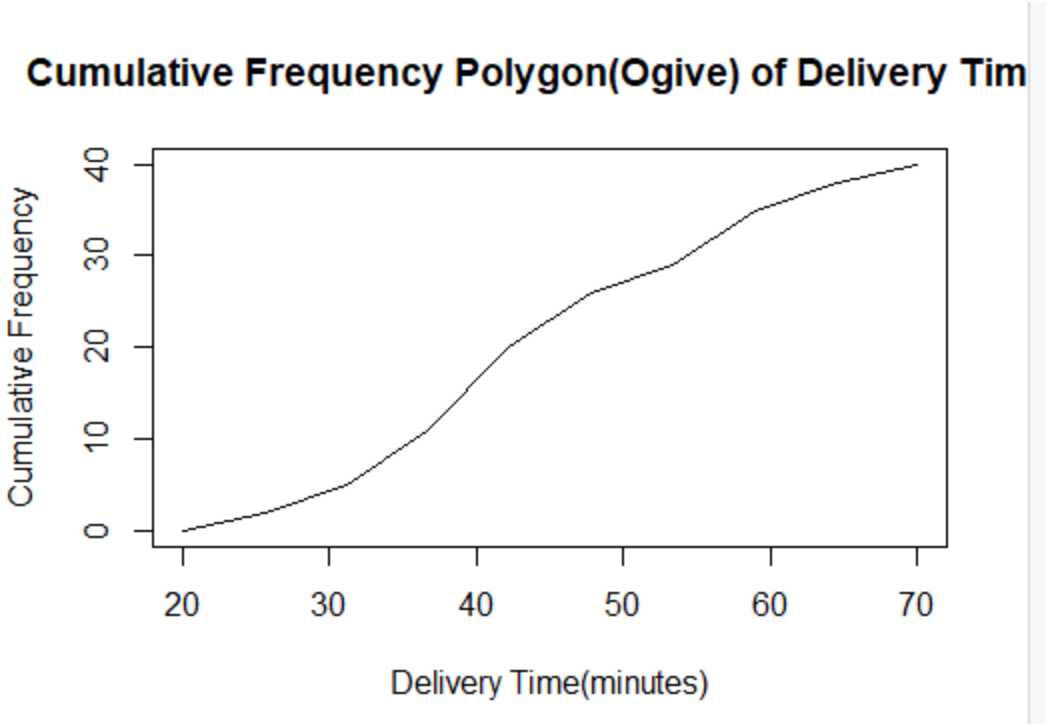


Q3.

The shape of the distribution is approximately symmetric and bell-shaped(close to a normal distribution), with most delivery times centered around 40-45 minutes.

Q4.

```r
#Q4
new<-c()

for(i in 1:length(breaks)){
  if(i==1){
    new[i]=0
  }else{
    new[i]=cum_freq[i-1]
  }
}
new
plot(breaks,new, type = "l", main = "Cumulative Frequency Polygon(Ogive) of Delivery Times",
     xlab = "Delivery Time(minutes)",
     ylab = "Cumulative Frequency",
     ylim = c(0, max(cum_freq)))
```


Cumulative Frequency Polygon(Ogive) of Delivery Tim
Cumulative Frequency
0
10
20
30
40
20
30
40
50
60
70
Delivery Time(minutes)