

# Probability and Statistics - IT2120

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LAB 05

Pinthu D.I.U. - IT24100139

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

```
setwd("C:\\Users\\IT24100139\\Desktop\\IT24100139")
getwd()

# 01
Delivery_Times <- read.table("Exercise - Lab 05.txt", header = TRUE)

fix(Delivery_Times)
```

Console Terminal × Background Jobs ×

R 4.2.2 · C:/Users/IT24100139/Desktop/IT24100139/ ↗

```
> setwd("C:\\Users\\IT24100139\\Desktop\\IT24100139")
> getwd()
[1] "C:/Users/IT24100139/Desktop/IT24100139"
> #
> Delivery_Times <- read.table("Exercise - Lab 05.txt", header = TRUE)
>
> fix(Delivery_Times)
```

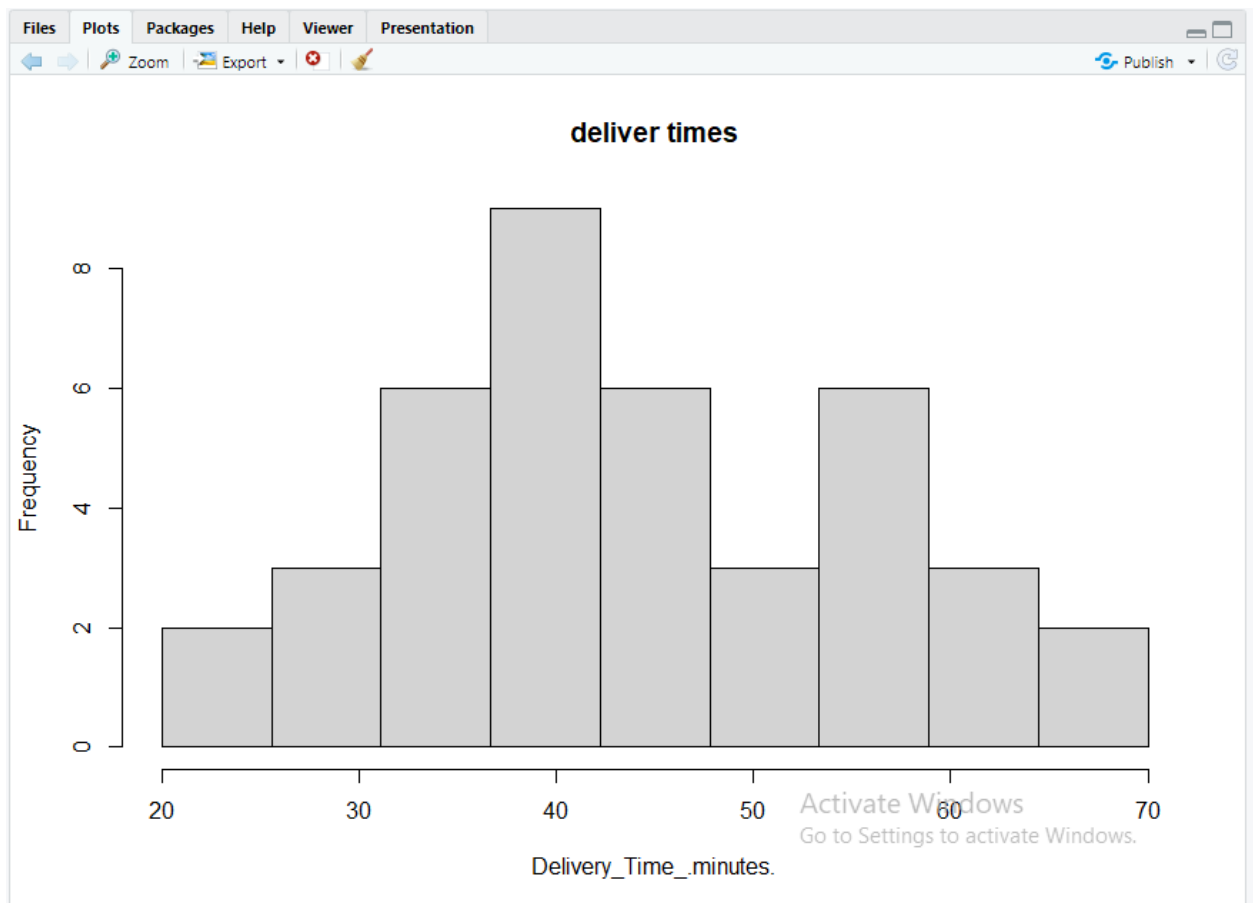
Data Editor					
File Edit Help					
	Delivery_Time_.minutes.	var2	var3	var4	var5
1	34				
2	54				
3	47				
4	29				
5	39				
6	61				
7	20				
8	40				
9	57				
10	36				
11	38				
12	44				
13	59				
14	38				
15	40				
16	40				
17	67				
18	66				
19	55				

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.

```
# 02
attach(Delivery_Times)

histogram <- hist(Delivery_Time_.minutes., main = "deliver times", breaks = seq(20,70, length=10), right = FALSE)

freq <- histogram$counts
breaks <- histogram$breaks
cum.freq <- cumsum(freq)
new <- c()
```



3. Comment on the shape of the distribution.

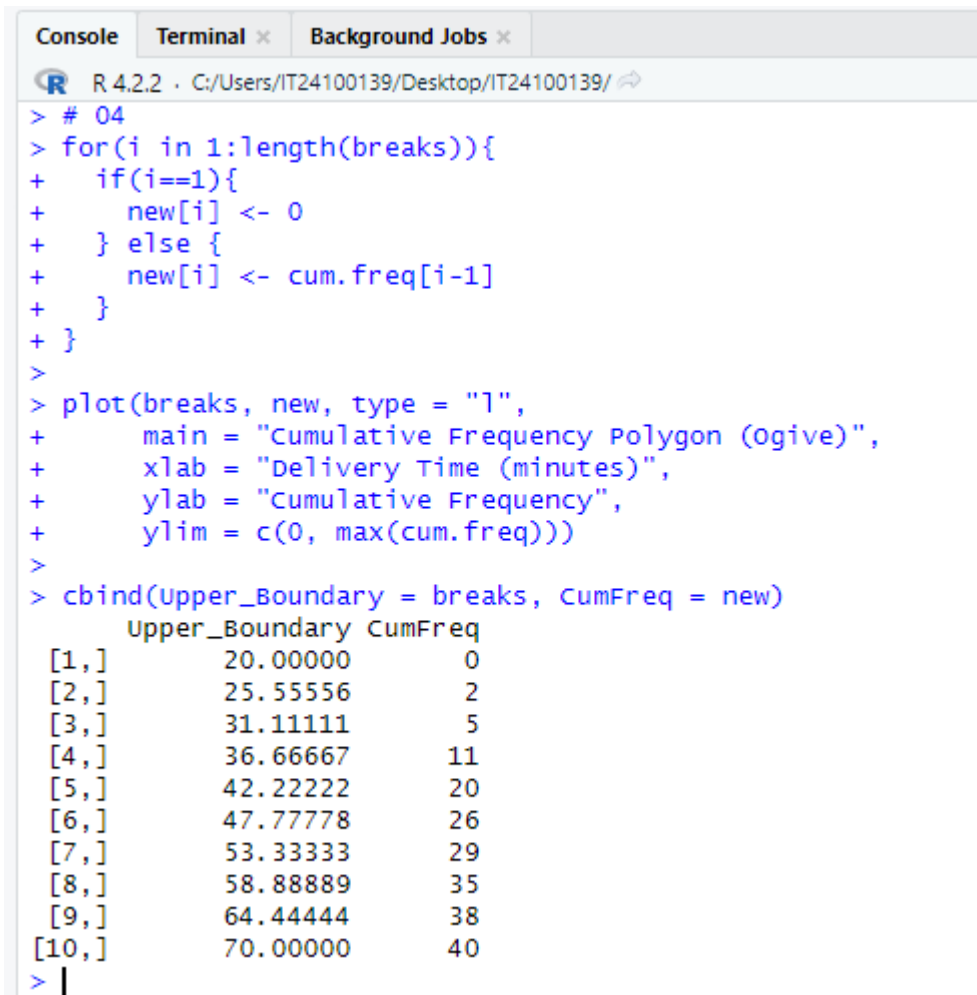
```
# 03 It's symmetric Distribution (slightly right-skewed)
```

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

```
# 04
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 = "Cumulative Frequency Polygon (ogive)",
     xlab = "Delivery Time (minutes)",
     ylab = "Cumulative Frequency",
     ylim = c(0, max(cum.freq)))

cbind(Upper_Boundary = breaks, CumFreq = new)
```



```
R 4.2.2 · C:/Users/IT24100139/Desktop/IT24100139/
> # 04
> 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 = "Cumulative Frequency Polygon (ogive)",
+     xlab = "Delivery Time (minutes)",
+     ylab = "Cumulative Frequency",
+     ylim = c(0, max(cum.freq)))
>
> cbind(Upper_Boundary = breaks, CumFreq = new)
      Upper_Boundary CumFreq
[1,]          20.00000         0
[2,]          25.55556         2
[3,]          31.11111         5
[4,]          36.66667        11
[5,]          42.22222        20
[6,]          47.77778        26
[7,]          53.33333        29
[8,]          58.88889        35
[9,]          64.44444        38
[10,]         70.00000        40
> |
```

