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PS Lab 05

Exercise

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

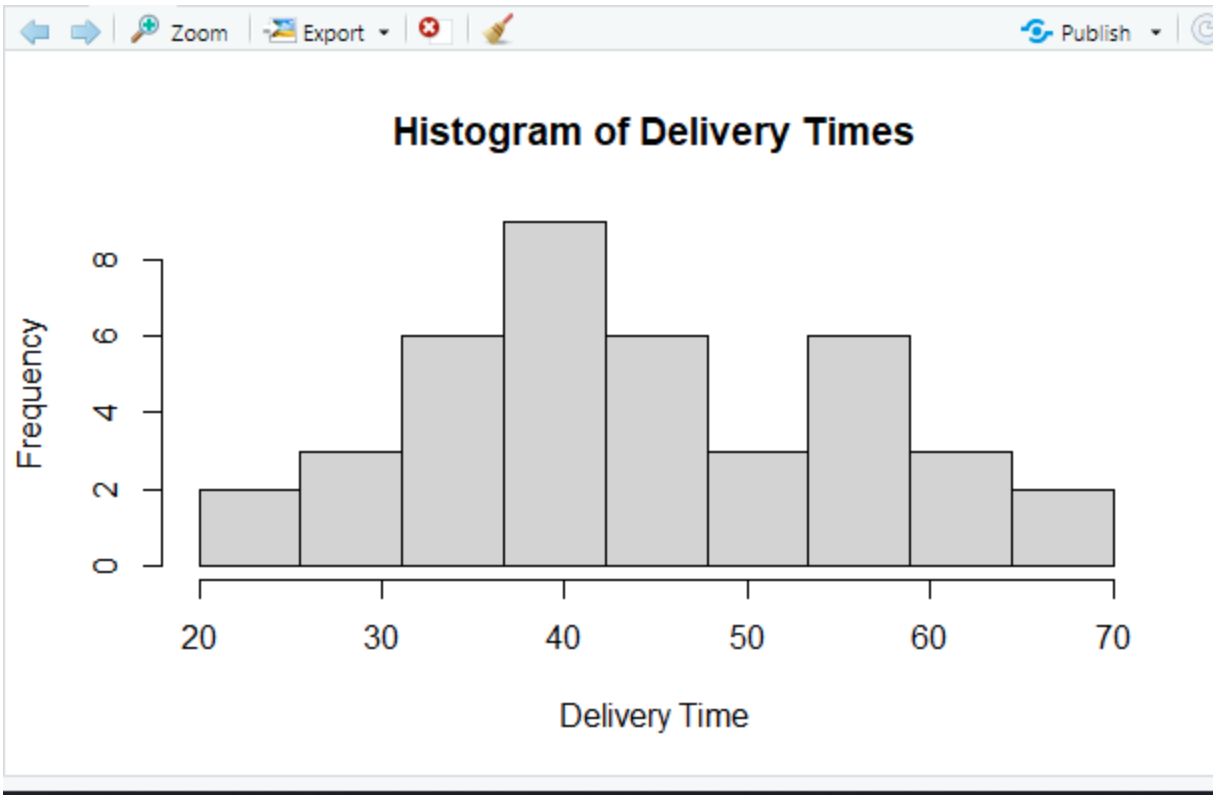
```
setwd("C:\\Users\\it24101536\\Desktop\\IT24101536 PS Lab 05")
getwd()
Delivery_Times<-read.table("Exercise - Lab 05.txt", header = TRUE)
```

```
> setwd("C:\\Users\\it24101536\\Desktop\\IT24101536 PS Lab 05")
> getwd()
[1] "C:/Users/it24101536/Desktop/IT24101536 PS Lab 05"
> Delivery_Times<-read.table("Exercise - Lab 05.txt", header = TRUE)
```

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.

```
fix(Delivery_Times)
attach(Delivery_Times)
histogram<-hist(Delivery_Time_.minutes., main = "Histogram of Delivery Times",brea
```

```
> fix(Delivery_Times)
> hist(Delivery_Time_.minutes., main = "Histogram of Delivery Times",breaks = seq(20, 7
0, length= 10 ), right=FALSE, xlab="Delivery Time",ylab = "Frequency")
```



3. Comment on the shape of the distribution.

   Modality: The histogram has a single peak (around 40 minutes), which indicates that the distribution is unimodal.

   Symmetry: The distribution looks fairly symmetric around the peak at 40 minutes, as the left and right tails seem to be of roughly equal length.

   Skewness: There is no clear skew in the data. It appears relatively balanced, with no long tail on the left or right, meaning the data is approximately normal.

   Spread: The data spans from about 20 minutes to 70 minutes, but most values seem to be concentrated between 30 and 50 minutes, showing a moderate range with the highest frequency around 40 minutes.

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

```
breaks<- round(histogram$breaks)
freq<-histogram$counts
mids<-histogram$mids
classes<-c()

for(i in 1: length(breaks)-1){
  classes[i] <- paste0("[",breaks[i], ",", breaks[i+1], ")")
}
cbind(Classes = classes, Frequency=freq)
cum.freq<- cumsum(freq)
cum.freq
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= "Cumalative Frequency Polygon",xlab="Delivery Time",ylab="Cuma
cbind(Upper= breaks,CumFreq=new)
```

```
> breaks<- round(histogram$breaks)
> freq<-histogram$counts
> mids<-histogram$mids
> classes<-c()
> for(i in 1: length(breaks)-1){
+   classes[i] <- paste0("[",breaks[i], ",", breaks[i+1], ")")
+ }
> cbind(Classes = classes, Frequency=freq)
      Classes   Frequency
 [1,] "[20,26)" "2"
 [2,] "[26,31)" "3"
 [3,] "[31,37)" "6"
 [4,] "[37,42)" "9"
 [5,] "[42,48)" "6"
 [6,] "[48,53)" "3"
 [7,] "[53,59)" "6"
 [8,] "[59,64)" "3"
```

```
> cum.freq<- cumsum(freq)
> cum.freq
[1]  2  5 11 20 26 29 35 38 40
> 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= "Cumalative Frequency Polygon",xlab="Delivery Time",ylab="Cumalati
ve Frequency",ylim = c(0,max(cum.freq)))
> cbind(Upper= breaks,CumFreq=new)
```

```
> cbind(Upper= breaks,CumFreq=new)
      Upper CumFreq
 [1,]    20       0
 [2,]    26       2
 [3,]    31       5
 [4,]    37      11
 [5,]    42      20
 [6,]    48      26
 [7,]    53      29
 [8,]    59      35
 [9,]    64      38
[10,]    70      40
```