

IT2120 - Probability and Statistics

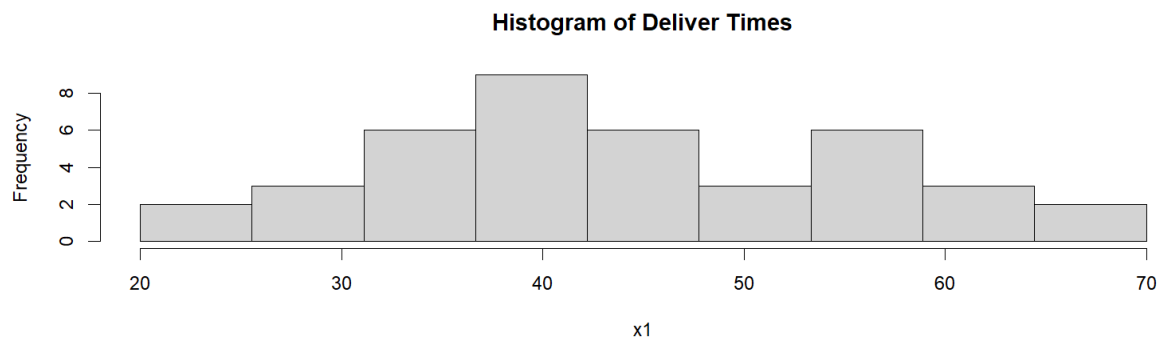
Lab - 05

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

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

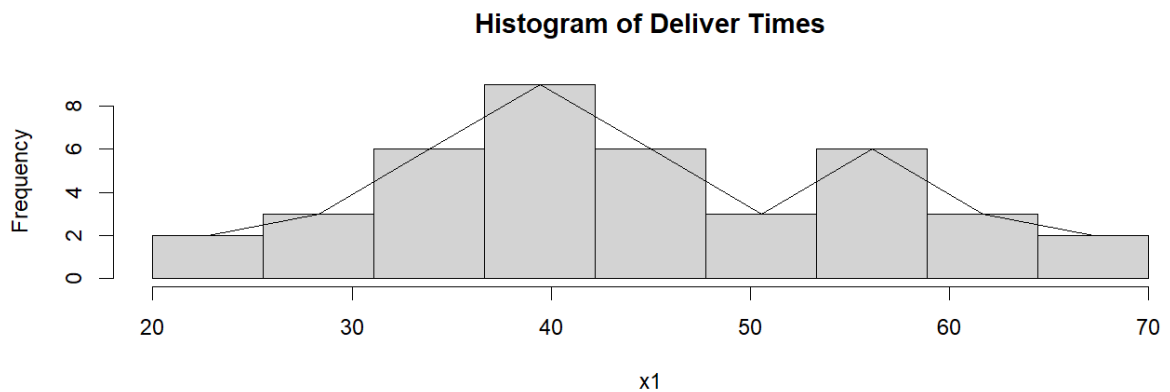
2. Draw a histogram for deliver times using nine class intervals where the lower limit is 20 and upper limit is 70. Use right open intervals.



3. Comment on the shape of the distribution.

```
> breaks
[1] 20 26 31 37 42 48 53 59 64 70
> freq
[1] 22.77778 28.33333 33.88889 39.44444 45.00000 50.55556 56.11111 61.66667 67.22222
> mids
[1] 22.77778 28.33333 33.88889 39.44444 45.00000 50.55556 56.11111 61.66667 67.22222
> # create the variable called classes for the frequency distribution
> classes <- c()
> for (i in 1: length(breaks)-1){
+   classes[i] <- paste0("[", breaks[i], ",", breaks[i+1], ")")
+ }
> classes
[1] "[20,26)" "[26,31)" "[31,37)" "[37,42)" "[42,48)" "[48,53)" "[53,59)" "[59,64)" "[64,70)"
> # obtain the freq distribution combining freq table and classes
> cbind(classes = classes, Frequency = freq)
```

	Classes	Frequency
[1,]	"[20,26)"	"22.7777777777778"
[2,]	"[26,31)"	"28.3333333333333"
[3,]	"[31,37)"	"33.8888888888889"
[4,]	"[37,42)"	"39.4444444444444"
[5,]	"[42,48)"	"45"
[6,]	"[48,53)"	"50.5555555555556"
[7,]	"[53,59)"	"56.1111111111111"
[8,]	"[59,64)"	"61.6666666666667"
[9,]	"[64,70)"	"67.2222222222222"



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

```
> 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

```
> |
```

