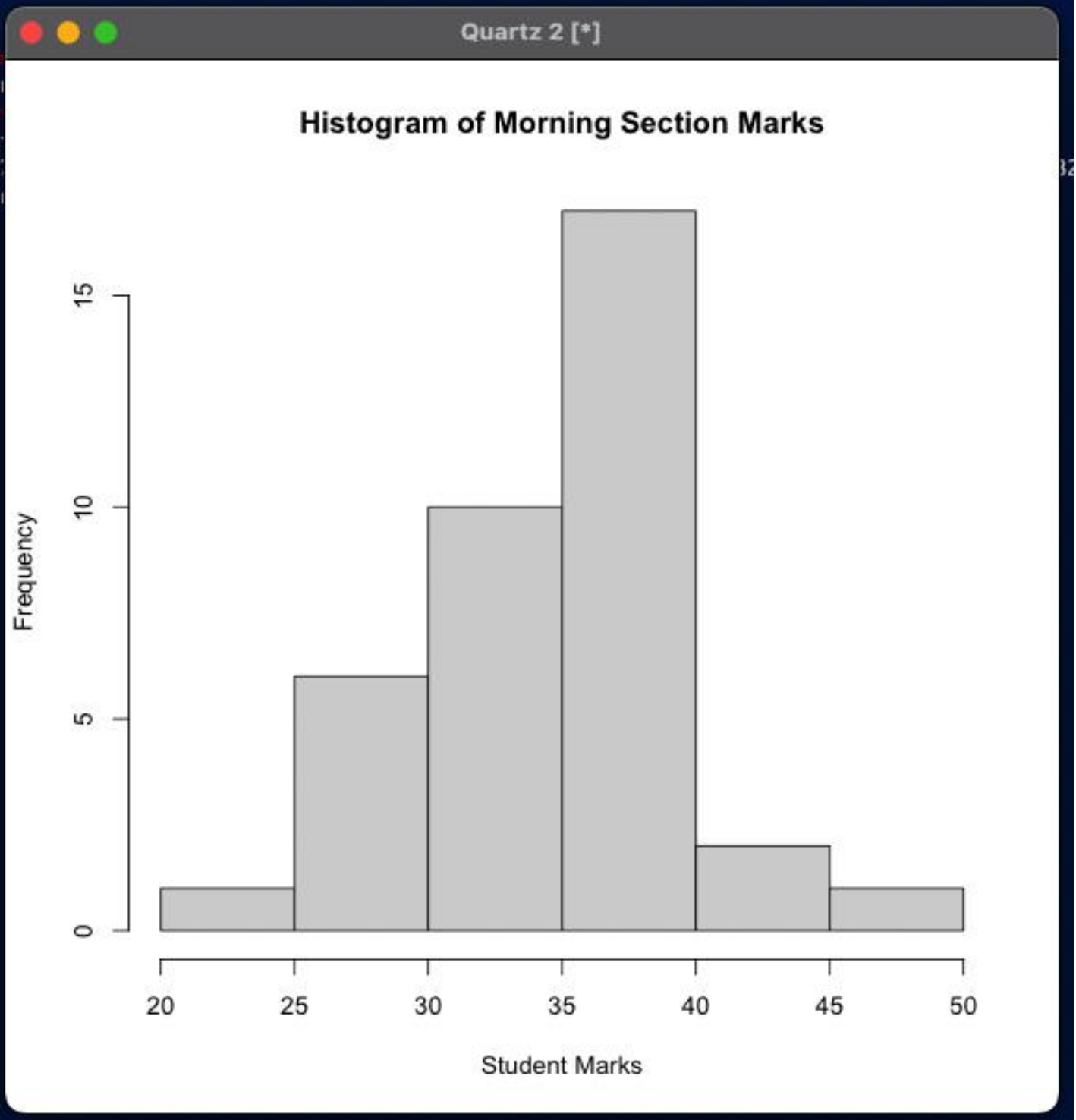
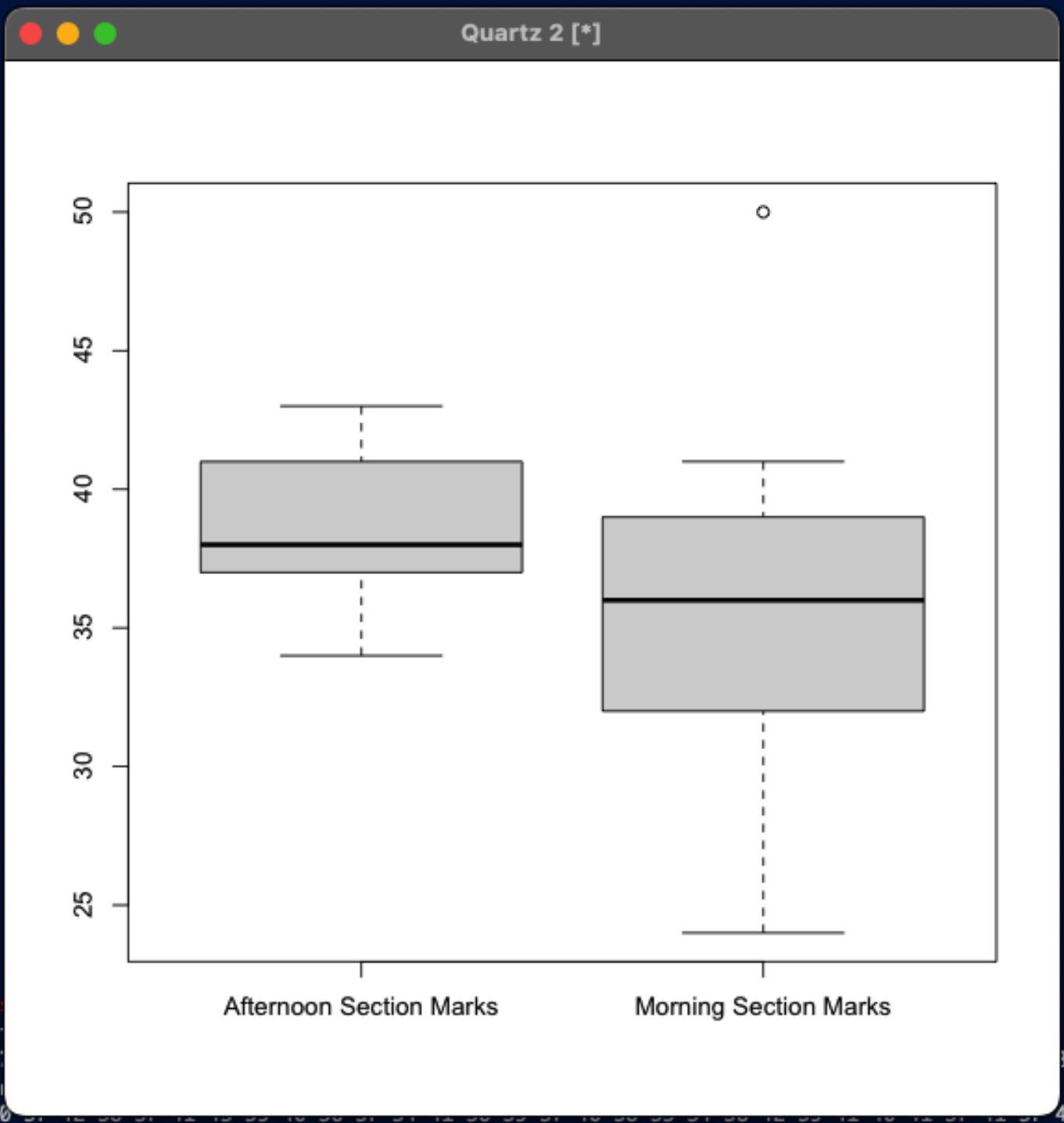
1A

```
> marks.morning
 [1] 37 39 27 33 29 32 39 40 40 50 39 40 33 39 38 29 24 31 27 36 30 36 40 39 30 41 41 34 32 40 31 32 38 39 33 32 39
> marks.afternoon
 [1] 38 36 40 37 42 38 37 41 43 39 40 36 37 34 41 36 39 37 40 38 35 34 38 42 39 41 40 41 37 41 37 41 35 38 41 36
> hist (marks.morning)
> hist (marks.morning, main="Histogram of Morning Section Marks", xlab="Student Marks")
>
```



1B

```
> marks.morning
 [1] 37 39 27 33 29 32 39 40 40 50 39 40 33 39 38 29 24 31 27 36 30 36 40 39 30 41 41 34 32 40 31 32 38 39 33 32 39
> marks.afternoon
 [1] 38 36 40 37 42 38 37 41 43 39 40 36 37 34 41 36 39 37 40 38 35 34 38 42 39 41 40 41 37 41 37 41 35 38 41 36
> boxplot (marks.afternoon,marks.morning,names=c("Afternoon Section Marks", "Morning Section Marks"))
>
```



1C

The mean for the morning marks would be 35.37838
The mean for the afternoon marks would be 38.47222
The standard deviation for the morning section marks is 5.282841. It means all the marks are on average 5.28 points far from the mean. The standard deviation for the afternoon section marks is 2.408154. It means all the marks in the afternoon section are on average 2.40 points far from the mean.

The calculation from the R is given as follows:

```
> marks.morning
 [1] 37 39 27 33 29 32 39 40 40 50 39 40 33 39 38 29 24 31 27 36 30 36 40 39 30 41 41 34 32 40 31 32 38 39 33 32 39
> marks.afternoon
 [1] 38 36 40 37 42 38 37 41 43 39 40 36 37 34 41 36 39 37 40 38 35 34 38 42 39 41 40 41 37 41 37 41 35 38 41 36
> mean (marks.morning)
[1] 35.37838
> mean (marks.afternoon)
[1] 38.47222
> sd (marks.morning)
[1] 5.282841
> sd (marks.afternoon)
[1] 2.408154
>
```

1D

The afternoon section/class seems to have better performed in the test than the morning counterpart.

The results from the morning section are more spread out and have a highest mark which is more than the highest mark from the afternoon section. But if we look at the mean of both sections, the afternoon section has a higher mean than morning section. More students seem to get 38 in the afternoon section than 36 in morning section, which also indicates more students getting a higher grade in the afternoon section (although this might not indicate the better performance of a section, but still a good thing to note). Lastly, looking at the first and last quartile (first 25% and last 25%), we can see that more students got grades lower than 32 in the morning section, which is lower than the minimum in the afternoon section. For the last quartile, more students got marks in the 39-50 points than afternoon section (41-43). Even though more people got higher grades on average in the last quartile, that's not close to how the morning section performed for the first quartile, 25% students got lower than the minimum in the afternoon section. TLDR: Afternoon section performed better even though the morning section has a higher maximum grade.

This can be more explained though the intuitive summary function from R:

```
> summary (marks.morning)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  24.00   32.00   36.00   35.38   39.00   50.00
> summary (marks.afternoon)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  34.00   37.00   38.00   38.47   41.00   43.00
>
```

End of Question 1