STAT345: Homework 6

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Problem 1

a

Mean of the exercise group: 287.9167
Mean of the no exercise group: 325.375

b

Standard devi'ation of exercise group: 106.0441
Standard deviation of no exercise group: 120.6754
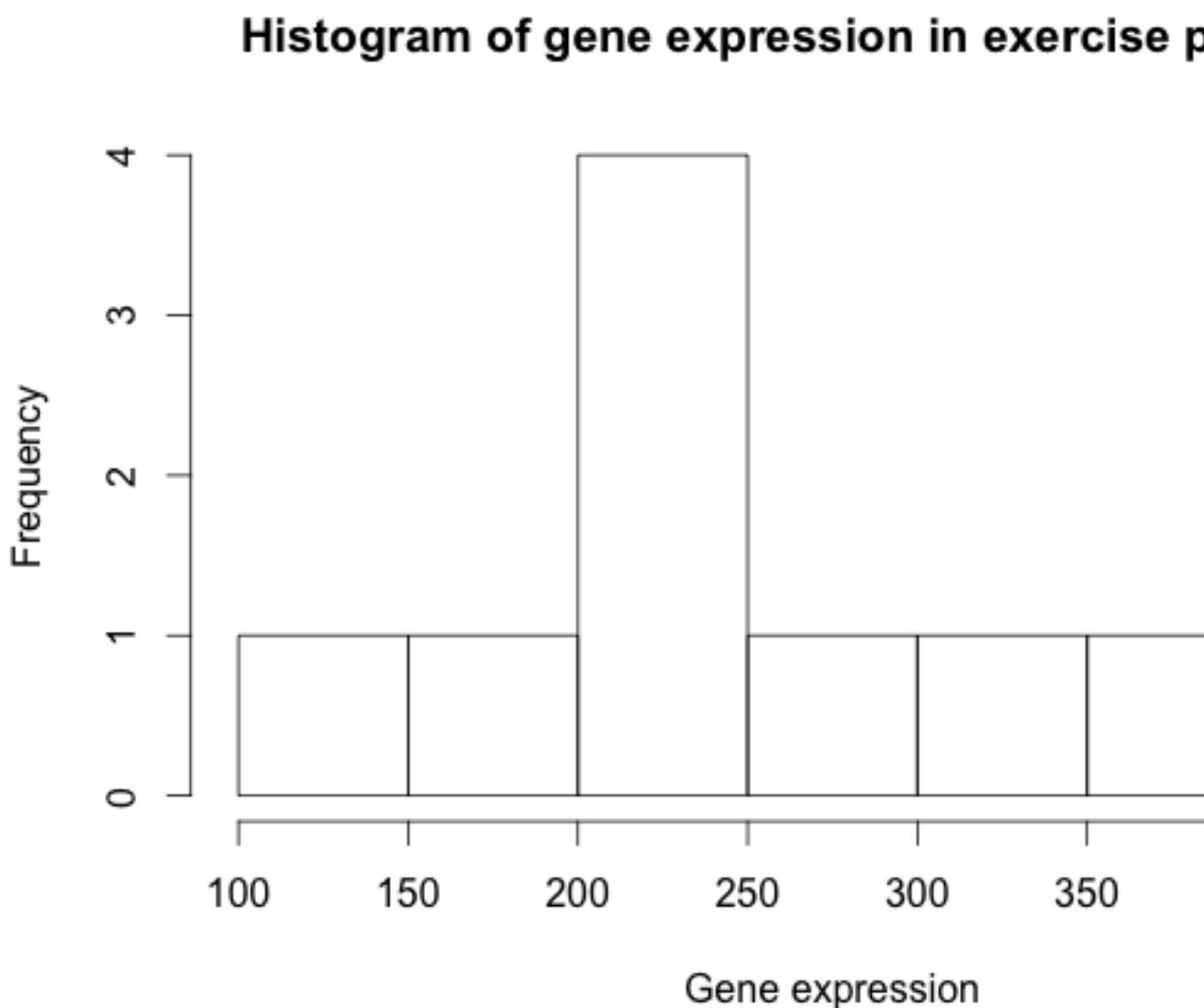
c

Median of exercise group: 265.5
Median of no exercise group: 294
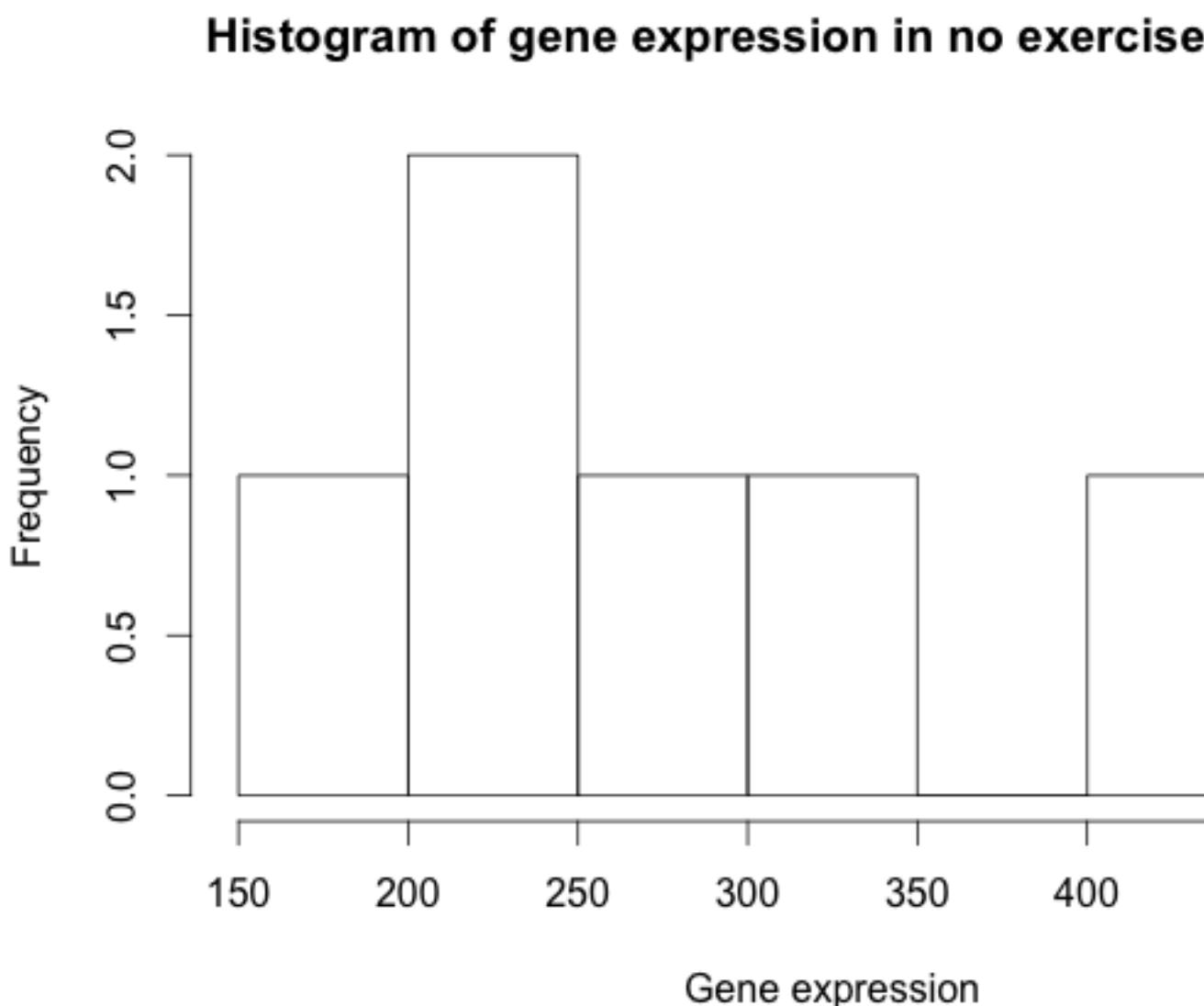
d

Histogram of exercise group:

Histogram of gene expression in exercise p
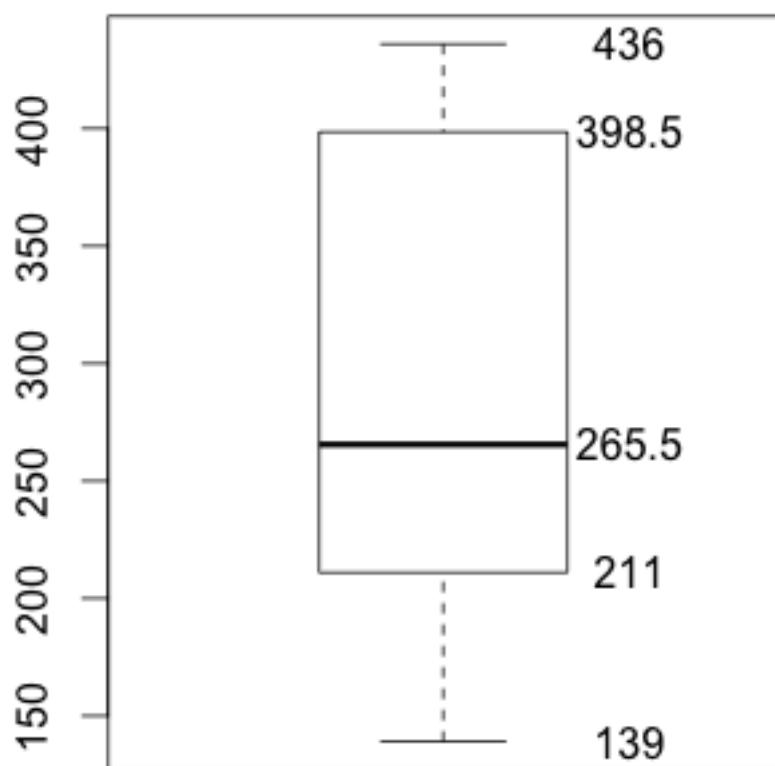
Histogram of no exercise group:


Histogram of gene expression in no exercise
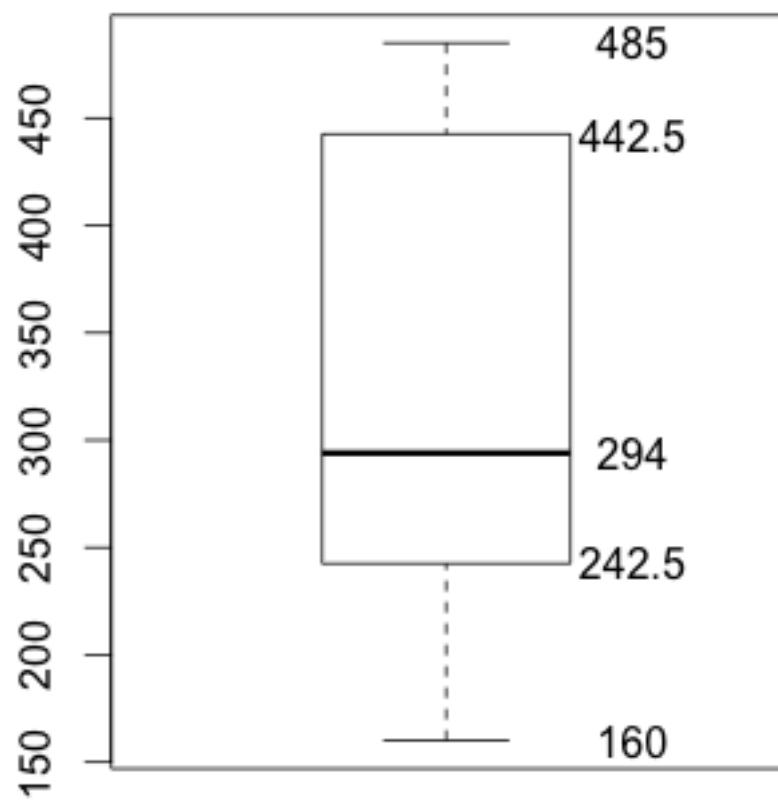
e

Exercise group box plot:

No exercise group box plot:

f

The no exercise group has higher gene excitation because it has a higher mean and median.

Problem 2

a

Mean of $\bar{X}_1$ is 2
Variance of $\bar{X}_1$ is 0.225

b

Mean of $\bar{X}_2$ is 2
Variance of $\bar{X}_2$ is 0.1125

a

Mean of xbar1 is 2.019538
The difference between the theoretical and actual values is 0.019538

b

Variance of xbar1 is 0.191268 The difference between the theoretical and actual values is 0.033732

a

Variance of xbar2 is 0.1146052 The difference between the theoretical and actual values is 0.0021052

b

There is a much smaller variance with the larger sample size because it comes closer and closer to aproximating the perfect normal distribution.