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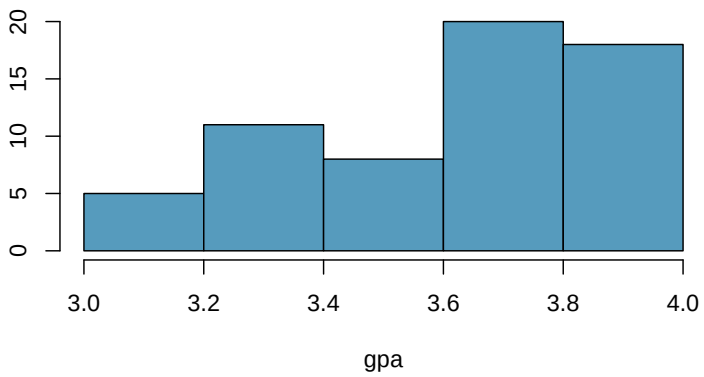
Application exercise 3.2: Grade inflation

Team names: _____

Write your responses in the spaces provided below. WRITE LEGIBLY and SHOW ALL WORK! Only one submission per team is required.

In 2001 the average GPA of students at Cornell University was 3.37. Last semester 63 GOVT 3990 students responded to the question on GPA on the class survey. The mean was 3.58, and the standard deviation 0.53. A histogram of the data is shown below.



Assuming that this sample is random and representative of all Cornell students (bit of a leap of faith? you can discuss that when checking the conditions), do these data provide convincing evidence that the average GPA of Cornell students has **changed** over the last decade and a half?

Make sure to check conditions, note any assumptions you make, and show all your work.

Conditions:

- *The sample is less than 10% of the population of all Cornell students, however it is not random. It may not be reasonable to assume that the GPAs of sampled Cornell students are independent of each other.*
- *The distribution is not extremely skewed, and the sample size is sufficiently large, to yield a nearly normal sampling distribution of the mean.*

$$Z = \frac{3.58 - 3.37}{0.53/\sqrt{63}} = 3.15 \rightarrow p - value = 0.0016$$