STAT 477
Take Home Exam 2

Below is the take home exam for the material covered in Module 2. You may only receive help from me on the take home exam. Receiving assistance from any other source will be considered academic dishonesty and treated as such.

Your responses to the questions below should be prepared on the computer and uploaded to Canvas before the deadline. Your responses should be written in paragraph form. You should include all tables and graphs as a part of this paragraph structure in your write-up, not separately at the end.

- Several years ago, we conducted a study of introductory statistics students' understanding of the applications of bar graphs and histograms. During one semester, students enrolled in Stat 101 here at Iowa State were randomly assigned to answer one of two versions of a question on an online homework assignment. The two versions of the question are given below.
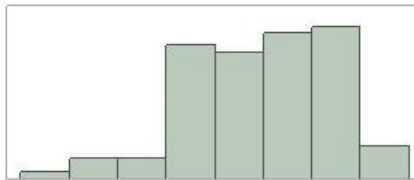
Question 1 - Which of the following is/are appropriate displays for the distribution of the Hair Color of Stat 101 students?

Version 1	Version 2
I. Bar Graph	I. Bar Graph
II. Frequency/Relative Frequency Table	II. Frequency/Relative Frequency Table
III. Stem and Leaf Plot	III. Histogram
a. I only	a. I only
b. II only	b. II only
c. I and II only	c. I and II only
d. I, II and III	d. I, II and III

Students responses can be found in the file **TakeHomeExam2.Data1.csv**. Use these responses to determine which version of the question the population of STAT 101 students will score better on - Version 1 or Version 2. Assume the group of STAT 101 students we have data for are representative of the population of STAT 101 students. Make sure to include appropriate numerical summaries and graphs in your answer.

- As a part of the same study, we also collected student responses on online homework assignments to study students' understanding of the components of bar graphs and histograms. Each student answered the two questions below about the role of the horizontal and vertical axes in this histogram.

A histogram for the sale price of 100 cars is pictured below.

Question 2 - The values on the horizontal axis are:	Question 3 - The values on the vertical axis are:
a. The number of cars.	a. The number of cars.
b. The sale prices.	b. The sale prices.
c. The mean sales price for each bin.	c. The mean sales price for each bin.
d. The median sales price for each bin.	d. The median sales price for each bin.

Students responses can be found in the file **TakeHomeExam2.Data2.csv**. Use these responses to determine whether the proportion of the population of STAT 101 students who correctly identify the horizontal axis of this histogram is different from the proportion of the population of STAT 101 students who correctly identify the vertical axis of this histogram. Assume the group of STAT 101 students we have data for are representative of the population of STAT 101 students. Make sure to include appropriate numerical summaries and graphs in your answer.