You may work with a group of as many as three people on this assignment, submitting one report with all names, provided that all of you contribute substantially to the work. Word-processed reports are preferred to hand-written ones. Integrate computer output into your report as appropriate.

**Memorizing Letters?**
Recall that we conducted a study in class that involved memorizing as many letters as you could in 20 seconds. The research question was whether seeing the letters in recognizable groupings would produce better performance on the memory task.

The data for my two sections combined have been entered into the Minitab worksheet `memory221w12.mtw`, available from our course website. Note that C1 contains the memory scores, C2 indicates the group to which the student was assigned (JFK or JFKC), and C3 provides the student’s section number (2 or 3).

**a)** Identify the explanatory and response variables. Also classify them as categorical or quantitative.

**b)** Is this an observational study or an experiment? Explain.

**c)** State the null and alternative hypotheses, in both words and symbols, for testing the research question stated above.

**d)** Produce (and submit) comparative dotplots and comparative boxplots of the memory scores, comparing the JFK group to the JFKC group. [Graph> Dotplot, One Y With Groups, Graph> Boxplot, One Y With Groups]. Also calculate (and report) the sample size, mean, and standard deviation of the memory scores for the two groups [Stat> Basic Statistics> Descriptive Statistics]. Comment on what these graphs and statistics reveal about the question of whether the JFK group tends to memorize more letters than the JFKC group.

**e)** Check and comment on whether the technical conditions of the two-sample t-test and two-sample t-interval are satisfied here.

**f)** Conduct a two-sample t-test of whether the data provide strong evidence that the JFK group tends to memorize more letters, on average, than the JFKC group [Stat> Basic Statistics> 2-Sample t...]. Report the values of the test statistic and p-value. State the test decision at the .10, .05, and .01 significance levels, and summarize your conclusion.

**g)** Produce a 90% confidence interval for the difference in population mean scores between the two groups [Stat> Basic Statistics> 2-Sample t...]. Also interpret what this interval reveals.
h) Now turn your attention to the question of whether the two sections differ significantly with regard to memorizing letters. Produce relevant graphs and statistics, and then conduct an appropriate test and produce a confidence interval. Write a paragraph summarizing your findings.