With your class team, you will conduct a small-scale data analysis project. The project is to be a statistical analysis of some issue of interest to you. As an aspiring data scientist, you will explore the entire data science process: data gathering, question formulation, analyses, conclusions, and written and oral presentations.

The questions addressed in your project are at your discretion subject to the following requirement: The project must contain at least one multiple regression analysis with at least three predictors considered (though not necessarily in the final model). The analysis requires an interval-level response variable that you are trying to explain or predict, and three other variables, at least one of which is interval-level, that you are using to explain/predict this response variable.

Beyond the one-page proposal submitted earlier in the term, the project has two components:

* (10%) A 10-minute oral presentation to the class on your last class meeting.
* (90%) A written report.

The contents of the written report are as follows:

**Statistical Report**

Your primary goal when using statistical results in a report is to be understandable to your audience. In writing your report, you should target a managerial audience of mixed statistical sophistication. As such, you want even a naive manager to be able to extract meaning from the report. At the same time, you want to provide the technical information that a more statistically knowledgeable reader would want. This more technical material is presented in a well-organized Appendix.

The body of your report should contain the following sections, with headings, in order: Introduction, Analyses, and Conclusions. Be sure to include all the components of each section as described below. Feel free to use sub-headings as needed to organize your write-up. The entire body should be in non-technical language. A description of each main section follows:

*Introduction.* This section consists of several paragraphs. It should contain a statement of the questions of interest, why they are of interest, and any background needed to put the questions in context. A description of the data used to address the problem is here.

*Analyses.* This section provides your interpretation of the data relative to the questions of interest. Data displays and analysis summaries can appear here, but do not just cut-and-paste software output. The displays and summaries should be formatted for the audience (a non-technical, general managerial audience). Adequately explain all analyses--what you did and the conclusions drawn. Provide sufficient support for whatever conclusions you draw for understanding the problem and for any recommendations you make. Do not include all analyses that you do. Only include what is clearly relevant for the questions at hand. In the body of the report, you are writing to a non-technical audience; relevant technical details should go in the Appendix. For example, if you do several analyses to test an assumption of your central analysis, you can mention in the paper's body any aspects of this analysis that might affect your conclusions; but otherwise, assumption testing is a technical component and belongs in the Appendix. If there are significant limitations, be open about them.

*Conclusions.* A summary of the report that revisits the questions of interest that were identified in the introduction. Now, you connect the analyses clearly to the questions and to the conclusions you draw. Here you highlight the key points that you want the reader to remember. Unlike the introductory material, the conclusion is able to directly refer to the presented analyses.

**Appendix**

Any supporting material that you believe is of interest, but not appropriate to the body of the report, e.g., due to space limitations or its technical nature. The material for a more technical member of your audience would go here. However, this is not a trash heap for everything you did. Material in the appendix should be well-organized and well-labeled. Everything in the appendix should be cited in the body of the report at the appropriate spot and its relevance to the analysis in the report should be readily apparent.

**References**

If appropriate, be sure to cite any references used, including your data sources. Any format is fine as long as the essentials are included: e.g., author, title, source information. The basic principle is to provide enough information for the reader to easily find the source.