
Final Project Description

I. Introduction

The final project will simulate a scenario in which a consulting group is hired to provide recommendations to the management team of a business/organization on an accounting, finance, or other business-related issue. Individuals/groups of up to **4 students** will identify both a dataset and a business or organizational problem to address. You will provide a write-up containing a comprehensive summary and analysis, as well as recommendations for further action. Furthermore, you will present your findings to the class and answer questions simulating a presentation to the management team.

At a minimum, your write-up should include the following:

1. Background Overview

Summarize key facts about the business/organization. Describe key factors that affect the organization's performance as a business or other organizational entity. If relevant, describe important current events affecting the organization.

2. Your Role and Motivation

What is the big picture problem you have been asked to address or solve with data analytics? Why is addressing this issue relevant and important to your organization?

3. Ask the Questions

Specifically, what questions will you address as part of your solution to this problem? How will you use data analytics to address these issues?

4. Master the Data

Describe your dataset. Include a description of important data elements/fields and relevant summary statistics. Identify issues with data quality and describe important data manipulations/transformations and additional variables you developed.

5. Perform the Test Plan

How will you analyze the data? Describe the appropriate models and other specific techniques that you apply towards addressing your questions. What are the main limitations of your analyses? Are you concerned about data quality issues or bias in your dataset or analysis?

6. *Share the Story*

Provide a clear dashboard of key insights from your analysis. What are the key takeaways of your analyses? Provide two recommendations for your business/organization. These should be directly supported from your data analysis and visualizations.

7. *Extensions*

What additional actions or analyses would be useful to conduct in the future? What additional questions would be useful to answer that is beyond the scope of your project?

You will be graded on four components: (1) The *relevance* of your project towards identifying and addressing an important business/organizational/governmental issue. (2) The *quality and depth of your execution*. This includes the appropriateness of your methodology and analysis in answering your questions and supporting your recommendations, as well as the validity of assumptions made in your analysis. (3) The overall *persuasiveness and clarity* of your write-up. (4) Presentation - including the use of tables, graphs as well as the clarity and persuasiveness of the presentation. (5) Last, you will be graded on appropriate use of *course material*.

II. Deliverables

Part 1: Group Members and Proposed Dataset (Due: November 3th at 11:59pm)

A team member should email me your group member names and group member emails. You must also specify the proposed dataset you are currently interested in. However, you may change your final dataset choice for the final project deliverable if you choose.

Part 2: Project Deliverable

*The write-up and data files described below are due on **December 8th, 2020 at 11:59pm**. Please upload your submission to blackboard. Make sure all of your names are included in your Write up.*

Part 2.1: Write-Up

Required (12-point font, single spaced)

- 1) Executive summary – Max 1 pg. This should concisely summarize your report including your questions, analyses, key insights, and recommendations.
- 2) Report – Max 3 pg. This should detail your analyses, including your responses to the seven discussion topics described above.
- 3) Report Appendix – 3 pgs. This should contain supporting tables, figures, visualizations, and calculations for your report. Include a table with variable definitions if necessary to understand your figures. Every table should be clearly labeled with a title. Descriptions (10-pt font) should be included underneath tables that are not easily understandable.

Part 2.2: Supplementary Project Files

In addition to the write-up, you **may** include any other relevant Tableau/Excel/other project files. You may submit this as a file attachment or a file sharing link (e.g., Dropbox). You do not need to submit your dataset, but you should include a link or description for how to download it.

Part 3: Final Project Presentation (December 2nd and December 9th)

Presentations will be made during the last two classes of the semester. All teams should be ready by December 2nd with their presentation. Each team will present the project as follows:

- 1) A 10-minute presentation and 3-5 minutes for questions and answers. 2)

All team members must be active in the presentation.

III. Suggestions and Tips

1. The final project description is intentionally broad, and I encourage you to spend time exploring datasets that would allow you to answer important, contemporary, and interesting questions. There is an enormous variety of public, open datasets available online. Popular sources of data for this project include governmental data sources, such as [NYC Open Data](#) and the [Chicago Data Portal](#). You may also use any of the WRDS databases Baruch is subscribed to. Additional data sources are listed in *chapter 11* of the textbook. However, you are free to use any publicly available dataset, as well as combine datasets from multiple sources for your project.
2. Your project should emphasize your recommendations and insights of your analyses. While it is necessary to discuss data issues (e.g., data cleaning procedures), only discuss this in as much detail as is necessary to understand your analysis. Be bold with your analysis, and when possible make assumptions and estimate relevant quantities for your analysis. For example, you could estimate the impact of your recommendation on sales revenue, costs, profits, prices, customer demand, or various other key metrics.
3. Start exploring datasets EARLY to identify data issues that will be time consuming or challenging to deal with. For example:
 - a. Your dataset may require a lot of manual data cleaning before you can analyze it.
 - b. Your dataset may be missing important values that you need for your analysis.
 - c. Your dataset may be too large to download all at once. In this case, you may need to work with subsets of the data.
 - d. Your analysis may benefit from learning a new software tool to work with your dataset

4. If you are working with a large dataset, conduct your analyses over a subset of the data first. Once you have finalized what types of analysis you will conduct, you can then apply your analysis to the full sample. If it is infeasible or very costly (in terms of time or computation) to conduct your analyses over the full sample, then you may analyze your dataset over a subsample (e.g., a shorter time period). If you choose to do this, state this clearly as a limitation of your analysis and explain whether you believe your results would be similar or different over the full sample.

5. Working in groups can be challenging. Here are some suggestions: set internal goals and deadlines, divide the work into pieces, and communicate frequently using online tools (e.g., Skype, Zoom, Dropbox, Google Docs, etc.). Avoid the pitfalls of group work: “groupthink”, free

riding, and struggling for power. We will conduct within-group peer evaluations if needed that may affect your final project grade.

Other miscellaneous comments

- Clear, organized writing is important. Use clear section headings (do not include pages of unlabeled paragraphs). The writing center is available if you need additional help.
- Make sure every visualization has clearly readable labels. When possible, export your visualizations as images rather than screenshots (especially in Tableau). This will result in better image quality. Each table or figure in your appendix should be referenced in the text of your report and at least briefly described.
- Linear regressions and logistic regressions can help you add depth to your analysis and recommendations. They help you quantify how much one set of variables affects another variable.

Grading Rubric

Criteria for Grade	Subcriteria	Above Expectations	Meets Expectations	Below Expectations
Ask the Question	Scope of Question	Specific question asked with appropriate scope that will be addressed by the data analysis.	Question specificity lacking or scope of question too big or too small, to be answered by data.	Question specificity lacking and scope of question too big or too small, to be answered by data analysis.
Ask the Question	Hypothesis Development	Hypotheses developed and stated about the results you expect to find.	Hypotheses are stated, but not developed.	Hypotheses not contemplated or stated.
Master the Data	Data Selection	Data Source Reliable, Analyzing this data will directly address the question asked	Data source reliability may be questionable and may or may not completely address the question asked.	Data source is not reliable and will not adequately address the question asked.
Master the Data	Data Cleaning	Data cleaned and coherent strategy for cleaning missing data stated and	Data cleaned, but no coherent strategy for cleaning data is used.	Data lacks cleaning. No coherent strategy for cleaning data is used. Data preparation not complete.

		executed. Data Prepared for Analysis.	Data preparation not complete.	
Perform the Analysis	Analysis performed, including variety of analytics types and techniques.	Three or more types of analytics performed. Four or more analytics techniques used. Appropriate conclusions drawn.	Two or more types of analytics performed. Three or more analytics techniques used. Appropriate conclusions drawn.	One type of analytics performed (descriptive, diagnostic, predictive or prescriptive). Two or more analytics techniques used. Appropriate conclusions drawn.
Perform the Analysis / Share the Story	Visualizations	Unique, clever visualizations, used and insightful conclusions drawn.	Visualizations that match analysis performed. Basic conclusions drawn.	Simple visualizations done without any useful insight.
Share the Story	Report and Presentations	Report / Executive Summary / Presentation looks professional and appealing. Appropriate color used.	Report / Executive Summary / Presentation complete.	Report / Executive Summary / Presentation not complete.
Overall Project	Bloom's Taxonomy – Level of Critical Thinking Achieved	Evaluate and/or Create Critical Thinking Level Achieved	Apply and Analyze Critical Thinking Level Achieved	Remember and Understand Critical Thinking Level Achieved