

The objective of this final group project assignment is to analyze a business problem of a real-world company and offer prescriptive solutions to the company management using optimization models. The students must apply the concepts, frameworks and tools of prescriptive analytics they learned in BAN 630.

**Content:**

The final project report must address the following three aspects of a company of choice:

1. Identify a business problem of a real-world company. Collect data and estimate the necessary input variables for model formulation.
2. Use one of the following types of optimization models covered in BAN 630 to model the problem on a spreadsheet and find the optimal solution.
  - a. Linear Programming
  - b. Integer Programming
  - c. Nonlinear Programming
  - d. Decision Tree
  - e. Simulation Modeling
  - f. Queueing Models
3. Conduct what-if analyses on the optimal solution. Discuss the impact of variations in the estimates of input variables/constraints and comment on the robustness of the proposed optimal solution. What should be the recommendations for the company management to solve the business problem?

**Format of the Final Project Report:**

1. The typed final project report must be in Microsoft Word or PDF format and uploaded on Blackboard by the due date. Each group must upload only one report.
2. The report must be accompanied by the spreadsheet model that was built by the group. Model formulation, solution, what-if analysis and any other data analysis must be clearly displayed on the spreadsheet with proper documentation.
3. The report must be written in Times New Roman font with font size 12 and single-line space.
4. The number of pages in the written report must not exceed fifteen (15) excluding the cover page, references (bibliography), and appendices (if any).

**Rubric:**

The maximum possible score in this assignment is 100 points. These 100 points are distributed over the following:

**1. The originality and significance of the work (20 points)**

- a. Is it based on a real-world company? Is the business problem identified by the group a real and significant challenge that the company is facing? (10 points)
- b. Does the report utilize the publicly and/or academically available data sources about the company and the business problem? Does the report refer to and acknowledge those data sources in a professional manner? (10 points)

**2. How well the three questions are answered (70 points)****a. Question 1: (25 points)**

- i. Are the challenges supported by data?
- ii. Is the analysis rigorous, accurate, and comprehensive?
- iii. Are the arguments solid and convincing?

**b. Question 2: (25 points)**

- i. Is the chosen model appropriate in the given context?
- ii. Are the concepts, frameworks and software tools properly applied?
- iii. Does the analysis contain company-specific application rather than vague and generic buzzwords and jargon?

**c. Question 3: (20 points)**

- i. Has there been rigorous what-if analyses conducted *after* the optimal solution was found?
- ii. Are the recommendations novel, unique, and interesting?
- iii. Are the recommendations conveyed in a manner that is comprehensible to the management?

**3. Professionalism (10 points)**

- a. Does the report strictly adhere to the formatting guidelines stated on page 1?