Project 2 – Guidelines

Last updated: September 20, 2024

1 Instructions

Due on October 11, 2024 at 23:59.

Work in teams of two. Submit one report per team.

Read the case, "Moneyball for Murderball: Using Analytics to Construct Lineups in Wheelchair Rugby".

Assume the role of Ming. Write his final report, using the guidelines we covered in class on writing an operations research project report. In particular, your report should contain the following sections:

1. Introduction
2. Data
3. Model
4. Results
5. Conclusion

2 Suggested schedule

From September 16 to October 11, you will be given time in class to conduct exploratory data analysis, formulate and analyze models, and write your project report:

- Week of September 16: Exploratory data analysis
- Week of September 23: Model and results – linear regression
- Week of September 30: Model and results – optimization
- Week of October 7: Finalizing the modeling, analysis, and report

You should plan to write the sections of your project report as you complete these tasks, so that you can complete your project report on time.

Resubmissions

You may resubmit your report once before the end of the 12-week marking period.

3 Grading rubric details

		Exemplary	Satisfactory	Developing	Unsatisfactory
C2	Describing the modeling framework	Chooses an appropriate modeling framework and identifies key components of the model	Chooses an appropriate modeling framework but does not specify model components	Does not choose an appropriate modeling framework	Chooses a modeling framework that does not use operations research techniques
		1. Uses a two stage modeling process involving regression first and optimization second. 2. Briefly describes why the two stage process is appropriate. 3. Describes the type of regression model used. 4. Identifies the response variable and the key explanatory variables in the regression model. 5. Describes the type of optimization model used. 6. Identifies the objective function and key constraints of the optimization model.	• Does: 1, 2, 3, 5	• Does: At least one of 1, 2, 3 or 5	
C4	Correctness and complexity of model	Model correctly captures major features and some subtleties of the problem; recognizes and properly justifies all assumptions Correctly does all of the following: 1. States the general regression model mathematically. 2. Constructs regression model with the correct response variable. 3. Constructs regression model with a reasonable set of explanatory variables. 4. Integrates the regression model outputs into the optimization model. 5. Formulates the optimization model, including all necessary components. 6. Formats optimization model according to the standard convention.	Model correctly captures major features of problem; identifies key assumptions • Does: 1, 2, 6 • Minor issues with: 3, 4, 5	Model incorrectly incorporates at least one important feature of the problem; model involves at least one oversimplifying assumption • Does: Either (1 and 2) or 6 • Major issues with: 3, 4, 5	Model does not give useful information; does not state or include necessary assumptions