

Project 3 – Guidelines

Last updated: October 15, 2024

1 Instructions

Due on November 8, 2024 at 23:59.

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

Read the case, “SM Travel”.

Assume the role of a consultant for SM Travel. Evaluate SM Travel’s current design and propose a new configuration that will reduce operating costs while still providing quality customer service. Write a 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 October 16 to November 8, you will be given time in class to conduct exploratory data analysis, formulate and analyze models, and write your project report:

- Week of October 16: Exploratory data analysis, model and results – work scheduling optimization
- Week of October 21: Model and results – simulation
- Week of October 28: Model and results – alternative scenarios
- Week of November 4: 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 last day of classes, December 9.

3 Grading rubric details

	Exemplary	Satisfactory	Developing	Unsatisfactory
C2 Describing the modeling framework	<p>Chooses an appropriate modeling framework and identifies key components of the model</p> <ol style="list-style-type: none"> 1. Uses a two stage modeling process involving an optimization model and a simulation model. 2. Briefly describes why the two stage process is appropriate. 3. Describes the type of optimization model used. 4. Identifies the objective function and key constraints of the optimization model. 5. Describes the simulation model used. 6. Identifies the entities, resources, and key processes. 7. Defines key performance metrics to evaluate the model. 	<p>Chooses an appropriate modeling framework but does not specify model components</p> <ul style="list-style-type: none"> • Does: 1, 2, 3, 5 	<p>Does not choose an appropriate modeling framework</p> <ul style="list-style-type: none"> • Does: At least one of 1, 2, 3 or 5 	<p>Chooses a modeling framework that does not use operations research techniques</p>
C4 Correctness and complexity of model	<p>Model correctly captures major features and some subtleties of the problem; recognizes and properly justifies all assumptions</p> <p>Correctly does all of the following:</p> <ol style="list-style-type: none"> 1. Formulates the optimization model, including all necessary components. 2. Formats optimization model according to the standard convention. 3. Integrates results from optimization model into simulation model. 4. Constructs a simulation model that accurately models all system features. 5. Describes entity flow in the simulation model using a flow chart and in words. 6. Identifies performance metrics to evaluate the simulation model. 	<p>Model correctly captures major features of problem; identifies key assumptions</p> <ul style="list-style-type: none"> • Does: 2, 3, 5 • Minor issues with: 1, 4, 6 	<p>Model incorrectly incorporates at least one important feature of the problem; model involves at least one oversimplifying assumption</p> <ul style="list-style-type: none"> • Does: Either 2 or (3 and 5) • Major issues with: 1, 4, 6 	<p>Model does not give useful information; does not state or include necessary assumptions</p>