

## DAT 320: Final Project Guidelines and Rubric

### Overview

Your final project for this course is a data analytic solution to a forecasting business problem, which will be submitted in the form of an **analytic plan** and a **complete data analysis solution**. In DAT-310; Data Analytics I you created a data plan. You will be using the raw data from that plan (the Airport Data file can be found in the Assignment Guidelines and Rubrics folder). You will be responsible for further assessing the data, preparing it for analysis, and creating the final reports for management. Your analytic plan will walk the audience (in this case your instructor) through your application of the data analysis life cycle (see the illustration of the basic data analysis life cycle below), explaining your processes and strategies at each step.



Finally, upon the completion of your data analysis, you will create the solutions and reports for management that offer the solution to the forecasting problem. The project is divided into **three milestones**, which will be submitted at various points throughout the course to scaffold learning and ensure quality final submissions. These milestones will be submitted in **Modules Two, Four, and Five**. The final product will be submitted in **Module Seven**.

This assessment will address the following **course outcomes**:

- Create effective data visualization reports that employ analytics and visualization software and strategies for various audiences
- Prepare data for analysis by manipulating data from multiple sources and positioning data into defined relational models
- Assess and enrich the consistency and quality of available data to meet established standards
- Illustrate appropriate implementations of data analytic life cycle approaches to solving business problems
- Design goal-driven plans for implementing data analytic strategies relevant to solving business problems
- Select the appropriate forecasting techniques for solving business problems within various industries

## Prompt

**Your analytic plan and data analytic solution should answer the following prompt:** How does your data analytic solution and forecasting technique provide meaningful information to the business?

Specifically, the following **critical elements** must be addressed. For Section I, include the instructor feedback from your milestone submissions.

I. Plan:

a) Introduction

- i. Provide a **general background** of your organization and organizational environment, and explain the forecasting **business problems you need to address**.
- ii. What goals will drive your analysis plan? In other words, what **goals** do you need to meet in order to solve the business problems and why? Be sure to frame these goals in a manner that will facilitate use in solving the business problem (e.g., measurability, attainability, etc.).

b) Life Cycle Approach: **Illustrate the various steps** of the data analysis life cycle that will lead to solving the business problem. How appropriate is this approach for the organizational environment? How will implementation of your life cycle approach align with the business and its goals?

Note: You will be attending only to steps 2–5 for this project.

c) Planning:

- i. What do you need to consider before you begin preparing your data? What audience, user, technology, and purpose **considerations** are important before you begin data assessment and enrichment? Why would you consider the target audience in building the data analytic solution?
- ii. What **data standards** are in place? To what standards does the data need to align in order to be valuable for solving the business problem at hand?

d) Preparing Data for Data Analytics: Assess the available data to determine if you have enough to begin planning your analysis strategy. Be sure to explain the steps you will take to determine any **gaps** that are identified and how they could impact analysis.

e) Model (*NOTE: You will be using a relational model for your analysis*)

- i. Explain the use of a **relational model**, including the benefits and limitations of using such a model in solving this forecasting problem. Be sure to consider how the relational model fits with the available data.
- ii. What **forecasting techniques** will you apply, and why are they appropriate for the business problem? Why did you choose these techniques for solving your business problems?
- iii. What will have to be done to **position data** from multiple data sources into a **relational model**?
- iv. What are the **key phases for building** the data analytic solution, and how do they relate to the data analysis life cycle approach you took?
- v. How will you build your data analytic application? What **established data analytic strategies** will you incorporate?

f) Technology and Visualization

- i. What **data analytic technology** will be used in solving the business problem and presenting the results to your audience? Defend the use of these technologies with examples and evidence of the use and appropriateness for the stated business problems.

- ii. What **visualization options** will be applied to your solution? Why did you choose to present the data in this manner? What was the business reason for using your selected visualization option? Explain how the visualization addressed your intended message.
- II. Data Analytic Solution and Summary Report:
  - a) Data Collection and Enrichment and Technology Incorporation
    - i. From where and how was the **data collected**? What **sources** provided data, and how was that data **incorporated**?
    - ii. How was the **data enriched** by the data quality process? In other words, what did you do to organize and prepare the data that improved its usefulness for developing the forecasting solution, and how did you address any identified gaps to improve the overall quality?
    - iii. **Position the data** into the relational model.
  - b) Visualization: Apply the appropriate **visualization** strategies and technologies to your solution so that the necessary audience receives data results in a manner aligned to their needs.
  - c) Report Success and Applicability: Underline the success and applicability of the solution for the business. This is your place to explain the importance and use of your solution. What **value is your analytic solution** going to provide to the target and user audiences? Explain the importance of your reports for the users, the management audience, and the business as a whole.

## Milestones

### Milestone One: Life Cycle Approach and Planning

In **Module Two**, you will submit your introduction, including a general background and the problems you will address in your plan. You will illustrate the steps of the data analysis life cycle followed throughout your plan, as well as the situational considerations and data standards that are in place. **This milestone will be graded using the Milestone One Rubric.**

### Milestone Two: Preparing Data for Data Analytics

In **Module Four**, you will describe the steps you will take to prepare your data for analysis and identify the forecasting techniques and analytic strategies you will use. **This milestone will be graded using the Milestone Two Rubric.**

### Milestone Three: Technology and Visualization

In **Module Five**, you will identify the technology and visualization option to be applied for your plan. **This milestone will be graded using the Milestone Three Rubric.**

### Final Submission: Data Analytics Plan

In **Module Seven**, you will submit a data analytics plan. The data analytics plan should be a complete, polished artifact containing all of the critical elements of the final product. It should reflect the incorporation of feedback gained throughout the course. **The final submission will be graded using the Final Product Rubric (below).**

## Deliverables

Milestone	Deliverables	Module Due	Grading
1	Life Cycle Approach and Planning	Two	Graded separately; Milestone One Rubric
2	Preparing Data for Data Analytics	Four	Graded separately; Milestone Two Rubric
3	Technology and Visualization	Five	Graded separately; Milestone Three Rubric
	Final Submission: Data Analytics Plan	Seven	Graded separately; Final Product Rubric

## Final Product Rubric

**Guidelines for Submission:** Written components of this project will follow APA formatting guidelines. The proposal should be 10–12 pages in length. There should be an additional page that includes APA-formatted citations.

Critical Elements	Exemplary (100%)	Proficient (85%)	Needs Improvement (55%)	Not Evident (0%)	Value
<b>General Background</b>	Meets “Proficient” criteria, and the background is framed as a comprehensive introduction to the approach to solving the business problem	Background of organization and environment is accurate and contextualized in terms of the business problems	Background is not completely accurate or is not contextualized in terms of the business problems	Does not provide a background of the organization and environment	8
<b>Goals</b>	Meets “Proficient” criteria, and the goals evidence insight into measurability and attainability standards of useful goals for solving problems	Identifies the appropriate business goals that will drive the analysis plan and explains their relevance for the forecasting problems at hand	Identifies business goals that will drive the analysis plan, but the goals are not contextualized in terms of the forecasting problems at hand	Does not identify business goals that will drive the analysis plan	5
<b>Life Cycle Illustration and Application</b>	Meets “Proficient” criteria and provides detailed description of goals needed for solving the business problem in terms of the organizational environment	Accurately illustrates the various steps of the data analysis life cycle in terms of how they will be used to solve the business problem	Illustrates the steps of the life cycle but with gaps in accuracy regarding application to this particular business problem	Does not illustrate the steps of the life cycle	5

<b>Considerations</b>	Meets “Proficient” criteria, and explanation of considerations shows keen insight into the requirements of successful data preparation within the greater context of an organization	Accurately explains important user, audience, and organizational considerations in preparing data for successful analytics reporting	Identifies important user, audience, and organizational considerations, but the considerations are not explained accurately in terms of their necessity for successful data preparation	Does not identify important considerations for data preparation	5
<b>Data Standards</b>	Meets “Proficient” criteria and identifies standards that should be in place for this particular data problem	Explains the data standards from the industry and organization that are in place	Identifies the data standards from the industry and organization that are in place, but does not explain them	Does not identify the data standards that are in place	5
<b>Gaps</b>	Meets “Proficient” criteria and provides robust details that describe the gaps and their possible sources	Assesses the available data in correlation with the established data standards to determine gaps	Analyzes the available data to determine gaps, but does not complete a full assessment in correlation with the established standards	Does not analyze the available data to determine gaps	5
<b>Relational Model</b>	Meets “Proficient” criteria, and assessment is appropriately contextualized to the given problem and environment	Logically assesses the benefits and limitations of using a relational model	Discusses the benefits OR limitations of using a relational model, but does not logically assess each	Does not discuss the benefits OR limitations of using a relational model	5
<b>Forecasting Techniques</b>	Meets “Proficient” criteria, and explanation acts as a defense of selection	Identifies what forecasting techniques are available and explains which forecasting techniques best support the business objective	Identifies what forecasting techniques are available, but defines forecasting techniques that are not appropriate for supporting the business objective	Does not identify available forecasting techniques	8
<b>Relational Model Positioning</b>	Meets “Proficient” criteria and provides robust details of design supporting the process of building data into the relational model	Accurately describes the process to build data from original sources into the relational model	Explains the process of building data from original sources into the relational model, but lacks necessary detail	Does not explain the process of building data in a relational data model	5
<b>Key Building Phases</b>	Meets “Proficient” criteria and identifies key phases for building the analytics solution with detailed examples supporting each phase	Accurately explains the key phases for building the data analytics solution	Key phases for building the data analytics solution are not completely explained	No key phases are explained for building the data analytic solution	5

<b>Established Strategies</b>	Meets “Proficient” criteria and provides detailed supporting strategies used on how the data analytics application was constructed	Describes how the data analytics application was constructed and applies what established strategies were used in the application	Data analytics application does not completely define what established strategies were used in constructing the application	No established strategies were identified in constructing the application	5
<b>Analytic Technology</b>	Meets “Proficient” criteria, and justifications include valid professional and scholarly sources of evidence that align to the organization context	Justifies the given data analytic technology for presenting results with relevant examples	Discusses the given data analytic technology for presenting results, but does not justify the selections with relevant examples	Does not discuss the given data analytic technology to use for presenting results	5
<b>Visualization Options</b>	Meets “Proficient” criteria and provides detailed evidence of effectiveness of the visualization options	Defends the visualization options that were selected in terms of the appropriateness for the audience and the problem at hand	Explains the visualization options that were chosen, but does not defend the visualization options in terms of their appropriateness for the audience and business problem	Does not explain the visualization options chosen	5
<b>Data Analytic Solution</b>					
<b>Data Collection and Incorporation</b>	Meets “Proficient” criteria, and details of the sources, collection, and integration of data align to the stated life cycle approach taken	Details the sources and collection and integration process of the raw data	Identifies the sources of data, but does not provide detail around the collection and integration processes	Does not identify sources and collection of data	5
<b>Data Enrichment</b>		Explanation of the process for data enrichment evidences accurate enrichment of data to meet standards	Explanation of the process for data enrichment contains gaps or evidences enrichment that is not entirely accurate in terms of meeting the standards	Does not explain the process for enriching data	5
<b>Positioning Data</b>		Successfully positions data into a relational model for the solution	Positions data into a relational model for the solution, but is not entirely successful	Does not position data into a relational model	5
<b>Visualization</b>		Applies the appropriate visualization strategies to ensure the users receive necessary reports aligned to user needs	Applies visualization strategies, but they are not appropriate to ensure that users receive necessary reports	Does not apply visualization strategies	4
<b>Value of Solution</b>	Meets “Proficient” criteria, and articulation flows full circle in recalling the business objectives and user needs	Articulates the value of the analytic report specifically for the target audience, users, and the business	Articulates the values of the analytic report, but is vague or cursory in explanation	Does not articulate the value of the analytic report	5

<b>Articulation of Response</b>	Submission is free of errors related to citations, grammar, spelling, syntax, and organization and is presented in a professional and easy-to-read format	Submission has no major errors related to citations, grammar, spelling, syntax, or organization	Submission has major errors related to citations, grammar, spelling, syntax, or organization that negatively impact readability and articulation of main ideas	Submission has critical errors related to citations, grammar, spelling, syntax, or organization that prevent understanding of ideas	5
<b>Earned Total</b>					<b>100%</b>