Principles of Business Analytics Project

Overview

You have been hired by a client who needs to organize and analyze a significant amount of archived data individually or as a team of business analytics experts. The goal is to enable their analysts to write and execute SQL code efficiently to extract meaningful insights that will support business decision-making. To do this, you will be creating a relational schema in PostgreSQL and running select analyses to glean insights from your data, which you will compile in a written report of between five to eight pages. You can complete this project either individually or as a group of no more than **three** people.

Learning Outcomes

When completed successfully, this project will enable you to:

- Define a business scenario and identify data-related challenges impacting decision-making.
- Develop and implement a relational schema in PostgreSQL to organize data efficiently.
- Perform SQL-based analyses to extract insights that address business needs.
- Communicate analytical findings clearly, linking them to improved business decisions.

Project Description

Begin by defining a **realistic business scenario** of your choosing in which data management and analysis are key challenges. This scenario should reflect the industry or sector your client operates in and explain why organizing and analyzing the data is crucial for their business. Describe how solving these data-related issues will enhance decision-making and operations for the client.

Identify and source **relevant data** from open data platforms (e.g. Kaggle, government databases, etc.). Avoid using pre-defined relational datasets. The data should align with the business scenario and provide opportunities for various analytical procedures.

Based on the business scenario and sourced data, develop a **relational schema** that organizes the data effectively. Use PostgreSQL to implement this schema, ensuring that it supports efficient queries and analysis. The schema should be thoughtfully designed to reflect relationships in the data.

Execute at least **10 SQL-based analytical procedures** that highlight the value of the relational database. These procedures should be aligned with the client's business needs and provide actionable insights. Clearly explain how each insight can contribute to improving decision-making and driving positive business outcomes.

Clearly explain your reasoning behind the chosen business scenario and data. Describe how organizing and analyzing this data will enhance the client's decision-making process. Additionally, outline other benefits, such as improved reporting, operational efficiencies, or cost reductions, that your work delivers.

Tips & Resources

- Use the Analytics Lab of the *Relational Database* course to practice working with data using PostgreSQL.
- Check your calendars for the upcoming webinar, SQL & Business Analytics Project Workshop, in which you will be able to ask questions about the project. A recording will be shared over Slack after the event has passed.

Submission Guidelines

Your submission should consist of a single PDF of between five to eight pages. All SQL queries used in the analytical procedures must be contained in one .sql file, which must be linked in the PDF submission. Ensure that the SQL code runs without errors before submission.

To submit your project, please click on the "Submit Project" button on your dashboard and follow the steps provided in the Google Form. If you are submitting your Principles of Business Analytics project as a group, **please ensure only ONE member submits on behalf of the group**. You will also be prompted to upload the final page of your Group Project Agreement, which must be completed and signed by all group members. Please reach out to msba+projects@quantic.edu if you have any questions. Project grading typically takes about 3-4 weeks to complete after the submission due date. There is no score penalty for projects submitted after the due date, however grading may be delayed.

Plagiarism Policy

Here at Quantic, we believe that learning is best accomplished by “doing”—this ethos underpinned the design of our active learning platform, and it likewise informs our approach to the completion of projects and presentations for our degree programs. We expect that all of our graduates will be able to deploy the concepts and skills they’ve learned over the course of their degree, whether in the workplace or in pursuit of personal goals, and so it is in our students’ best interest that these assignments be completed solely through their own efforts with academic integrity.

Quantic takes academic integrity very seriously—we define plagiarism as: “Knowingly representing the work of others as one’s own, engaging in any acts of plagiarism, or referencing the works of others without appropriate citation.” This includes both misusing or not using proper citations for the works referenced, and submitting someone else’s work as your own. Quantic monitors all submissions for instances of plagiarism and all plagiarism, even unintentional, is considered a conduct violation. If you’re still not sure about what constitutes plagiarism, check out this two-minute presentation by our librarian, Kristina. It is important to be conscientious when citing your sources. When in doubt, **cite**! Kristina outlines the basics of best citation practices in this one-minute video. You can also find more about our plagiarism policy here.

Project Rubric

Scores 2 and above are considered passing. Students who receive a 1 or 0 will not get credit for the assignment and must revise and resubmit to receive a passing grade.

Score	Description
5	• The business analytics problem formulation, consultant/client scenario justification, conceptual schema, relational schema, SQL code, and analytical procedures are all clearly, thoroughly, and compellingly described. • There is a notable level of innovation or creativity in the approach, showcasing unique insights or methods. • The report is organized in a thoughtful and purposeful manner, includes properly formatted code and data links, and offers visual aids where relevant. • The deliverables exceed expectations and demonstrate advanced thinking and problem-solving.
4	• The business analytics problem formulation, consultant/client scenario justification, conceptual schema, relational schema, SQL code, and analytical procedures are clearly and thoroughly described. • The report is well-organized, includes properly formatted code and data links, and provides visual aids where useful. • The work meets expectations but lacks the innovative or creative approaches seen in a top-tier submission.
3	• The business analytics problem formulation, consultant/client scenario justification, conceptual schema, relational schema, SQL code, and analytical procedures are described, though some details are missing or incomplete. • The report includes most relevant sections, is reasonably organized, and contains properly formatted code and data links.

2	• The business analytics problem formulation, consultant/client scenario justification, conceptual schema, relational schema, SQL code, and analytical procedures are described, but there are significant information gaps or inconsistencies. • The report includes most relevant sections but may lack organization or present poorly formatted code and data links.
1	• The business analytics problem formulation, consultant/client scenario justification, conceptual schema, relational schema, SQL code, and analytical procedures are incomplete or poorly described, with major information gaps or inconsistencies. • The report lacks clear organization, and properly formatted code or data links are missing.
0	• The student either did not complete the assignment, plagiarized all or part of the assignment, or completely failed to address the project requirements.