SLM1 — TASK 1: DATA ANALYSIS

ADVANCED DATA ACQUISITION — D211
PRFA — SLM1

TASK OVERVIEW SUBMISSIONS EVALUATION REPORT

COMPETENCIES

4034.4.1 : Advanced SQL Operations
The graduate applies advanced SQL operations to integrate multiple data sources.

4034.4.2 : Explore Data
The graduate explores data acquisition.

INTRODUCTION

The data analyst's job does not end once the data has been analyzed. A vital skill for data analysts is to represent and report the data to stakeholders. In this task, you will demonstrate your ability to identify actionable insights from data and communicate them using effective storytelling methods.

This task consists of three parts:

In part 1, you will use SQL and a business intelligence tool to create data dashboards to support executive decision-making. Your dashboards should enable leaders to answer a specific research question on an organizational need. It is recommended, but not required, that the business intelligence tool be Tableau.

Your dashboard will integrate data from two sources:

1. Provided data set: You will select **one** of the data sets and associated data dictionaries from the web link "D211 Data Sets and Associated Data Dictionaries" located on Labs on Demand.

> *Note: It is recommended, but not required, that you choose the same data set that you used for your performance assessments in previous courses. Review the data dictionary that is relevant to your chosen data set for additional details about the audience.*

Help

2. Additional data set: You will identify an external, public data set as an additional data set for your dashboard. This data set should contain data and variables that complement the data set you chose from the provided options and should enhance the insights you can gain from the provided data set. Recommended sources include U.S. census data, Kaggle, or other public data repositories. You are responsible for ensuring that you have the rights to use the data set.

In part 2, you will give a simulated presentation to a panel of peers. You will describe the use of SQL in preparing the data from the two data sets for the analysis and then demonstrate the functionality of the SQL scripts and other codes that supported the creation of the dashboards.

In part 3, you will write a reflection paper to outline the organizational need and summarize the findings from the analysis.

Refer to the data dictionary for your chosen provided data set for additional background information about the audience of your data representations.

REQUIREMENTS

Your submission must be your original work. No more than a combined total of 30% of the submission and no more than a 10% match to any one individual source can be directly quoted or closely paraphrased from sources, even if cited correctly. The similarity report that is provided when you submit your task can be used as a guide.

You must use the rubric to direct the creation of your submission because it provides detailed criteria that will be used to evaluate your work. Each requirement below may be evaluated by more than one rubric aspect. The rubric aspect titles may contain hyperlinks to relevant portions of the course.

*Tasks may **not** be submitted as cloud links, such as links to Google Docs, Google Slides, OneDrive, etc., unless specified in the task requirements. All other submissions must be file types that are uploaded and submitted as attachments (e.g., .csv, .docx, .pdf, .ppt).*

To work on this task, you must follow the link "D211 Data Sets and Associated Dictionaries" in the Web Links section to the LoDs PostgreSQL lab environment. In this environment, you will be able to write and test your PostgreSQL code and access the databases to complete this task.

Part 1: Data Dashboards

A. Provide a copy of your dashboards that support executive decision-making.
   1. Provide *both* data sets that serve as the data source for the dashboards.
   2. Provide step-by-step instructions to guide users through the dashboard installation.
   3. Provide clear instructions to help users navigate the dashboards.

4. Provide a copy of *all* SQL code and other code supporting the dashboards.

Part 2: Demonstration

B. Provide a link to a Panopto multimedia presentation in which you present the dashboards to an audience of data analytics peers. You should do *all* of the following in your presentation:
   1. Describe the technical environment used to create the dashboards.
   2. Demonstrate the functionality of the dashboards.
   3. Explain the SQL scripts used to support the creation of the dashboards.
   4. Explain how the data streams were prepared to support the analysis.
   5. Describe how data were aligned with other data points.
   6. Demonstrate how the databases were created.
   7. Explain how referential integrity was enforced in the database.

   Note: The audiovisual recording should feature you presenting the material on screen (i.e., not in voice-over or embedded video) and should simultaneously capture both you and your multimedia presentation.

   Note: For instructions on how to access and use Panopto, use the "Panopto How-To Videos" web link provided below. To access Panopto's website, navigate to the web link titled "Panopto Access," and then choose to log in using the "WGU" option. If prompted, log in using your WGU student portal credentials, and then it will forward you to Panopto's website.

   To submit your recording, upload it to the Panopto drop box titled "XX." Once the recording has been uploaded and processed in Panopto's system, retrieve the URL of the recording from Panopto and copy and paste it into the Links option. Upload the remaining task requirements using the Attachments option.

Part 3: Report

C. Write a report to outline the data exploration, use of advanced SQL operations, and the analysis of the data. Do the following as part of your report:
   1. Explain how the purpose and function of your dashboard aligns with the needs outlined in the data dictionary associated with your chosen data set.
   2. Justify the selection of the business intelligence tool you used.
   3. Explain the steps used to clean and prepare the data for the analysis.
   4. Summarize the steps used to create the dashboards.
   5. Discuss the results of your data analysis and how it supports executive decision-making.
   6. Discuss the limitation(s) of your data analysis.

D. Record the web sources used to acquire data or segments of third-party code used to support the application. Ensure the web sources cited are reliable.

E. Acknowledge sources, using in-text citations and references, for content that is quoted, paraphrased, or summarized.

F. Demonstrate professional communication in the content and presentation of your submission.

File Restrictions

File name may contain only letters, numbers, spaces, and these symbols: ! - _ . * ' ( )
File size limit: 200 MB
File types allowed: doc, docx, rtf, xls, xlsx, ppt, pptx, odt, pdf, txt, qt, mov, mpg, avi, mp3, wav, mp4, wma, flv, asf, mpeg, wmv, m4v, svg, tif, tiff, jpeg, jpg, gif, png, zip, rar, tar, 7z

RUBRIC

A:DATA DASHBOARDS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A copy of the data dashboards is not provided.	The data dashboards are incomplete or do not support executive decision-making.	The data dashboards support executive decision-making.

A1:BOTH DATA SETS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A copy of *both* data sets that serve as the data source for the dashboards is not provided.	1 or *both* data sets are inaccurate or incomplete or do not support the creation of dashboards for executive decision-making.	*Both* data sets are accurate and complete and support the creation of dashboards for executive decision-making.

A2:DASHBOARD INSTALLATION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
Step-by-step instructions to guide users through the dashboard installation are not provided.	The step-by-step instructions to guide users through the dashboard installation is illogical or inaccurate, or the instructions are missing steps in the dashboard installation process.	The step-by-step instructions to guide users through the dashboard installation process is logical and accurate, and the instructions include *all* steps in the dashboard installation process.

A3:DASHBOARD NAVIGATION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The instructions to help users navigate the dashboards are not provided.	The instructions to help users navigate the dashboards are not clear or are incomplete.	The instructions to help users navigate the dashboards are clear and complete.

A4:SQL CODE

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A copy of *all* SQL code and other code supporting the dashboards is not provided.	A copy of *all* SQL code and other code supporting the dashboards is inaccurate, incorrect, or incomplete.	A copy of *all* SQL code and other code supporting the dashboards is accurate, complete, and correct.

B:PANOPTO PRESENTATION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A link to a Panopto multimedia presentation in which the dashboards are presented to an	The link does not connect to the Panopto multimedia presentation.	The link connects to the Panopto multimedia presentation.

audience of data analytics peers is not provided.		

B1:TECHNICAL ENVIRONMENT

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A description of the technical environment used to create the dashboards is not provided.	The description of the technical environment used to create the dashboards is incomplete or inaccurate.	The description of the technical environment used to create the dashboards is *both* complete and accurate.

B2:DEMONSTRATE DASHBOARD FUNCTIONALITY

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A demonstration of the functionality of the dashboards is not provided.	The submission does not fully demonstrate the functionality of *each* dashboard.	The submission fully demonstrates the functionality of *each* dashboard.

B3:SQL SCRIPTS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
An explanation of the SQL scripts used to support the creation of the dashboards is not provided.	The explanation of the SQL scripts used to support the creation of the dashboards is inaccurate or incomplete.	The explanation of the SQL scripts used to support the creation of the dashboards is accurate and complete.

B4:DATA STREAMS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
An explanation of how the data streams were prepared to support the analysis is not provided.	The explanation of how the data streams were prepared to support the analysis is inaccurate, incomplete, or illogical.	The explanation of how the data streams were prepared to support the analysis is accurate, complete, and logical.

B5:DATA POINTS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A description of how data were aligned with other data points is not provided.	The description of how data were aligned with other data points is inaccurate, illogical, or incomplete.	The description of how data were aligned with other data points is accurate, logical, and complete.

B6:DATABASE CREATION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A demonstration of how the databases were created is not provided.	The demonstration of how the databases were created is inaccurate or incomplete.	The demonstration of how the databases were created is *both* accurate and complete.

B7:REFERENTIAL INTEGRITY

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
An explanation of how referential integrity was enforced in the database is not provided.	The explanation of how referential integrity was enforced in the database is inaccurate or incomplete.	The explanation of how referential integrity was enforced in the database is accurate and complete.

C:WRITTEN REPORT

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A written report that outlines the data exploration, the use of advanced SQL operations, and the analysis of the data is not provided.	The written report does not accurately outline the data exploration, the use of advanced SQL operations, or the analysis of the data.	The written accurately outlines the data exploration, the use of advanced SQL operations, and the analysis of the data.

C1:DASHBOARD ALIGNMENT

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
An explanation of how the purpose and function of the dashboard aligns with the needs outlined in the data dictionary associated with the chosen data set is not provided.	The explanation is inaccurate, illogical, or incomplete.	The explanation is accurate, logical, and complete.

C2:BUSINESS INTELLIGENCE TOOL

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A justification of the selection of the business intelligence tool used is not provided.	The justification of the selection of the business intelligence tool used is inaccurate, illogical, or incomplete.	The justification of the selection of the business intelligence tool used is accurate, logical, and complete.

C3:DATA CLEANING

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT

An explanation of the steps used to clean and prepare the data for the analysis is not provided.	The explanation of the steps used to clean and prepare the data for the analysis is inaccurate, illogical, or incomplete.	The explanation of the steps used to clean and prepare the data for the analysis is accurate, logical, and complete.

C4:DASHBOARD CREATION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A summary of the steps used to create the dashboards is not provided.	The summary of the steps used to create the dashboards is inaccurate, illogical, or incomplete.	The summary of the steps used to create the dashboards is accurate, logical, and complete.

C5:DATA ANALYSIS RESULTS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The submission does not discuss the results of the data analysis.	The submission is inaccurate, illogical, or incomplete, or it does not discuss how the results of the data analysis support executive decision-making.	The submission is accurate, logical, and complete, and it discusses how the results of the data analysis support executive decision-making.

C6:ANALYSIS LIMITATIONS

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A discussion of the limitation(s) of the data analysis is not provided.	The discussion of the limitation(s) of the data analysis is inaccurate or incomplete.	The discussion of the limitation(s) of the data analysis is accurate and complete.

D:WEB SOURCES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
A record of the web sources cited to acquire data or segments of third-party code to support the application is not provided.	The record of the web sources used to acquire data or segments of third-party code to support the application is incomplete or inaccurate. Or the web sources cited are not reliable.	The record of the web sources used to acquire data or segments of third-party code to support the application is both complete and accurate, and the web sources cited are reliable. Or no web sources are used to acquire data or segments of third-party code, and the submission states this.

E:SOURCES

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
The submission does not include both in-text citations and a reference list for sources that are quoted, paraphrased, or summarized.	The submission includes in-text citations for sources that are quoted, paraphrased, or summarized and a reference list; however, the citations or reference list is incomplete or inaccurate.	The submission includes in-text citations for sources that are properly quoted, paraphrased, or summarized and a reference list that accurately identifies the author, date, title, and source location as available.

F:PROFESSIONAL COMMUNICATION

NOT EVIDENT	APPROACHING COMPETENCE	COMPETENT
Content is unstructured, is disjointed, or contains pervasive errors in mechanics, usage, or grammar. Vocabulary or tone is unprofessional or distracts from the topic.	Content is poorly organized, is difficult to follow, or contains errors in mechanics, usage, or grammar that cause confusion. Terminology is misused or ineffective.	Content reflects attention to detail, is organized, and focuses on the main ideas as prescribed in the task or chosen by the candidate. Terminology is pertinent, is used correctly, and effectively conveys the intended meaning. Mechanics, usage, and grammar promote accurate interpretation and understanding.

WEB LINKS

Panopto Access

Sign in using the "WGU" option. If prompted, log in with your WGU student portal credentials, which should forward you to Panopto's website. If you have any problems accessing Panopto, please contact Assessment Services at assessmentservices@wgu.edu. It may take up to two business days to receive your WGU Panopto recording permissions once you have begun the course.

Panopto How-To Videos

Labs on Demand

Skillable Labs Knowledge Base Article

Please consult this WGU Knowledge Base article for general FAQs regarding your Skillable lab environment.