Competencies

**4157.1.1** : **Recommends an Appropriate Data Architecture**

The learner recommends an appropriate data architecture.

**4157.1.2** : **Examines the Data Available for Analysis**

The learner examines the data available for analysis to determine their dimension, quality, relations, and limitations.

**4157.1.3** : **Constructs a Logical Data Model**

The learner constructs a logical data model.

**4157.1.4** : **Implements Physical Data Models**

The learner implements physical data models by incorporating required data.

**4157.1.5** : **Performs Queries to Answer a Business Question**

The learner performs database queries to answer a business question.

**4157.1.6** : **Uses Appropriate Data Manipulation Language Statements**

The learner uses appropriate data manipulation language statements to manage data.

Introduction

A common undertaking for a data analyst is to create databases using existing datasets. This process involves the exploration of the source and target datasets to merge the data in a meaningful and logical way.

You will replicate this common process in this task. You will take external data from a comma-separated values (CSV) file and design a logical data model that describes the data. You will load the data into a databases solution and run queries across it.

Choose one of the scenarios provided in the Supporting Documents. Each scenario has associated CSV files that will be located on the desktop of the WGU Virtual Lab environment. You will complete the following:

1.  Design a **relational** database solution.

2.  Implement the solution.

3.  Present the solution using Panopto to an audience that consists of your peers within a project team.

You will complete this performance assessment in the provided WGU Virtual Lab environment. Your submission will be a design document that includes screenshots of your work in the lab environment and a Panopto video.

Requirements

Your submission must represent your original work and understanding of the course material. Most performance assessment submissions are automatically scanned through the WGU similarity checker. Students are strongly encouraged to wait for the similarity report to generate after uploading their work and then review it to ensure Academic Authenticity guidelines are met before submitting the file for evaluation. See [Understanding Similarity Reports](https://cm.wgu.edu/t5/Frequently-Asked-Questions/Understanding-Similarity-Reports/ta-p/252) for more information.    
  
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Professional Communication will be automatically assessed through Grammarly for Education in most performance assessments before a student submits work for evaluation. Students are strongly encouraged to review the Grammarly for Education feedback prior to submitting work for evaluation, as the overall submission will not pass without this aspect passing. See [Use Grammarly for Education Effectively](https://cm.wgu.edu/t5/Academic-Coaching-Center/Use-Grammarly-for-Education-Effectively/ta-p/52276) for more information.    
  
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Write your paper in Microsoft Word (.doc or .docx) unless another Microsoft product, or pdf, is specified in the task directions. Tasks may not be submitted as cloud links, such as links to Google Docs, Google Slides, OneDrive, etc.  All supporting documentation, such as screenshots and proof of experience, should be collected in a pdf file and submitted separately from the main file. For more information, please see [Computer System and Technology Requirements.](https://cm.wgu.edu/t5/WGU-Student-Policy-Handbook/Computer-System-and-Technology-Requirements/ta-p/78)    
 *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.*

**Part 1: Design Document**

A.  Select one of the provided scenarios to complete the following:

1.  Describe a business problem that can be solved with a database solution and is in alignment with the chosen scenario.

2.  Propose a data structure to solve the identified business problem.

3.  Justify why a database solution will solve the identified business problem.

4.  Explain how the business data will be used within the database solution.

B.  Create a logical data model for storing data in the database solution.

C.  Describe the database objects and storage, identifying the file attributes within the database solution.

D.  Discuss how the proposed database design addresses scalability concerns, including strategies that align with the chosen scenario.

E.  Outline the privacy and security measures that should be implemented in the proposed database design.

**Part 2: Implementation**

*Note: The data files for each scenario are located in a folder titled “D597 Datasets” on the desktop of the WGU Virtual Lab environment. Be sure to pull the files from “Task 1” that relate to your chosen scenario.*

*Note: Submit your screenshots showing the successfully run queries from the WGU Virtual Lab for each prompt with your design document.*

F.  Implement the proposed database design in the WGU Virtual Lab environment by completing the following:

1.  Write script to create a database instance named “D597 Task 1” using the appropriate query language, based on the logical data model in part B. Provide a screenshot showing the script and the database instance in the platform.

2.  Write script to import the data records from the chosen scenario CSV files into the database instance. Provide a screenshot showing the script and the data correctly inserted or mapped into the database.

3.  Write script for **three** queries to retrieve specific information from the database that will help to solve the identified business problem. Provide a screenshot showing the script for *each* query and *each* query successfully executed.

4.  Apply optimization techniques to improve the run time of your queries from part F3, providing output results via a screenshot.

**Part 3: Presentation**

*Note: The audiovisual recording should feature you visibly presenting the material (i.e., not in voiceover 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 "Task 1: Relational Database Design and Implementation – MKN1 | D597." 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.*

G.  Present your functional database solution in the lab environment by doing the following:

1.  Record a walk-through of your program appropriate for an audience of a project team with technical knowledge using Panopto. Record yourself describing your program. Your recording should capture both you and your functioning program. Your presentation should also demonstrate appropriate communication skills for your audience, including a professional appearance.

2.  Demonstrate the following in your recorded walk-through:

•  Discuss how database design and indexing strategy optimize performance.

•  Describe the technical environment used in your database implementation.

•  Demonstrate the functionality of the queries in the lab environment.

•  Discuss how the queries solve the identified business problem.

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

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