**Part 1: Design Document**

**A.  Select one of the provided scenarios to complete the following:** Scenario 2

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

EcoMart needs a database solution that is flexible, scalable, secure, and stable. They are struggling with the wide range of attributes their products share such as descriptions, pricing, availability, sustainability certifications, and user reviews. These can be reliably solved using a relational database to split their data into relevant tables, reducing the complexity, increasing efficiency, and solving their business problem.

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

EcoMart’s needs can be met using a relational database.

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

By splitting their data into a relational database they can still access all of their data while having it be split enough to allow for appropriate scalability in the future. This also allows the company to properly secure their data, in addition to increase the efficiency of their data analytics by having only relevant data in each table.

**4.  Explain how the business data will be used within the database solution.** The data will be split into two tables, order information and sales data. This information will be stored in those two tables in rows and the data will be connected based on the OrderID. This will operate as the foreign key and allow us to connect data between the two tables. This organization will allow EcoMart to adequately scale their data infrastructure, while keeping everything organized and optimized for analysis. Using this relational model will especially help for data analysis, as connecting the data between the two tables will allow for valuable business insights to be made.

**B.  Create a logical data model for storing data in the database solution.  
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**C.  Describe the database objects and storage, identifying the file attributes within the database solution.**

In order information will be the fields: Region(varchar), Country(varchar), Item Type(varchar), sales channel(varchar), order priority(char) and orderID(integer)(Foreign key).

In the sales data will be the fields: Order Date(date), Order ID(integer)(Primary Key), Ship Date(date), units solds(integer), unit price(float), unit cost(float), total revenue(float), total cost(float), total profit(float).

**D.  Discuss how the proposed database design addresses scalability concerns, including strategies that align with the chosen scenario.**This database design is highly scalable. A few techniques that we can use could include adding an index, normalizing the data, or even splitting the tables up further. We could add an index to sales data or order information to increase efficiency. This should create a database that is highly scalable, secure, and highly efficient for use by EcoMart.

**E.  Outline the privacy and security measures that should be implemented in the proposed database design.**Some privacy and security measures we can implement could be user authorization, using some form of 2 factor authorization for access to the system. In addition, we can implement encryption, as well as ensuring sensitive data like addresses and customer information is kept in a separate secure database.

**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.**

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**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.**

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**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.**

**1.** Distinct countries where EcoMart does business. Useful for global analytics. **A screenshot of a computer

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**2.** Total number of orders, useful for business projections and order volume statistics. A screenshot of a computer

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**3.** Total profit from all sales. Useful for checking in on overall business performance. A screenshot of a computer

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

**1. First query optimized by using an indexA screenshot of a computer

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 2. Second query optimized by using an index**

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**3. third query optimized by using an index**

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**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.**All content was sourced from personal experience or WGU course materials.

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