BICOL UNIVERSITY POLANGUI
POLANGUI, ALBAY

GROUP MEMBERS:
Shaine S. SanJuan
Faith Ann Sanado
Susaine Rico
Mhelarry Valeza
Rechelle Borbe

Reflection Paper Week 12**: Data Warehousing Preparation and Business Intelligence Queries**

Creating a business intelligence (BI) system using SQL was both an insightful and challenging experience for our team. At the start of this task, we were instructed to design and implement a star schema to extract valuable insights from our database. This involved running queries to analyze trends, identify key metrics, and prepare the data for visualization in dashboards. Our first task was to execute queries on the original database structure to uncover important business trends. These included calculating total sales by month, identifying top-performing products, assessing customer purchasing habits, and monitoring inventory levels for low-stock products.

Each query revealed critical insights. For example, the monthly sales trends allowed us to observe how revenue changes over time, providing clues for seasonal marketing strategies. The top 5 products by revenue highlighted which items contribute most to profitability, while the low stock alert helped us proactively manage inventory to prevent shortages. To simplify data analysis, we denormalized the database into a star schema. This process created a central fact table called SalesFact, containing sales transaction data, surrounded by dimension tables like DimProduct, DimCustomer, and DimDate. This new structure made data queries more efficient and faster, especially for large datasets.

The star schema was then used to refine the analysis. Queries executed on this schema included monthly sales reports and top-selling products, similar to the original schema but optimized for better performance. The insights remained consistent, showing trends in customer behavior and product performance, but the streamlined structure made them easier to compute and visualize. Throughout the process, we faced several challenges. As beginners, we struggled to understand how to properly execute the instructions and encountered frequent errors in writing and testing SQL scripts. These difficulties slowed our progress and added frustration. However, we sought assistance through AI tools, which provided valuable guidance and simplified the complex concepts. This was a turning point, as it helped us gain a clearer understanding of the topic and proceed with confidence.

In summary, this project taught us the importance of structured data, efficient querying, and using tools to overcome learning gaps. Despite the initial struggles, the insights gained from the BI queries and star schema design were invaluable, and the experience highlighted the potential of SQL and data warehousing in business intelligence.