E-Commerce Dashboard Design Report

1. Design Choices for the Dashboard

For the dashboard, I focused on creating a clear and user-friendly interface with key performance indicators (KPIs) and visualizations that align with the business objectives. Here are the design choices:

- **Data Visualization Tools**: I used bar charts, line graphs, pie charts, and tables to effectively display trends, proportions, and comparisons. The choice of visualizations ensures that key insights are easily digestible.
- **KPI Indicators**: I included top-level metrics such as Total Orders, Total Revenue, and Average Delivery Time to provide a snapshot of the business's performance.
- **Layout**: The dashboard follows a logical flow, with top-level metrics at the top, detailed data below, and sections dedicated to specific business areas such as order performance and seller statistics. This layout ensures ease of use and quick access to essential information.

2. Key Insights Discovered

From analyzing the data, several important insights were identified:

- **Seasonal and Time-Based Trends:** The order volume peaks in Spring, especially during May, and the highest order activity occurs between 10:00 AM and 5:00 PM.
- **Payment Preferences:** A majority of customers prefer using credit cards, with 73.92% of transactions being made via this method.
- **Geographical Concentration:** The highest order volumes are in Banten, Jawa Barat, and DKI Jakarta, indicating potential areas for focused marketing and resource allocation.
- **Delivery Delays Impact Customer Satisfaction:** There is a strong negative correlation between delivery delays and customer feedback, emphasizing the importance of timely deliveries for maintaining high customer ratings.

3. Challenges Encountered and Solutions Implemented

- **Data Quality Issues**: Missing or inconsistent data in the order dataset required cleaning. I handled this by applying data imputation techniques where appropriate, and by filtering out records that were too incomplete for analysis.
- **Handling Large Datasets**: The data from multiple sources needed to be integrated, which initially posed performance challenges. I implemented data aggregation techniques to reduce the volume of data being processed at once, ensuring the dashboard loads faster.
- **Complex Joins**: Joining the multiple tables with different granularity required careful handling to avoid data duplication. I implemented SQL joins using efficient indexing strategies to optimize performance.

4. Recommendations for Business Improvement

Based on the dashboard insights, I recommend the following:

- **Optimize Inventory & Marketing:** Increase stock levels and marketing efforts during peak seasons, especially in Spring and May.
- **Improve Delivery Efficiency:** Focus on reducing delays in the top 5 delivery routes and implement real-time tracking.
- **Enhance Payment Experience:** Offer rewards for credit card payments and expand installment options.
- **Leverage Geographical Insights:** Target high-performing regions with focused marketing and improve engagement in lower-performing areas.

This dashboard offers a comprehensive overview of business performance, which can help guide data-driven decisions for improvement and strategy formulation.