SQL Project Requirements with Hints

Project 1: Basic Sales Reporting

Objective: Create simple reports to track key performance metrics.

1. Generate a report that shows total sales, total quantity, and total profit for the entire year using the order_date.
2. Create a summary table showing total sales by month.
3. Provide a breakdown of total sales by product category and sub-category.

Project 2: Customer Segmentation

Objective: Identify customer segments to target for future marketing efforts.

1. Create customer profiles by summarizing total sales and profit per customer.
2. Group customers by market segment and provide the total number of customers, average sales per customer, and total profit per segment.
3. Identify the top 10 customers by total sales and their respective regions.
4. Hint: Use a subquery to identify the most popular products in each market segment.
5. Analyze customer purchasing frequency (e.g., customers who have made more than 3 purchases).

Project 3: Sales Performance Dashboard

Objective: Build a SQL-driven sales dashboard that tracks key performance indicators (KPIs).

1. Show total sales, profit, and quantity sold for the current month compared to the previous month.
2. Display a breakdown of sales by region and market segment.
3. Create KPIs for average order value (AOV), customer lifetime value (CLV), and profit margin.
4. Hint: Use a CTE to track sales growth or decline month-over-month and year-over-year.
5. Provide a visual report of sales trends over time using date-based aggregations.

Project 4: Inventory and Product Analytics

Objective: Analyze product performance and inventory turnover to inform stock management.

1. Calculate the total number of unique products sold within the last year.

2. Rank products by profit margin and identify the top 10 high-margin products.

3. Hint: Use a CTE to calculate product sales velocity (average units sold per month).

4. Identify which products have declining sales or have not been sold in the last 6 months.

5. Create a report to identify inventory turnover for each product category and sub-category.

Project 5: Shipping and Logistics Optimization

Objective: Optimize shipping processes by analyzing delivery times and costs.

1. Calculate the average shipping time for each shipping mode by comparing the order_date and ship_date.

2. Identify the regions with the longest average shipping times.

3. Provide insights into which shipping mode yields the highest profit margin.

4. Hint: Use a subquery to analyze correlations between shipping times and total sales or customer satisfaction.

5. Recommend the best shipping modes for high-value customers based on historical data.

Project 6: Customer Retention and Loyalty Analysis

Objective: Analyze customer retention and create strategies for improving customer loyalty.

1. Hint: Use a CTE to calculate the retention rate by analyzing customers who made repeat purchases in consecutive years.

2. Identify customers who have not made a purchase in over 12 months and create a list for a re-engagement marketing campaign.

3. Create a customer lifetime value (CLV) metric that calculates the total profit from each customer

over time.

4. Hint: Use a subquery to determine which customer segments have the highest and lowest retention rates.

5. Track customer purchasing patterns and identify potential churn risks based on inactivity or reduced purchasing frequency.

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