



SQL Project Report – Yamaha Motorbike Sales Analysis

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Project Summary: Data-Driven Insights into Yamaha Bangladesh Motorcycle Sales

Title: SQL Data Analysis Project: Uncovering Sales Trends & Customer Insights for Yamaha Bangladesh

Hashtags: #SQL #DataAnalysis #BusinessIntelligence #MotorcycleIndustry #Yamaha #DataDriven #PostgreSQL #DataAnalytics #Bangladesh

I'm excited to share the completion of my in-depth SQL data analysis project on a simulated Yamaha Bangladesh motorcycle sales database. This project involved building a relational database from the ground up and executing complex queries to extract actionable business intelligence.

Project Overview:

I designed and populated a 6-table relational database

(**Customers**, **Bikes**, **Dealers**, **Sales**, **ServiceRecords**, **Feedback**) containing over 100 bikes, 150 customers, 200 dealers, and corresponding sales and service records. The goal was to move beyond raw data and uncover the story behind Yamaha's market performance in Bangladesh.

Key Insights & Findings:

Here are the most significant insights derived from my analysis:

1. Sales Performance & Revenue Analysis:

- **Revenue Leaders:** Dealers in major hubs like **Dhaka and Chittagong** generated the highest total revenue, with "MotoBangla Ltd. (Dhaka)" and "Two Wheel World (Chittagong)" leading the pack.
- **Premium Segment Contribution:** Despite lower volume, large-engine bikes (**300cc+**) contributed disproportionately to total revenue, highlighting the importance of the premium market segment.

- **Sales Trends:** A clear quarterly sales trend was identified, which can be used for inventory planning and targeted marketing campaigns.

2. Product (Bike Model) Analysis:

- **Top-Selling Models:** The **Yamaha YZF-R15 V4** and **MT-15** (155cc) were the best-selling models by volume, indicating strong market demand for sporty, mid-range performance bikes.
- **Most Profitable Models:** The flagship **YZF-R1M** and **MT-10** (998cc) had the highest sale amounts, establishing the brand's high-performance image.
- **Color Preference Analysis:** Models available in **Matte Black** and **Racing Blue** consistently ranked among the most popular, suggesting a strong consumer preference for these colors.

3. Customer Insights:

- **Customer Value:** A small segment of customers made repeat purchases, representing a key demographic for loyalty programs and personalized marketing.
- **High-Value Customers:** I identified the top 5 customers by total purchase value, who are prime candidates for exclusive offers and early access to new models.

4. Dealer Performance Benchmarking:

- **Efficiency Gap:** While some dealers in Tier-2 cities (e.g., Sylhet, Khulna) had high sales volumes, their **average sale amount** was often lower than dealers in metropolitan areas, suggesting a focus on lower-cc models or potential upsell opportunities.
- **Service Drive:** Dealers with attached service centers showed a slightly higher customer satisfaction rating, as captured in the **Feedback** table.

5. Service & Post-Sale Analysis:

- **Maintenance Patterns:** The most common services were "Regular Maintenance" and "Oil Changes," providing a predictable revenue stream for service departments.

- **Correlation with Satisfaction:** Higher service spending did not always correlate with poor feedback; instead, timely and transparent service was a bigger factor in customer ratings.

Technical Skills Demonstrated:

Database Design: Creating a normalized relational schema (DDL - `CREATE TABLE` `PRIMARY KEY` `FOREIGN KEY`)

Data Manipulation: Populating tables with extensive sample data (DML - `INSERT`)

- **Complex Querying:** Utilizing advanced SQL techniques:
 - **Joins** (`INNER JOIN` `LEFT JOIN`) to merge data from multiple tables.
 - **Aggregate Functions** (`SUM`, `COUNT`, `AVG`, `MAX`) with `GROUP BY` for summary statistics.
 - **Window Functions** (`LEAD`, `RANK`, `SUM() OVER()`) for running totals and year-over-year comparisons.
 - **CTEs (Common Table Expressions)** and **Subqueries** for organizing complex logic.
 - **Conditional Logic** (`CASE WHEN`) for data categorization.
 - **Date Functions** (`EXTRACT`, `DATE_TRUNC`) for trend analysis over time.

Business Recommendations:

1. **Inventory Strategy:** Prioritize stock for high-demand models (R15, MT-15) and colors (Matte Black) in all dealer locations.
2. **Dealer Training:** Implement targeted training for dealers in Tier-2 cities on upselling strategies for higher-value models.
3. **Loyalty Program:** Develop a loyalty program focused on repeat customers and high-value individuals to enhance customer retention.
4. **Promotional Campaigns:** Time marketing campaigns to align with identified quarterly sales peaks to maximize impact.

This project solidified my ability to not just query data, but to translate it into a compelling narrative with real-world business implications. I'm eager to leverage these skills to drive data-informed decisions in a dynamic role.