Bike Store Sales Performance Analysis

1. **PROBLEM STATEMENT:**

The bike store company wants to analyse its sales performance across products, brands, stores, customers, inventory, and staff to identify areas for improvement. The key questions to answer are:

* Sales Performance Analysis:

1. What is the total quantity of each product sold?
2. What is the total revenue per brand?
3. What is the monthly sales trend for each store?
4. What is the most popular category of products sold?
5. What is the percentage contribution of each brand to the total sales?
6. What are the top 5 best-selling products?
7. Which category of products generates the most revenue?
8. What are the monthly sales trends for the current year 2018?

* Customer Analysis:

1. Who are the top 5 customers by total spending?
2. What is the distribution of customers by region?

* Inventory Management:

1. What is the total stock quantity for each product in each store?
2. What is the average quantity of each product across all stores?
3. Which product has the highest quantity in stock?
4. Are there any products that are out of stock (quantity = 0) in any of the stores?
5. Which products have the highest and lowest turnover rates?
6. What is the average time a product spends in inventory before being sold?

* Store Performance:

1. What is the average discount given by each store?
2. Which store has the highest total quantity of products?
3. Which store has the highest sales volume?
4. What is the revenue per employee for each store?

* Staff Analysis:

1. Which staff members have processed the most orders?
2. Which staff members have the highest sales numbers?

* Market Basket Analysis:

1. Which products are most often sold together?
2. **OBSTACLES AND COMPLICATIONS:**

* The data is spread across multiple tables needing joins to associate orders with customers, products, stores etc.
* Calculation intensive queries are required to analyse revenue, sales trends, inventory turnover etc.
* Ranking and window functions are needed to identify top products, customers etc.

1. **APPROACH AND TECHNIQUES:**

* Use appropriate joins between the orders, order\_items, products, brands, stores, customers and staff tables.
* Leverage aggregate functions like SUM, COUNT, AVG etc for calculations.
* Apply window functions like RANK, DENSE\_RANK to rank results.
* Use common table expressions and temporary views where appropriate to break down complex logic.

1. **TOOLS:**

* MySQL database is used for data storage and analysis.
* The analysis is performed using SQL queries executed in MySQL workbench.

1. **KEY ANALYSIS INSIGHTS:**

* The best-selling product, "Electra Cruiser 1 (24-Inch) - 2016," has amassed an impressive total of 296 units sold.
* "Trek" emerges as the leading brand, securing the top spot in revenue with a remarkable $5,129,250.27, constituting 59.79% of the total revenue.
* "Cruisers Bicycles" claims the spotlight as the most popular product category, boasting a substantial count of 1,378 units sold.
* The "Mountain Bikes" category takes the lead in total revenue generation.
* Noteworthy customers, Pamelia Newman (customer\_id: 10) and Abby Gamble (customer\_id: 75), stand out as the top two spenders. The majority of customers hail from New York.
* Product 188 (Trek XM700+ Lowstep – 2018) boasts the highest stock quantity across stores, while several other products are currently out of stock.
* Product 7 (Trek Slash 8 27.5 – 2016) demonstrates the highest turnover rate, whereas Product 270 (Trek Precaliber 16 Boy's – 2018) holds the lowest turnover rate.
* On average, products spend approximately 3 days in inventory before being sold.
* Store 2 (Baldwin Bikes) commands the highest sales volume and offers the most substantial discounts. Meanwhile, store 3 (Rowlett Bikes) maintains the highest stock quantity.
* Staff 6 stands out for processing the most orders and achieving the highest sales figures.
* Products 5 (Heller Shagamaw Frame - 2016) and 14 (Electra Girl's Hawaii 1 (16-inch) - 2015/2016) frequently go hand in hand as the most commonly purchased pair.

1. **BUSINESS RECOMMENDATIONS BASED ON INSIGHTS :**
2. **Promote Top-Selling Products:** Given that "Electra Cruiser 1 (24-Inch) - 2016" is the best-selling product, consider running promotions or marketing campaigns to further boost its sales. Highlight its features and benefits to attract more customers.
3. **Strategic Focus on Trek Products:** Since the brand "Trek" contributes significantly to overall revenue, consider expanding the product range from this brand or implementing targeted marketing strategies to capitalize on its popularity.
4. **Enhance Cruisers Bicycles Category:** As "Cruisers Bicycles" is the most popular category, invest in product development, marketing, and inventory management for cruiser bikes. Introduce new models or variations to maintain customer interest.
5. **Optimize Mountain Bikes Revenue:** Given that the "Mountain Bikes" category generates the highest total revenue, focus on promoting these products and explore opportunities for upselling or bundling to maximize revenue within this category.
6. **Customer Engagement in New York:** Since a significant portion of customers is from New York, consider implementing location-based marketing strategies, loyalty programs, or exclusive promotions to engage and retain these customers.
7. **Inventory Management:** Keep a close eye on stock levels, especially for high-performing products. Ensure that popular products remain in stock to meet customer demand and explore options to minimize stockouts for other items.
8. **Improve Turnover Rates:** Analyse the factors contributing to the high turnover rate of Product 7 and consider replicating successful strategies in other products. Evaluate the reasons behind the low turnover rate of Product 270 and explore ways to increase its sales.
9. **Optimize Discounts and Stock at Stores:** For Store 2 (Baldwin Bikes), continue maximizing sales volume and consider adjusting discount strategies based on customer response. For Store 3 (Rowlett Bikes), ensure that the high stock quantity aligns with market demand and adjust inventory levels accordingly.
10. **Recognize and Incentivize Top-Performing Staff:** Acknowledge and reward the efforts of Staff 6 for processing the most orders and achieving the highest sales. Consider implementing incentive programs to motivate other staff members.
11. **Promote Product Bundling:** Given that Products 5 and 14 are frequently sold together, create promotions or bundles that feature these products to encourage customers to purchase both items.