**Coffee Shop Sales Analysis in SQL**

**Project Overview**

This project involves analyzing the sales data of a coffee shop using SQL queries. The data is stored in the Transactions table, which contains details about sales transactions, product categories, sizes, store locations, and other relevant information. The goal is to derive key insights such as total sales, visitor counts, sales trends, and top-performing products.

**Database Schema**

**Transactions Table**

|  |  |  |
| --- | --- | --- |
| **Column Name** | **Data Type** | **Description** |
| transaction\_id | INT | Unique identifier for each transaction. |
| transaction\_date | DATE | Date of the transaction. |
| transaction\_time | TIME | Time of the transaction. |
| store\_id | INT | Unique identifier for each store. |
| store\_location | VARCHAR(255) | Name of the store location. |
| product\_id | INT | Unique identifier for the product. |
| transaction\_qty | INT | Quantity of the product in the transaction. |
| unit\_price | DECIMAL(10, 2) | Unit price of the product. |
| product\_category | VARCHAR(255) | Category of the product (e.g., Coffee, Tea). |
| product\_type | VARCHAR(255) | Type of the product (e.g., Beverage, Snack). |
| product\_detail | VARCHAR(255) | Specific product name (e.g., Barista Espresso). |
| size | VARCHAR(50) | Size of the product (e.g., Small, Regular, Large). |
| amount | DECIMAL(10, 2) | Total amount of the transaction. |
| month\_name | VARCHAR(255) | Name of the month (e.g., January, February). |
| day\_name | VARCHAR(50) | Day of the week (e.g., Monday, Tuesday). |
| hour | INT | Hour of the transaction (e.g., 8, 9). |
| day\_of\_week | INT | Numeric representation of the day of the week. |
| month | INT | Numeric representation of the month. |

**Project Objectives**

1. Analyze total sales, average bill, and average orders.
2. Identify peak sales hours and high-performing days of the week.
3. Determine footfall and sales performance across different store locations.
4. Examine product size preferences and top product sales.
5. Visualize category-wise sales distribution and contributions.
6. Provide actionable insights for business decision-making.

**SQL Queries for Analysis**

**1. Total Sales**

To calculate the total revenue generated:

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| --- |
| SELECT  SUM(amount) AS total\_sales  FROM Transactions; |

**2. Total Visitors**

To find the total number of unique transactions (assuming each transaction is one visitor):

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| --- |
| SELECT  COUNT(DISTINCT transaction\_id) AS total\_visitors  FROM Transactions; |

**3. Average Bill and Orders**

To calculate the average bill value and average quantity ordered per transaction:

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| --- |
| SELECT  AVG(amount) AS avg\_bill,  AVG(transaction\_qty) AS avg\_orders  FROM Transactions; |

**4. Footfall Over Store Locations**

To analyze the number of transactions and total sales at each store:

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| --- |
| SELECT  store\_location,  COUNT(transaction\_id) AS transaction\_count,  SUM(amount) AS sum\_of\_amount  FROM Transactions  GROUP BY store\_location  ORDER BY sum\_of\_amount DESC; |

**5. Sales by Product Size**

To analyze the distribution of sales based on product size:

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| --- |
| SELECT  size,  COUNT(transaction\_id) AS size\_distribution  FROM Transactions  GROUP BY size  ORDER BY size\_distribution DESC; |

**6. Sales by Day of the Week**

To find sales trends by day:

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| --- |
| SELECT  day\_name,  SUM(transaction\_qty) AS total\_sales  FROM Transactions  GROUP BY day\_name  ORDER BY FIELD(day\_name, 'Sunday', 'Monday', 'Tuesday', 'Wednesday', 'Thursday', 'Friday', 'Saturday'); |

**7. Top 5 Products by Sales**

To identify the best-selling products:

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| SELECT  product\_detail,  SUM(amount) AS total\_sales  FROM Transactions  GROUP BY product\_detail  ORDER BY total\_sales DESC  LIMIT 5; |

**8. Category Percentage Distribution**

To calculate the percentage contribution of each category to total sales:

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| --- |
| SELECT  product\_category,  SUM(amount) AS total\_sales,  ROUND((SUM(amount) \* 100.0 / (SELECT SUM(amount) FROM Transactions)), 2) AS percentage\_contribution  FROM Transactions  GROUP BY product\_category  ORDER BY total\_sales DESC; |

**9. Hourly Sales Trend**

To observe sales trends by hour of the day:

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| --- |
| SELECT  hour,  SUM(transaction\_qty) AS total\_quantity  FROM Transactions  GROUP BY hour  ORDER BY hour; |

**Insights and Recommendations**

1. **Total Sales & Visitors:** Total sales and visitor numbers give an overview of the coffee shop's performance.
2. **Peak Hours and Days:** Identifying peak hours and high-performing days helps in better staffing and inventory planning.
3. **Store Performance:** Analyzing store-wise performance helps identify high-performing locations and potential underperformers.
4. **Product and Size Preferences:** Knowing top-selling products and size preferences aids in optimizing the menu and inventory.
5. **Category Contributions:** Understanding category-wise contributions helps allocate marketing efforts effectively.

**Future Scope**

1. **Integrate Predictive Analysis**: Use machine learning algorithms to forecast sales trends.
2. **Customer Segmentation**: Add customer demographics to identify target audiences.
3. **Real-Time Dashboards**: Build live dashboards using Power BI or Tableau for continuous monitoring.