Retail Expansion Analytics: SQL-Based Business Case Study (Coffee Chain)

Project Overview

This project analyzes 1.5 years of coffee sales data to support a strategic retail expansion decision. The business, after successfully operating through online channels since January 2023, plans to open three offline outlets in major Indian cities.

As a Data Analyst, the objective was to evaluate city-level performance metrics and recommend the top three cities for expansion using data-driven insights.

Business Objective

Identify and recommend the top three cities in India for launching new offline coffee outlets based on:

- Revenue performance
- Customer base strength
- Growth trends
- Market size potential
- Rent-to-revenue feasibility
- Unit economics

Key Stakeholders

- Founders / Business Owners
- Marketing Team
- Operations & Supply Chain Team
- Investors
- Data Analytics Team
- Customers

Dataset Description

City Table

- `city_id` – Unique city identifier
- `city_name` – City name

- `population` – Total city population
- `estimated_rent` – Monthly rent estimate for store
- `city_rank` – Market ranking

Sales Table

- `sale_id` – Unique transaction ID
- `sale_date` – Transaction date
- `product_id` – Product reference
- `customer_id` – Customer reference
- `total` – Transaction amount
- `rating` – Customer rating

Products Table

- `product_id` – Unique product ID
- `product_name` – Product name
- `price` – Product price

Customers Table

- `customer_id` – Unique customer ID
- `customer_name` – Customer name
- `city_id` – Associated city

Analytical Approach

The analysis was performed using SQL Server and included:

- Data aggregation and city-level revenue analysis
- Customer segmentation and spending behavior analysis
- Window functions (RANK, DENSE_RANK, LAG)
- Monthly sales growth calculation
- Rent-to-revenue comparison
- Market size estimation (25% population consumption assumption)
- Unit economics evaluation

Business Questions Addressed

1. Estimated coffee consumption potential per city (25% population assumption)
2. Total revenue generated in Q4 2023
3. Product-wise sales volume
4. Average revenue per customer by city
5. Market size vs active customer penetration
6. Top 3 selling products per city (using ranking functions)
7. Unique customer distribution by city
8. Average revenue per customer vs average rent per customer
9. Monthly sales growth rate using LAG() window function
10. Final ranking of cities based on revenue and profitability indicators

Key Business Insights

1. **Revenue Concentration**
   Sales are concentrated in the top-performing cities, indicating geographic revenue dependency and highlighting priority markets for reinvestment.
2. **Market Penetration Gap**
   The difference between estimated coffee consumers (25% of population) and actual unique customers indicates low penetration in several cities, suggesting significant untapped demand.
3. **Customer Monetization Variance**
   Average revenue per customer varies notably across cities, reflecting differences in spending behavior and pricing potential.
4. **Product Demand Concentration**
   A limited number of products drive the majority of sales volume, confirming demand concentration and supporting focused inventory optimization.
5. **City-Level Demand Heterogeneity**
   Top-selling products differ by city, demonstrating the need for location-specific assortment strategies.
6. **Unit Economics Variation**
   Revenue per customer and rent per customer differ substantially across cities, indicating varying profitability levels despite similar total sales.
7. **Growth Momentum Differences**
   Monthly growth rates are inconsistent across cities, signaling uneven demand stability and expansion risk.
8. **Multi-Metric Expansion Criteria Required**
   Optimal expansion decisions require integrating revenue scale, customer base, cost structure, and growth trend rather than relying solely on sales volume.

Recommended Cities for Expansion

1. Pune

- Highest total revenue
- Strong average spend per customer
- Moderate rental cost
- Healthy and stable customer base

2.Chennai

- Second-highest revenue
- Balanced earning-to-cost ratio
- Strong customer retention
- Sustainable expansion potential

3.Jaipur

- Highest customer count
- Lowest rent per customer
- Strong revenue efficiency
- Attractive unit economics

Cities Not Recommended

Bangalore

- High rental costs
- Highest rent per customer
- Profit margin risk despite strong demand

Delhi

- Large market size
- Lower revenue per customer
- Higher rent reduces profitability potential

Final Recommendation

Based on revenue performance, growth trends, customer base strength, and cost feasibility, the top three cities recommended for offline expansion are:

1. Pune
2. Chennai
3. Jaipur

These cities offer optimal balance between demand potential, operational cost, and revenue efficiency.

Tools Used

- SQL Server
- Advanced SQL (CTE, Window Functions, Aggregations, Ranking, Growth Analysis)