

Exploratory Analysis of Music Purchase Trends and Customer Behavior

Introduction:

This project analyses the customer behavior, music trends and sales performance using a relational music database. The Primary objective of this project is to answer a few business questions and provide insights for decision making such as identifying the top-spending customers, most popular music genres by country, best cities for events and customer preferences in artist and genres.

This report helps in improving customer engagement, strategic marketing, and planning future campaigns such as location-based event or artist promotions.

Methodology:

To conduct this analysis, the following approach was followed:

1. Data Exploration and Preparation

All required tables were reviewed to understand schema relationships. Primary key and foreign key relationships between Invoice, Customer, Track, Genre, and Artist tables were leveraged for joins.

2. Query Execution

A series SQL queries were written to answer business questions. Each query was tested iteratively to ensure accuracy and relevance:

- Basic aggregations like total spend, track counts were used.
- Multi-table joins to connect customer, invoice, track, genre, and artist data.
- Filtering to extract genre specific or customer specific patterns.

3. Advanced SQL features

To improve the readability and efficiency:

- Common table Expressions (CTEs) were used to break down complex queries like customer spend by artist.
- Window functions were applied to rank data within groups like top-spending customer per country and popular genres per country.

4. Result Validation

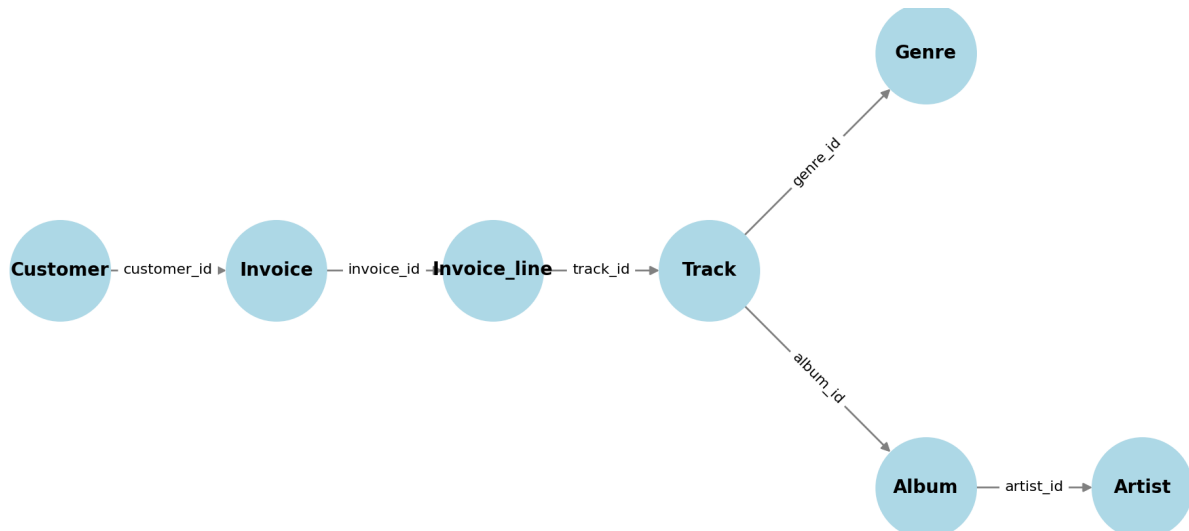
Results were validated using sample outputs and logical checks like verifying top spending customer aligns with the highest invoice totals.

5. Documentation

All queries were documented with in-line comments explaining their purposes and logic to ensure maintainability and readability.

Data Overview

Schema Relationship



Business Insights

1. Top Countries by Invoice Volume

The United States leads with 131 invoices, followed by Canada (76), Brazil (61), France (50), and Germany (41). These represent the platform's most active markets.

2. Top Invoice totals

The highest invoice came from Bordeaux, France, totaling \$23.80, followed by Winnipeg and Toronto (both in Canada) at \$19.80 each.

3. Best City for Events

Based on invoice frequency and revenue, Bordeaux (France) and Prague (Czech Republic) are top contenders for live events or artist promotions.

4. Top Customer

- Prague, Czech Republic: \$144.50 and \$128.70
- Dublin, Ireland: \$114.80
- Delhi, India: \$111.90

These high-value customers can be prioritized for loyalty or exclusive content campaigns.

5. Top Artists by Track Sales

Led Zeppelin and U2 had the highest number of tracks purchased. These artists are ideal candidates for promotional playlists.

6. Customers Spend by Artist

The most revenue-generating artists (by total customer spend) were:

- Queen
- Frank Sinatra
- The Who

7. Popular music Genre in each Country

Rock dominated as the most purchased genre globally. An exception was Argentina, where Alternative & Punk took the lead.

8. Revenue vs Quantity Sold

Rock is the most purchased genre and the highest revenue earner as well which makes it ideal for playlist, promotions, and event targeting. Metal has loyal audience and can leverage for targeted campaigns. Since Rock dominates both quantity and revenue, it should be central in marketing campaigns. Meanwhile, Metal and Alternative & Punk can be promoted through genre-specific fan channels or artist tie-ins.

Conclusion

This project provided a comprehensive analysis of customer behavior, music preferences, and revenue trends within a digital music platform. By leveraging SQL queries, Common Table Expressions (CTEs), and window functions, we extracted valuable business insights that can directly inform strategic decisions.

Key takeaways include:

- **Rock music dominates** both in terms of total purchases and revenue, making it the most commercially successful genre.
- **Led Zeppelin, U2, and Queen** are top-performing artists and should be central to marketing efforts.
- **Bordeaux, Prague, and New York** emerge as prime cities for hosting live events based on purchase volume and spending.
- High-value customers are concentrated in specific regions like **Prague, Dublin, and Delhi**, indicating where loyalty programs and premium promotions can be most effective.
- While **Rock** is globally dominant, localized preferences (e.g., **Alternative & Punk** in Argentina) highlight opportunities for targeted regional campaigns.

Through this analysis, we not only identified trends but also actionable recommendations that can drive revenue, engagement, and market expansion. With further integration of time-based or streaming data, this foundational analysis can be scaled to guide future business growth.

