EcomPulse — Advanced eCommerce SQL Analytics Project (by SK)

Data-Driven Insights for Smarter eCommerce Growth

GitHub Repository: https://github.com/sklaps/advanced-ecommerce-project

Overview

This project analyzes eCommerce user behavior using advanced SQL queries and Excel visualizations. The goal is to extract business insights from user interaction data — including product views, carts, purchases, and brand performance — to help businesses optimize conversions and retention.

Q1. How are user events distributed?

SQL Query:

```
SELECT event_type, COUNT(*) AS total_events FROM new_project.small_file GROUP BY
event_type ORDER BY total_events DESC;
```

■ *Insights:*

Most actions are 'view' events — typical for browsing behavior. Only about 1.6% of views convert to purchases, suggesting a need for better funnel optimization. [Chart for Q1 goes here]

Q2. What percentage of users convert from views to carts to purchases?

SQL Query:

```
WITH funnel AS ( SELECT COUNT(*) AS total_views, SUM(CASE WHEN event_type='cart' THEN 1
ELSE 0 END) AS total_carts, SUM(CASE WHEN event_type='purchase' THEN 1 ELSE 0 END) AS
total_purchases FROM new_project.small_file ) SELECT total_views, total_carts,
total_purchases, ROUND(total_carts*100/total_views,2) AS view_to_cart_percent,
ROUND(total_purchases*100/total_carts,2) AS cart_to_purchase_percent,
ROUND(total_purchases*100/total_views,2) AS overall_conversion_percent FROM funnel;
```

■ *Insights:*

Conversion from views to carts is low (~1.2%), indicating strong browsing but weak interest. Cart-to-purchase ratio is very high, showing high intent once the user adds an item to the cart. [Chart for Q2 goes here]

Q3. What are the top 10 purchased products by brand?

SQL Query:

```
SELECT product_id, brand, COUNT(*) AS total_purchases FROM new_project.small_file WHERE
event_type = 'purchase' GROUP BY product_id, brand ORDER BY total_purchases DESC LIMIT 10;
```

■ *Insights:*

Top-performing brands include Samsung and Apple — reflecting strong electronics demand. Brands like Xiaomi and Huawei follow closely, indicating growing competition. [Chart for Q3 goes here]

Q4. Which brands have the highest average selling price?

SQL Query:

```
SELECT brand, ROUND(AVG(price), 2) AS avg_price FROM new_project.small_file WHERE
event_type = 'purchase' AND brand IS NOT NULL GROUP BY brand ORDER BY avg_price DESC LIMIT
10;
```

■ *Insights:*

Premium brands like Mercury and Apple have the highest average prices. Pricing data helps identify luxury segments and high-margin opportunities. [Chart for Q4 goes here]

Q5. Which brands generate the highest total revenue?

SQL Query:

```
SELECT brand, ROUND(SUM(price), 2) AS total_revenue, COUNT(*) AS total_purchases FROM
new_project.small_file WHERE event_type = 'purchase' AND brand IS NOT NULL GROUP BY brand
ORDER BY total_revenue DESC LIMIT 10;
```

■ *Insights:*

Apple dominates total revenue, followed by Samsung — driven by high-value electronics. This insight highlights key partnerships and inventory focus areas. [Chart for Q5 goes here]

■ Key Takeaways & Learnings

• SQL can uncover critical funnel drop-offs and top-performing products instantly. • Combining SQL + Excel creates powerful visual storytelling for business stakeholders. • This project demonstrates real-world analytical thinking — ideal for portfolio showcase.