

# Sales & Revenue Performance Analysis Using SQL

## Business Question :

- Can transactional sales and marketing data be analysed using SQL to understand revenue drivers, conversion efficiency, and pricing impact on overall performance?

## Use Cases :

- Revenue teams need visibility into whether sales growth is driven by genuine demand or promotional strategies.
- Understanding how marketing engagement translates into purchases helps optimise spend allocation.
- Identifying trends in revenue movement enables better forecasting and planning.
- Evaluating discount-led sales helps determine whether growth is sustainable or volume-driven.

## Dataset Used :

- Synthetic E-commerce transactional dataset representing sales, marketing engagement, and pricing activity.
- Dataset contains customer transactions captured across regions and product categories.

## Key fields used in the analysis :

- transaction\_date
- category
- region
- units\_sold
- revenue
- impressions
- clicks
- ad\_spend
- discount\_applied

## Assumption :

- Dataset is synthetic and used purely for analytical demonstration.
- Revenue values represent realised sales and not accounting-adjusted revenue.
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- December data reflects partial-period activity and is not considered a full operational month.

**Analytics :** Four key analytical areas were evaluated to understand revenue behaviour and sales efficiency.

- **Return on Advertising Spend (ROAS)** – Measure conversion spends to revenue
- **SQL Query Used :**
  - o *SELECT*
  - o *SUM(revenue) AS total\_revenue,*
  - o *SUM(ad\_spend) AS total\_spend,*

- $SUM(revenue) / SUM(ad\_spend)$  AS *roas*
  - *FROM sales\_data;*
- **Funnel Efficiency Analysis** (Impressions → Clicks → Sales) – Evaluates customer engagement and actual purchase rate
- **SQL Query Used :**
  - *SELECT*
  - *category,*
  - $SUM(impressions)$  AS *impressions,*
  - $SUM(clicks)$  AS *clicks,*
  - $SUM(units\_sold)$  AS *units\_sold,*
  - $ROUND(SUM(clicks)/SUM(impressions)*100,2)$  AS *ctr\_pct,*
  - $ROUND(SUM(units\_sold)/SUM(clicks)*100,2)$  AS *conversion\_pct*
  - *FROM sales\_data*
  - *GROUP BY category;*
- **Revenue Velocity** (M-o-M Revenue Movement) – Revenue trends over time for consistency.
- **SQL Query Used :**
  - *SELECT*
  - *month,*
  - *monthly\_rev,*
  - $LAG(monthly\_rev)$  OVER (ORDER BY month) AS *prev\_month,*
  - $ROUND( (monthly\_rev - LAG(monthly\_rev)$  OVER (ORDER BY month))
  - $/ LAG(monthly\_rev)$  OVER (ORDER BY month) \* 100,2) AS *mom\_growth*
  - *FROM (*
  - *SELECT*
  - $DATE\_FORMAT(transaction\_date, '%Y-%m')$  AS *month,*
  - $SUM(revenue)$  AS *monthly\_rev*
  - *FROM sales\_data*
  - *GROUP BY month*
  - *) t;*
- **Discount Sensitivity Analysis** - Assessed whether revenue growth is driven by pricing incentives or organic demand.
- **SQL Query Used :**
  - *SELECT*
  - *category,*
  - *CASE*
  - *WHEN discount\_applied = 0 THEN 'No Discount'*
  - *WHEN discount\_applied <= 10 THEN 'Low Discount'*
  - *WHEN discount\_applied <= 25 THEN 'Medium Discount'*
  - *ELSE 'High Discount'*
  - *END AS discount\_band,*
  - $SUM(units\_sold)$  AS *units\_sold,*
  - $SUM(revenue)$  AS *revenue,*
  - $ROUND(SUM(revenue)/SUM(units\_sold),2)$  AS *revenue\_per\_unit*
  - *FROM sales\_data*
  - *GROUP BY category, discount\_band;*

**Findings and Interpretations :**

- Marketing spend generated strong revenue returns, indicating efficient top-of-funnel performance and consistent engagement levels across categories.
- Conversion behaviour remained relatively stable across product segments, suggesting customer acquisition efforts are reaching relevant audiences rather than generating low-quality traffic.
- Revenue trends showed steady month-on-month performance with limited volatility, indicating predictable sales momentum rather than irregular spikes.
- Discount analysis revealed that while discounted transactions drove the majority of sales volume, non-discounted transactions generated higher revenue per unit, indicating underlying pricing power.

**Business Implications :**

- Marketing investments appear effective and can be sustained, with optimisation focused more on category allocation rather than overall spend reduction.
- Stable conversion behaviour suggests operational improvements should focus on pricing and product positioning rather than lead generation.
- Consistent revenue velocity supports reliable forecasting and planning, provided seasonal or partial-period distortions are monitored.
- The analysis demonstrates how transactional datasets can be leveraged to move beyond reporting and support data-informed revenue strategy decisions.

**Conclusion :**

- SQL-driven analysis enables evaluation of the complete revenue lifecycle from customer engagement to realised sales.
- Combining marketing efficiency, conversion behaviour, revenue trends, and pricing impact provides a comprehensive understanding of sales performance.
- The analysis demonstrates how transactional datasets can be leveraged to move beyond reporting and support data-informed revenue strategy decisions.
- Such analytical approaches can help organisations balance growth initiatives with revenue quality and long-term sustainability.