



Amazon Revenue Analysis using MySQL and Power BI

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Amazon Revenue Analysis - Summary

I performed a comprehensive **Amazon Revenue Analysis** using a dataset of more than **89,000 records**. The analysis was carried out through **MySQL** for data preparation and transformation, and later visualized in **Power BI** for insights and interactive reporting.



Key Steps & Approach



Data Preparation (MySQL):

Cleaned and structured the dataset containing fields such as Product Category, Product Description, Price, Number of Reviews, Shipment, and Order Date.

Created calculated columns and aggregated metrics (e.g., revenue, orders, review counts) for downstream analysis.



KPI Development (Power BI):

Designed **DAX measures** to capture key business metrics, including:

Total Revenue and Total Orders, Average Order Value (AOV), YTD, MTD, and QTD Sales, Revenue Growth (MoM %), Customer Engagement Metrics (e.g., reviews per product, review-to-sales ratio)



Visualization (Power BI Dashboard):

Revenue Trends: Line & area charts for sales over time (daily, monthly, quarterly).

Category Insights: Bar and column charts for revenue by product category.

Customer Behavior: Orders by weekday vs. weekend (reviews vs. revenue).

KPI Cards: Quick-glance metrics for decision-makers.

Comparisons: MoM and YTD growth visualized using combo charts and cards.

Amazon Revenue Analysis - Summary

Outcomes

The dashboard provided a clear view of sales performance, seasonality, and customer engagement patterns. Key insights included:

- Identification of top-performing product categories.
- Trends in order volumes across weekdays vs. weekends.
- Customer engagement levels through reviews and revenue per review.
- Growth tracking with MoM and YTD performance indicators.

Purpose Of the Queries – Overall Analysis Flow

1. Measure Overall Business Performance

Total Revenue → Establishes the overall sales value in dollars, forming the baseline metric.

2. Identify Top-Performing Areas

Revenue by Product Category → Highlights which categories drive the most revenue.

Revenue Contribution % → Shows each category's share of the total pie.

Number of Orders per Category → Reveals popularity by order volume (not just revenue).

Top 5 Products by Sales → Pinpoints star products.

3. Understand Customer Engagement

Reviews-to-Sales Ratio → Measures how engaged customers are by category.

4. Spot Trends and Seasonality

Monthly Sales Trend → Tracks performance month-by-month.

Sales by Month (descending) → Identifies peak revenue months.

Month-over-Month Sales Growth → Shows acceleration or slowdown trends over time.

5. Analyze Shopping Behavior

Weekday vs Weekend Orders → Compares order volume patterns.

Weekday vs Weekend Revenue → Shows spending behavior differences by day type.

Total Revenue

```
SELECT SUM(price) AS total_revenue  
FROM amazon_data;
```

Business Question Answered:

What is the overall revenue generated?

Revenue by Product Category

```
SELECT
    product_category,
    SUM(price) AS category_total_revenue,
    SUM(SUM(price)) OVER () AS total_revenue
FROM amazon_data
GROUP BY product_category
ORDER BY 2 desc;
```

Business Question Answered:

Which categories generate the most revenue?

Revenue Contribution By Category

```
SELECT product_category,  
       SUM(price) AS total_revenue,  
       100.0 * SUM(price) / SUM(SUM(price)) OVER() AS pct_of_total_revenue  
FROM amazon_data  
GROUP BY product_category  
ORDER BY product_category;
```

Business Question Answered:

How much does each category contribute to total revenue?

Number of Orders Per Category

```
SELECT product_category, COUNT(*) AS number_of_orders  
FROM amazon_data  
GROUP BY product_category  
ORDER BY 2 desc;
```

Business Question Answered:

Which categories are the most popular by order volume?

Top 5 Products by Sales

```
SELECT product_description, SUM(price) AS total_sales  
FROM amazon_data  
GROUP BY product_description  
ORDER BY total_sales DESC  
LIMIT 5;
```

Business Question Answered:

Which products are top sellers?

Customer Engagement: Review to Sales Ratio

```
SELECT product_category,  
       SUM(number_of_reviews) / NULLIF(SUM(price), 0) AS reviews_to_sales_ratio  
FROM amazon_data  
GROUP BY product_category  
ORDER BY 2 desc;
```

Business Question Answered:

Which categories have the most engaged customers?

Monthly Sales Trend

```
SELECT
    DATE_FORMAT(order_date, '%Y-%m-01') AS month,
    SUM(price) AS monthly_sales
FROM
    amazon_data
GROUP BY
    month
ORDER BY
    month;
```

Business Question Answered:

How do sales change over time by month?

Weekend vs Weekday Orders

```
SELECT
  CASE
    WHEN DAYOFWEEK(order_date) IN (1, 7) THEN 'Weekend' -- Sunday=1, Saturday=7
    ELSE 'Weekday'
  END AS day_type,
  COUNT(*) AS number_of_orders
FROM amazon_data
GROUP BY day_type;
```

Business Question Answered:

Are customers more active on weekends or weekdays?

Weekend vs Weekday Revenue

```
SELECT
  CASE
    WHEN DAYOFWEEK(order_date) IN (1, 7) THEN 'Weekend' -- Sunday=1, Saturday=7
    ELSE 'Weekday'
  END AS day_type,
  SUM(price) AS Total_Revenue
FROM amazon_data
GROUP BY day_type;
```

Business Question Answered:

Does revenue differ significantly between weekdays and weekends?

Sales by Month

```
SELECT
    DATE_FORMAT(order_date, '%Y-%m') AS sales_month,
    SUM(price) AS total_revenue
FROM amazon_data
GROUP BY sales_month
ORDER BY sales_month DESC;
```

Business Question Answered:

Which months had the highest revenue?

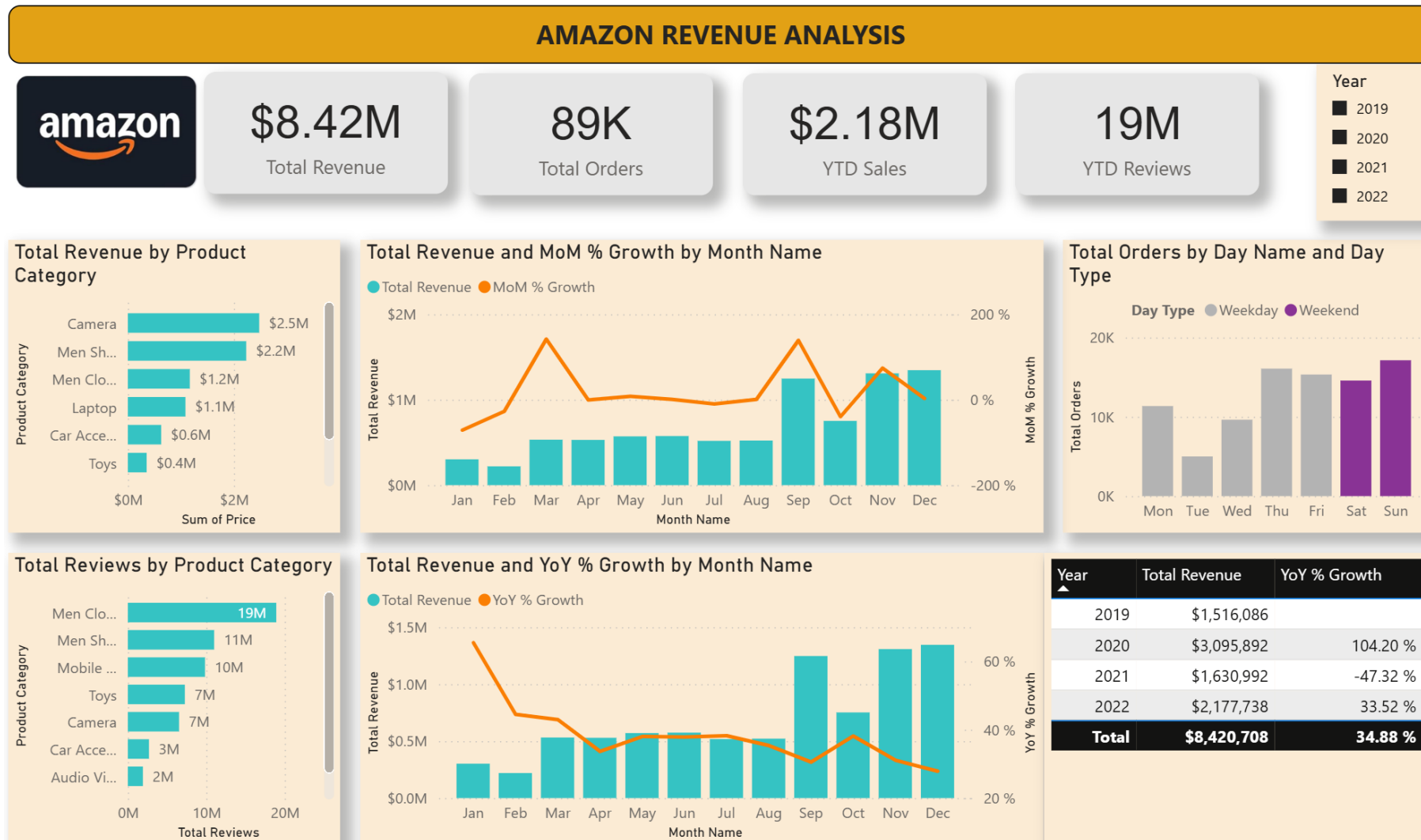
Month-over-Month Sales Growth

```
WITH monthly_sales AS (  
    SELECT  
        DATE_FORMAT(order_date, '%Y-%m') AS sales_month,  
        SUM(price) AS total_revenue  
    FROM amazon_data  
    GROUP BY sales_month  
,  
with_lag AS (  
    SELECT  
        sales_month,  
        total_revenue,  
        LAG(total_revenue) OVER (ORDER BY sales_month) AS last_month_revenue  
    FROM monthly_sales  
)  
SELECT  
    sales_month,  
    total_revenue,  
    last_month_revenue,  
    ROUND(  
        (total_revenue - last_month_revenue) / NULLIF(last_month_revenue, 0) * 100,  
        2  
    ) AS mom_growth_percent  
FROM with_lag;
```

Business Question Answered:

What is the growth rate of revenue compared to the previous month?

Power BI Dashboard



Conclusion

👉 Overall, the Amazon Revenue Analysis delivered an **end-to-end data story** — from raw data in MySQL to interactive business intelligence dashboards in Power BI — helping uncover actionable insights from a large dataset of **89k+ transactions**.