Sales Analysis Dashboard (amazon products)

by **Subhadeep Purkayastha |** tool used: <mark>**Power BI**</mark>

1. Problem Statement

Amazon generates massive volumes of sales data across categories and timeframes. However, understanding which products perform best, when sales peak, and what customer engagement looks like is challenging without a structured, visual approach.

The key business challenge was:

- To identify top-performing products and categories

- Understand sales seasonality and customer trends

- Enable data-driven marketing and inventory decisions

1. **KPI**

The main KPIs tracked were:

- **YTD Sales**: To measure total revenue generated during the year.
- **QTD Sales**: To analyze quarterly trends and short-term performance.
- **YTD Products Sold**: To understand sales volume (product movement).
- **YTD Reviews**: As a proxy for customer engagement and satisfaction.

These KPIs helped evaluate both financial performance and user sentiment.

2. **Chart Requirements**

YTD Sales by Month (Line Chart)

Tracks monthly revenue trends to identify seasonal demand patterns and support campaign planning around peak months (e.g., August, November).

YTD Sales by Week (Column Chart)

Provides short-term sales performance insight and helps detect weekly fluctuations, promotions, or supply chain impacts.

Top 5 Products by YTD Sales (Bar Chart)

Highlights high-revenue products, guiding inventory prioritization and marketing focus.

Sales by Category (Matrix)

Breaks down performance by product category, aiding in portfolio analysis and resource allocation.

Top 5 Products by YTD Reviews (Bar Chart)

Shows customer-preferred items based on engagement, useful for brand trust analysis and customer satisfaction insights.

2. Dashboard Walkthrough

The Power BI dashboard offers a clear and interactive view of Amazon product performance using the following key elements:

- **KPI Cards**

    - **Display core metrics:** YTD Sales, QTD Sales, Products Sold, Customer Reviews

- **Time Trend Charts**

    - **Monthly Sales (Line Chart):** captures long-term seasonal trends

    - **Weekly Sales (Bar Chart):** shows short-term sales fluctuations

- **Category & Product Analysis**

    - **Top 5 Products by YTD Sales:** identifies revenue drivers

    - **Top 5 Products by YTD Reviews:** shows customer engagement leaders

    - **Product Category Summary Table:** compares performance across categories

- **Interactive Filters**

  - Allows slicing data by Quarter and Product Category for targeted insights

Fig 1. Power BI Dashboard screenshot

3. Technical Implementation

Throughout this Power BI project, I applied a wide range of core and advanced functionalities, including:

- **Data Preparation & Modeling**

  - Connected to a Excel source, performed **data cleaning**, and built a structured **data model**

  - Used **Power Query**, created **date tables**, and implemented **time intelligence functions**

- **DAX & Calculations**

  - Built custom KPIs using CALCULATE, YTD, and QTD functions

- ○ Applied **date, text, and filter functions** to derive insights

- ● **Visualization & Formatting**

  - ○ Created dynamic **cards**, **bar/line charts**, and **tables**

  - ○ Applied **custom sorting**, **conditional formatting**, and **visual formatting**

- ● **Interactivity & Navigation**

  - ○ Enabled slicers for filtering

  - ○ Designed smooth **navigations and user flows** using bookmarks and buttons

4. Key Insights & Recommendations

Key Insights

- ● **Men Shoes** category contributed the highest to total sales (~43.18%), indicating strong market demand.

- ● **SanDisk products** led in customer reviews, reflecting high user engagement and brand trust.

- ● **Sales peaked in August and November**, suggesting seasonal or promotional spikes.

- ● **Weekly trends showed higher sales in Q4**, highlighting strong year-end performance.

Recommendations

- ● **Focus marketing** on top-selling categories like Men Shoes during high-demand months.

- ● **Leverage SanDisk brand loyalty** to promote similar electronic or accessory products.

- ● **Plan inventory and promotions** around Q3 and Q4 to capture seasonal growth.

- ● **Monitor review metrics regularly** to gauge product performance and customer satisfaction.

5. Limitations & Future Scope

Limitations

- The dataset is limited to orders **shipped to Bangladesh**, which restricts geographic insights.

- It only includes **sales and review counts**, no data on profit margins, returns, or ad spend.

- Covers a **single year (2019)**, so long-term trends or year-over-year comparisons aren't possible.

Future Scope

- Expand data to include **multi-country** sales and **multi-year** trends.

- Integrate **cost and margin data** for profitability analysis.

- Add **customer segmentation**, **return rates**, and **marketing data** for deeper business insights.

6. Learnings

- Gained hands-on experience in **Power BI end-to-end workflow** from data import to dashboard publishing.

- Learned to use **Power Query** and **DAX** to transform raw data into meaningful KPIs and insights.

- Developed skills in **creating interactive visuals**, **applying time intelligence**, and **enhancing user experience** through filters and formatting.

- Understood the importance of **visual storytelling** and aligning dashboards with business objectives.