**E-commerce Sales Analysis Project in Excel**

This project analyzes e-commerce sales data to extract actionable insights using Excel. Below is a structured breakdown:

**1. Project Overview**

**Objective**: Identify sales trends, top-performing products, customer behavior, and revenue drivers to optimize business strategies.  
**Tools**: Excel (Data cleaning, PivotTables, Charts, Dashboards).  
**Key Features**:

* Interactive dashboard with slicers.
* Time-series, geographic, and categorical analysis.
* Performance KPIs (Revenue, Profit, Growth).

**2. Data Cleaning & Preparation**

The raw data is processed for accuracy:

* **Handling Missing Values**: Blank cells in critical columns (e.g., Order Date, Sales) are filled or removed.
* **Removing Duplicates**: Redundant entries deleted.
* **Formatting**:
  + Date columns standardized (e.g., YYYY-MM-DD).
  + Numeric columns (e.g., Sales, Profit) formatted as currency.
* **New Columns**:
  + Month-Year extracted from order dates.
  + Profit Margin = (Profit / Sales) \* 100.

**3. Analysis Techniques**

**a) PivotTables for Summarization**:

* **Sales by Category/Sub-Category**: Identify top products (e.g., Electronics vs. Furniture).
* **Geographic Analysis**: Revenue by country/region.
* **Time Trends**: Monthly/quarterly sales performance.

**b) Formulas for Metrics**:

* **YoY Growth**:

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= (Current\_Year\_Sales - Previous\_Year\_Sales) / Previous\_Year\_Sales

* **Customer Segmentation**:
  + Classify customers using IF/VLOOKUP (e.g., "High-Value" for top 10% spenders).

**c) Visualizations**:

* **Charts**:
  + Line graphs for monthly revenue trends.
  + Pie charts for product category distribution.
  + Bar charts comparing regional sales.
* **Heatmaps**: Profitability by product (using conditional formatting).

**4. Interactive Dashboard**

**Components**:

* **KPIs**: Total Revenue, Average Profit Margin, YoY Growth.
* **Filters**: Slicers for Year, Region, Product Category.
* **Visuals**:
  + Sales trend over time.
  + Top 10 products by revenue.
  + Regional sales map (using Excel’s 3D Map).

**5. Key Insights**

From the GitHub analysis:

* **Top Category**: Electronics generates 40% of total revenue.
* **Seasonality**: Sales peak in Q4 (holiday season).
* **High-Profit Products**: Laptops have a 25% average profit margin.
* **Underperforming Regions**: Certain regions show <5% growth (target for promotions).

**6. Business Recommendations**

1. Boost marketing for high-margin products (e.g., laptops).
2. Offer Q4 discounts to leverage seasonal demand.
3. Expand warehouse presence in underperforming regions.

**7. Files in the Repository**

* Raw\_Data.xlsx: Unprocessed dataset.
* Cleaned\_Data.xlsx: Processed data after cleaning.
* Sales\_Dashboard.xlsx: Final interactive dashboard.

Steps the Project:

1. **Import Data**: Load raw CSV/Excel data into Excel.
2. **Clean Data**: Use Remove Duplicates, Text to Columns, and TRIM().
3. **Create PivotTables**: Summarize data by dimensions (e.g., date, category).
4. **Build Charts**: Select PivotTable data → Insert → Recommended Charts.
5. **Design Dashboard**: Place charts/KPIs on a new sheet; add slicers for interactivity.