**PROJECT REPORT**

**Analyzing Amazon Sales data**

### **1. Project Overview**

The Amazon Sales Data Analysis project focuses on analyzing sales performance data from Amazon’s e-commerce platform using Excel and Tableau. The primary goal is to gain insights into sales trends, customer behavior, product performance, and make informed business decisions to improve overall sales and profitability.

#### **Objectives:**

* Analyze historical sales data to identify patterns and trends.
* Evaluate product performance across categories.
* Understand customer purchasing behavior and demographics.
* Forecast future sales based on historical data.
* Provide actionable insights via interactive dashboards for key stakeholders.

### **2. Scope of Work**

**The scope of the project includes:**

* Data collection from Amazon sales records.
* Data cleaning, transformation, and aggregation using Excel.
* Visualization of key sales metrics in Tableau.
* Generation of predictive insights and business recommendations based on data analysis.
* Regular updates to dashboards as new sales data becomes available.

### **3. Methodology**

#### **Step 1: Data Collection**

* Data Sources: Sales data exported from Amazon, including:
  + Order details (Order ID, Product ID, Quantity, Sales Amount).
  + Customer information (Demographics, Location).
  + Product details (Category, SKU, Pricing).
* Data Formats: CSV or Excel files exported from Amazon's sales system.

#### **Step 2: Data Cleaning and Processing (Excel)**

* Data Cleaning: Remove duplicates, handle missing values, standardize formatting.
* Data Transformation: Aggregate data by:
  + Product categories.
  + Geographic regions.
  + Time periods (monthly, quarterly, yearly).
* Formulas & Calculations:
  + Total sales, revenue per product.
  + Average order value (AOV).
  + Sales growth and trends.

#### **Step 3: Data Visualization (Tableau)**

* Dashboard Creation: Build interactive Tableau dashboards to visualize:
  + Sales by product category.
  + Regional sales performance using maps.
  + Monthly/quarterly sales trends with line charts.
  + Top-selling products, customer segments, and demographics.
* Forecasting: Use Tableau’s predictive analytics to project future sales based on historical trends.

#### **Step 4: Reporting and Insights**

* Generate reports with actionable insights for management.
* Highlight key performance indicators (KPIs) such as revenue, top products, and growth rates.
* Present business recommendations based on analysis.

### **4. Architecture**

The architecture of the project consists of the following components:

#### Data Sources

* Amazon sales data in CSV or Excel format.

#### **Data Processing Layer (Excel)**

* Data Cleaning: Fixing missing values, removing duplicates.
* Aggregation: Sales data summarized by category, region, and time period.
* Calculated Metrics: Sales growth, average order value, and other KPIs.

#### **Data Visualization Layer (Tableau)**

* Connection: Excel data connected to Tableau for visualization.
* Dashboards: Create sales dashboards for interactive analysis.
* Charts: Use bar charts, line charts, and geographical maps for visual insights.

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### **5. Key Metrics & KPIs**

**The pr**oject will focus on the following metrics:

1. Total Sales: Sum of sales revenue over a period.
2. Top-Selling Products: Best-performing products based on revenue and quantity sold.
3. Average Order Value (AOV): Total sales divided by the number of orders.
4. Sales by Category: Performance of various product categories.
5. Sales by Region: Geographical distribution of sales.
6. Customer Segmentation: Sales performance based on customer demographics.
7. Sales Growth Rate: Year-over-year or month-over-month sales growth.

### **6. Tools and Technologies**

* Excel:
  + Data cleaning, transformation, and calculation.
  + Aggregating and summarizing sales data.
* Tableau:
  + Visualizing sales data through interactive dashboards.
  + Trend analysis and predictive forecasting.

### **7. Roles and Responsibilities**

#### **Project Team**

1. Data Analyst:
   * Responsible for data extraction, cleaning, and transformation in Excel.
2. Business Analyst:
   * Identifies key metrics and ensures alignment with business goals.
   * Provides actionable insights and recommendations based on analysis.
3. Tableau Developer:
   * Builds interactive dashboards and visualizations in Tableau.
   * Configures predictive analytics and sales forecasts.

### **8. Deployment Plan**

#### **Deployment Components**

1. **Excel Data Processing:**
   * Processed data stored in cloud storage like Google Drive or OneDrive for easy access.
2. **Tableau Dashboards:**
   * Published on Tableau Online or Tableau Server for access via web browsers.
3. **Data Refresh and Updates:**
   * Regular data refresh schedules set up in Tableau to update the dashboards with the latest sales data.
   * Automated refresh (daily/weekly/monthly) depending on the data availability.

#### **Access Control**

* **Role-based access permissions in Tableau to ensure data security.**
  + Viewers: Can only view the dashboards.
  + Editors: Can modify and update dashboards.
  + Admins: Manage access control and refresh schedules.

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### **9. Testing and Validation**

#### **Unit Testing**

* Excel Data Processing:
  + Ensure data cleaning and aggregation steps produce correct results.
* Tableau Visualizations:
  + Verify data accuracy in charts and dashboards.
  + Test filters and interactivity of dashboards.

#### **User Acceptance Testing (UAT)**

* Engage stakeholders to review and validate the dashboards.
* Collect feedback to improve the visualization experience.

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### **10. Project Timeline**

| **Task** | **Duration** | **Responsibility** |
| --- | --- | --- |
| **Data Collection** | **1 Week** | **Data Analyst** |
| **Data Cleaning & Transformation** | **1 Week** | **Data Analyst** |
| **Dashboard Development** | **2 Weeks** | **Tableau Developer** |
| **Testing & Validation** | **1 Week** | **Project Team** |
| **User Training & Deployment** | **1 Week** | **Tableau Developer, Analyst** |

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### **13. Conclusion**

The Amazon Sales Data Analysis project will empower the business to make informed, data-driven decisions by providing insights into sales trends, customer behavior, and product performance. With Excel and Tableau, this analysis will offer intuitive visualizations, accurate sales forecasting, and actionable recommendations for improving revenue growth and profitability. Regular updates and ongoing improvements will ensure that the dashboards remain relevant and useful for business stakeholders.