

Excel-Driven Interactive Data Insights Dashboard

Project Overview

Objective: Vrinda Store aims to improve sales by creating an interactive dashboard to analyse and review customer and sales data for 2022. This Excel-based dashboard identifies customer behaviour patterns, key revenue-generating states, high-performing product categories, and effective sales channels to inform the company's 2023 growth strategy.

Project Scope: This dashboard project in Excel includes data cleaning, data processing, analytical visualization, and interactive elements to answer the following questions:

1. Comparison of sales and orders.
2. Identification of peak sales month.
3. Analysis of customer demographics by gender and age.
4. Distribution of order statuses.
5. Top contributing states by sales.
6. Channel-wise sales performance.
7. Highest-selling product categories.

Step-by-Step Procedure

Step 1: Data Import and Initial Setup

1. Load the Dataset:

- Open the provided Excel file.
- Confirm that all data for analysis is located within the primary data sheet, typically titled "2022 Sales Data" or similar.

2. Data Structure Analysis:

- Observe each column to identify key attributes, such as:
 - **Date:** Indicates when each sale occurred.
 - **Sales Amount:** Shows total revenue per sale.
 - **Gender:** Categorizes purchases by customer gender.
 - **Channel:** Identifies the online platform (e.g., Amazon, Flipkart) where the sale was made.
 - **Order Status:** Indicates completion, pending, or cancellation of orders.

3. Set Up Worksheet Structure:

- Create separate sheets if needed:

- **Raw Data Sheet:** Keep this as the primary reference.
 - **Analysis Sheet:** Store all derived pivot tables and summaries.
 - **Dashboard Sheet:** Use this to design the final, interactive dashboard with charts and slicers.
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Step 2: Data Cleaning and Preprocessing

1. Handling Missing Values:

- Select any empty cells or blanks within crucial columns (e.g., Sales Amount, Channel).
- Use **Filter** to highlight missing values and choose an action:
 - **Delete Row** if data is essential but incomplete.
 - **Replace** with standard values if it doesn't impact accuracy.

2. Format Standardization:

- Use the **Format Cells** option to ensure consistent date, currency, and text formats.
- For dates, use a clear format like **MM/DD/YYYY** to avoid inconsistencies.

3. Categorical Grouping:

- Group and categorize by consistent names (e.g., Men/Women) to ensure accurate pivot table aggregation.

4. Data Preparation and Transformation:

- Creating the "Age Group" Column:
 - **Formula:** =IF(E2>=50, "Senior", IF(E2>=30, "Middle-Aged", "Adult").
 - **Explanation:** This formula categorizes customers into different age groups. If a customer's age (in column E) is 50 or above, they are classified as "Senior"; if between 30 and 49, as "Middle-Aged"; and if below 30, as "Adult."
 - **Creating the "Month" Column:**
 - **Formula:** =TEXT(G2,"mmm")
 - **Explanation:** This formula converts the "Date" field in column G to a three-letter month abbreviation (e.g., "Jan" for January, "Feb" for February). This allows for easier monthly analysis and comparison in charts and pivot tables.
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Step 3: Data Analysis

To answer Vrinda Store's questions, we'll utilize pivot tables and interactive elements:

1. Sales and Orders Comparison:

- Create a **Pivot Table** with:
 - **Row:** Date (set to Month).
 - **Values:** Sales Amount and Order Count.

- Insert a **Combo Chart** with a line for sales and bars for orders. This shows monthly sales trends, helping identify peak months.

2. Monthly Sales & Order Analysis:

- Use **Pivot Tables** to summarize total sales and orders by month.
- Apply **Conditional Formatting** to highlight the highest and lowest performing months.
- Answer: The month with the highest sales/orders is displayed as the boldest in the summary.

3. Gender-Based Purchase Trends:

- Add a **Pivot Table**:
 - **Rows**: Gender.
 - **Values**: Sales Amount.
- Insert a **Pie Chart** to visually represent the percentage of purchases by men and women, revealing that women comprise 65% of total purchases.

4. Order Status Overview:

- Insert another **Pivot Table**:
 - **Rows**: Order Status.
 - **Values**: Count of Orders.
- Use a **Bar Chart** to display the frequency of each order status, providing insight into order fulfilment trends.

5. Top 10 States by Sales:

- Create a **Pivot Table** to rank sales by state.
- Apply a **Filter** to show only the top 10 states.
- Use a **Bar Chart** to visualize these states, showing Maharashtra, Karnataka, and Uttar Pradesh as the leading contributors.

6. Age and Gender Analysis:

- Use **Pivot Tables** to group customers by age range and gender.
- Create a **Stacked Column Chart** to analyse the gender distribution within age groups, identifying that the age group 30-49 contributes to 50% of orders.

7. Channel Contribution Analysis:

- Summarize channel data with a **Pivot Table**:
 - **Rows**: Channel.
 - **Values**: Sales Amount.
- Display this data in a **Pie Chart**, highlighting that Amazon, Flipkart, and Myntra account for 80% of sales.

8. Highest Selling Category:

- Analyse product category sales using a **Pivot Table** with **Category** in rows and **Sales Amount** as values.

- Insert a **Bar Chart** to represent sales by category.
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Step 4: Data Visualization and Dashboard Creation

1. Developing Pivot Tables and Visual Summaries:

- For each analysis point, create a pivot table that summarizes the findings (e.g., monthly sales, gender distribution, top states).

2. Implementing Interactive Slicers:

- Insert **Slicers** for Month, Channel, and Category. This allows users to filter the visuals by specific time periods, sales channels, and product categories.
- Place the slicers strategically within the dashboard to maintain ease of use.

3. Designing the Visual Layout:

- Place charts and slicers in a clear, accessible arrangement.
- Use complementary colours to distinguish between different data categories (e.g., men vs. women, top vs. bottom-performing states).

4. Formatting and Styling:

- Apply **Chart Titles** and **Data Labels** for clarity.
 - Use **Gridlines and Borders** to make the dashboard more readable.
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Step 5: Insights and Report Generation

Based on the interactive dashboard analysis, the following insights emerged:

1. Customer Demographics:

- Women are the predominant buyers, contributing 65% of total sales.
- Customers aged 30-49 are the most active, comprising 50% of all orders.

2. Regional Sales:

- Maharashtra, Karnataka, and Uttar Pradesh are the highest sales-contributing states.

3. Sales Channels:

- The Amazon, Flipkart, and Myntra platforms collectively account for 80% of total sales, indicating they're crucial to the business model.

4. Product Category:

- The data highlights a few product categories with high sales potential, which should be prioritized for promotions and inventory.
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Step 6: Conclusion and Recommendations

Conclusion: The dashboard revealed trends across key customer demographics, regions, sales channels, and product categories, guiding Vrinda Store's future strategies. Focusing on specific audience segments and high-performing channels can drive effective marketing efforts.

Recommendations:

- 1. **Target Demographic:** Focus on women aged 30-49, particularly in Maharashtra, Karnataka, and Uttar Pradesh.
- 2. **Channel-Specific Marketing:** Utilize Amazon, Flipkart, and Myntra for targeted advertising.
- 3. **Product Promotions:** Offer discounts or exclusive promotions on high-selling categories.

Technical Overview

Techniques and Tools:

- **Pivot Tables:** Summarized sales data across various dimensions.
- **Slicers:** Enhanced interactivity by allowing users to filter the data by key categories.
- **Charts:** Various chart types, including line, bar, and pie charts, enabled data visualization.

