

Biscuit Sales Analysis Report

Executive Summary

This report provides a detailed overview of the **Biscuit Sales Dashboard** created using **Microsoft Excel**. The dashboard focuses on analyzing key business metrics, such as revenue, cost of goods sold (COGS), customer behavior, and geographical performance. The project emphasizes data cleaning, modeling, and visualization using standard Excel functions.

The primary goal of this dashboard is to help decision-makers gain insights into **sales trends**, **customer segmentation**, and **location-based performance**. The analysis is driven by data cleaning, pivot tables, pivot charts, and slicers to ensure interactivity and real-time analysis.

1. Introduction

The **Biscuit Sales Dashboard** provides a dynamic and interactive way to monitor and analyze the sales performance of the business. The dashboard was built in **Excel** and designed for easy use by stakeholders, ensuring a comprehensive overview of performance metrics at a glance.

Key components of the dashboard:

- **Data Cleaning:** Cleaning and organizing the raw data to ensure its usability.
- **Data Modeling:** Structuring the data to facilitate dynamic analysis.
- **Data Visualization:** Creating charts and graphs to visualize sales, customer segments, and performance trends.

2. Data Cleaning and Preprocessing

Overview

Before building the dashboard, the raw data was carefully cleaned and preprocessed directly within Excel. The cleaning process involved several steps to ensure data integrity and consistency. This included:

- **Removing Duplicates:** Identified and removed any redundant records to maintain data accuracy.
- **Filtering and Sorting:** Applied various filters to organize data based on different criteria (e.g., date, customer, payment method).

- **Handling Missing Values:** Any missing or inconsistent data was corrected manually or excluded from analysis where necessary.
- **Data Organization:** Data was organized into structured tables to ensure consistency across datasets (e.g., sales data, customer information).

Key Excel Functions Used:

- **Remove Duplicates:** Cleaned redundant rows.
- **Sorting:** Organized the data based on specific attributes (e.g., sales date, revenue).
- **Conditional Formatting:** Applied to highlight important metrics like top-performing customers or regions.

3. Data Analysis and Dashboard Creation

Data Modeling

Data was structured into multiple tables for ease of analysis:

- **Customer Table:** Contains customer demographics such as age group, gender, and payment method.
- **Sales Table:** Records of sales transactions, including product details, quantities sold, revenue, and COGS.
- **Geographical Table:** Contains the geographical locations for each sale (e.g., city, region).

These tables were linked in Excel to ensure smooth data flow, enabling easy reference and analysis in PivotTables.

Analysis Metrics

The dashboard is designed to analyze and display the following key metrics:

- **Revenue Trends:** Monthly, quarterly, and weekly revenue analysis to track business performance over time.
- **Top/Bottom Customers:** Identification of the top customers by revenue and the bottom customers for potential follow-up.
- **Payment Method Breakdown:** Insights into which payment methods (e.g., Cash, Credit Card, Debit Card) are most commonly used by customers.
- **Customer Segmentation:** Revenue distribution by gender and age group to understand the most profitable customer segments.
- **Geographical Insights:** Revenue performance analysis by location (e.g., cities, regions) to identify top-performing areas.

Data Visualization

To display the analysis, several visual tools were used:

- **PivotTables:** For aggregating and summarizing data dynamically.
- **PivotCharts:** Used for visualizing key metrics, such as revenue trends and customer segmentation.
- **Slicers:** Allowing users to filter the data interactively by different attributes (age group, payment method, location).
- **Conditional Formatting:** Applied to highlight key data points, such as high-performing customers or locations.

Key Visuals

- **Revenue Trend Chart:** A line chart that displays the monthly, quarterly, and weekly revenue over time.
- **Top Customer Bar Chart:** A bar chart showing the top customers by revenue.
- **Payment Method Pie Chart:** A pie chart that displays the percentage contribution of each payment method.
- **Geographical Revenue Heatmap:** A heatmap showing revenue distribution across various regions or cities.

4. Results and Insights

From the data analysis, the following key insights were identified:

- **Revenue Trends:** There were significant spikes in revenue during specific months (e.g., during seasonal promotions or holidays). This trend helps forecast future revenue peaks.
- **Customer Segmentation:** The **60-74 age group** contributed the highest revenue, while the **18-25** group had the lowest revenue contribution. This insight can guide targeted marketing efforts.
- **Payment Methods:** **Debit Card** transactions accounted for the largest share of revenue, followed by **Cash** and **Credit Card**. This can inform decisions on payment system enhancements or promotions targeting specific payment methods.
- **Geographical Insights:** Locations like **Los Angeles** and **New York** generated the most revenue, suggesting these regions are key markets. Targeted promotions or further investment in these areas may yield additional growth.

6. Acknowledgments

- **Microsoft Excel:** Excel was the primary tool used for data cleaning, analysis, and visualization. Its powerful features, including **PivotTables**, **PivotCharts**, and **Slicers**, were key to building an effective dashboard.
- **Data Cleaning and Preparation:** All data cleaning and filtering was performed directly within Excel using built-in functions such as **Remove Duplicates**, **Sorting**, and **Filtering**.

7. Author

Elsayed Abdelhamed

Data Analyst | Excel | Power BI | Python | Sql

eng.sayed2047@gmail.com

[LinkedIn]([\(10\) Elsayed Soliman | LinkedIn](#))