Swiggy Instamart Analysis: End-to-End Project

Dataset Link: https://shorturl.at/toJo2

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Project Overview

The "Swiggy: Grocery Product Analysis" project aims to analyze grocery sales data from various outlets to uncover customer behavior insights, track sales trends, and optimize operational efficiency. By leveraging Excel, the project focuses on cleaning, processing, and visualizing the dataset to meet business requirements through advanced dashboards and KPIs.

Dataset Description

The dataset, titled **Grocery Sales**, contains 12 columns with information about grocery item sales across different outlets. The columns include:

1. **Item_Identifier**: A unique ID for each product.
2. **Item_Weight**: The weight of the product.
3. **Item_Fat_Content**: Indicates whether the product is low fat or not.
4. **Item_Visibility**: Percentage of store display area allocated to the product.
5. **Item_Type**: Category or type of product.
6. **Item_MRP**: Maximum retail price of the product.
7. **Outlet_Identifier**: A unique ID for each store.
8. **Outlet_Establishment_Year**: Year the store was established.
9. **Outlet_Size**: Size of the store (ground area covered).
10. **Outlet_Location_Type**: Type of city/region where the store is located.
11. **Outlet_Type**: Indicates whether the store is a grocery store or supermarket.
12. **Item_Outlet_Sales**: Sales of the product in the specific store.

Data Preparation Steps

1. **Dataset Collection**:
    - Imported the CSV file into Excel and converted it into a structured table for efficient handling.
2. **Data Cleaning and Transformation**:
    - Removed duplicates to ensure data integrity.
    - Handled missing values in:
        - **Item_Weight**: Filled missing values using the formula:
          ```
          =IF(ISBLANK([@[Item_Weight]]), IFERROR(VLOOKUP([@[Item_Type]], Sheet2!$A$4:$B$19, 2, FALSE), "N/A"), [@[Item_Weight]])
          ```
        - **Outlet_Size**: Used a pivot table to determine the count of outlet sizes by location type and filled missing values accordingly.
    - Standardized text values in **Item_Fat_Content** for consistency.
3. **Data Enrichment**:
    - Added a new column to rate products based on their sales performance.
    - Renamed **Item_Outlet_Sales** to **Total_Sales** for clarity.
4. **Data Organization**:
    - Created five sheets:
        - **Original Dataset**: Raw data as downloaded.
        - **Processed Dataset**: Cleaned and formatted data ready for visualization.
        - **Rough Sheet**: Contains pivot tables and intermediate calculations.
        - **Dashboard**: Final dynamic dashboard for insights.
        - **Pivot Tables**: Contains required pivot tables for analysis.

Business Requirements

The analysis focuses on:

1. **Sales Performance**: Understanding total and average sales.
2. **Customer Satisfaction**: Insights into product performance and customer preferences.
3. **Inventory Distribution**: Optimizing stock allocation and store layout.

KPIs Identified

1. **Total Sales**: Overall revenue from items sold.
2. **Average Sales**: Revenue per sale.
3. **Number of Items Sold**: Total count of items sold.
4. **Average Rating**: Customer rating for items sold.

Visualization and Charts

1. **Total Sales by Fat Content**:
    - **Objective**: Analyze how fat content influences sales.
    - **Chart Type**: Donut Chart.
    - **Insights**: Highlights trends in sales distribution by fat content.
2. **Total Sales by Item Type**:
    - **Objective**: Identify high-performing product categories.
    - **Chart Type**: Bar Chart.
    - **Insights**: Helps prioritize inventory and marketing focus.
3. **Fat Content by Outlet for Total Sales**:
    - **Objective**: Compare sales across outlets segmented by fat content.
    - **Chart Type**: Stacked Column Chart.
    - **Insights**: Reveals outlet-specific performance trends.
4. **Total Sales by Outlet Establishment**:
    - **Objective**: Assess the impact of store age on sales.
    - **Chart Type**: Line Chart.
    - **Insights**: Guides strategies for store upgrades and maintenance.
5. **Sales by Outlet Size**:
    - **Objective**: Correlate outlet size with sales volume.
    - **Chart Type**: Donut/Pie Chart.

    - **Insights**: Informs decisions on store expansion.
6. **Sales by Outlet Location**:

    - **Objective**: Visualize geographic sales distribution.
    - **Chart Type**: Funnel Map.
    - **Insights**: Highlights areas for targeted marketing campaigns.
7. **All Metrics by Outlet Type**:

    - **Objective**: Comprehensive breakdown of all KPIs by outlet type.
    - **Chart Type**: Matrix Card.
    - **Insights**: In-depth analysis of store performance metrics.

Advanced Dashboard Design

- **Structure**:

    - Dynamic slicers for Fat Content, Outlet Type, and Location.
    - Interactive charts with drill-down capabilities.
- **Features**:

    - KPI Cards: Display Total Sales, Average Sales, Number of Items Sold, and Average Rating.
    - Color-coded visuals to highlight trends and anomalies.

Key Business Insights

1. **Customer Preferences**:
    - **Overall performance**
        i. Best performance of Swiggy Instamart is in Tier 3 cities which is $7.64 Million total sales.
        ii. High sales for Regular fat content item in each Tier city.
        iii. Fruits and Vegetables is the most selling item with $ 2.82M as total sales.
        iv. Sea foods contribute least in the overall sales.
        v. There is no any High-sized outlet present in Tier 1 and Tier 2 cities.
    - **Tier 1 city performance**:
        i. Regular fat content sold significantly 63%.

        ii. Outlet performance also increased with time.
    - **Tier 2 city performance:**
        i. Its performance approximately same as Tier 1 city.
        ii. Its sells decreased gradually from 2004.
        iii. Tier 2 and Tier 3 customer ratings are same i.e 4.51.
    - **Tier 3 city performance:**
        i. High-sized outlet sold 66% regular fat content.
        ii. No High-sized outlet established after 1987.
        iii. Its performance gradually decreased with time.
2. **Operational Efficiency**:
    - Medium-sized outlets contribute 61% of the total sales revenue.
    - Medium-sized and Small-sized outlets contribute approx. equally in Tier 1 city.
    - Medium-sized outlets contribute 65% in Tier 2 city.
    - Medium-sized outlets contribute 70% in Tier 3 city.
3. **Strategic Opportunities**:
    - Expand stock for high-performing item types.
    - Focus marketing efforts on regions with underperforming outlets.

Conclusion

This analysis provides actionable insights to optimize sales strategies, improve customer satisfaction, and streamline operations. The advanced dashboard empowers decision-makers to track KPIs effectively and adapt to dynamic business needs. For further analysis, this approach can be extended to include predictive modeling and automation tools.