Problem Statement:

A pizza restaurant wants to gain insights into its sales data to optimize its operations and maximize revenue. They seek to understand sales trends, identify top-selling products, and improve overall efficiency.

Objectives:

1. Analyze sales data to identify trends and patterns.
2. Determine top-selling pizza products and their characteristics.
3. Understand customer behavior and preferences.
4. Optimize inventory management and production processes.
5. Improve decision-making for marketing and promotions.

What I Worked On:

1. Data Collection and Preparation:
    - Imported sales data into a Microsoft SQL Server database.
    - Conducted initial data cleaning and preprocessing, including handling repeated order IDs and formatting the "PIZZA_SIZE" column.
2. Data Analysis in SQL:
    - Executed SQL queries to extract insights from the sales data.
    - Calculated KPIs such as total revenue, average order value, total pizzas sold, and total orders.
    - Analyzed daily and hourly sales trends.
    - Examined sales distribution by pizza category and size.
    - Identified top-selling pizza products.
3. Data Visualization in Excel:
    - Built an interactive dashboard in Excel using pivot tables and slicers.
    - Connected Excel to the MSSQL database for real-time data access.
    - Created various charts (e.g., pie charts, funnel charts, column charts) to visualize sales data.
    - Designed the dashboard to allow filtering by year and month for detailed insights.
4. Values of the dashboard can be checked in SQL, and they can also be cross-checked in SQL.
5. First, check the data in MSSQL and verify it against the Excel dashboard to ensure correct values.
6. The dashboard shown in Excel is tested on the SQL database. SQL queries are executed to validate the Excel dashboard values, ensuring that no incorrect insights are obtained.
7. A complete interactive dashboard is built, and filters are created based on the year, which can also be changed to show monthly insights.
8. On the dashboard, different KPIs are utilized, and daily trends such as the percentage of sales are displayed. Various charts including pie charts, funnel charts, and donut charts are also built.
9. The top 10 best and worst pizza sellers are identified using a column chart.
10. Summary for the dashboard is shown in panes, and it is condensed into two lines to facilitate easy insight extraction.
11. Excel is connected to the MSSQL database server, and data processing is performed.
12. Then, some data cleaning is done initially, particularly on the PIZZA_SIZE column.

13. Data processing is carried out to address the problem given by the stakeholders, which involves finding hourly and daily trends. Day columns are inserted by extracting them from the ordered_date. Data processing functions, including text functions, are employed.
14. In data processing, order-IDs are repeated. To ensure that only unique IDs are considered when calculating KPIs, a new column "total_order" is created, indicating the ratio of how many times each order-ID appears. This helps in calculating average orders without duplicating order-IDs.
15. SQL usage:
    - Initially, some queries are run on the Microsoft SQL Server, and data is imported into the server.
    - A database is created, and some CSV files are imported into the database. Complex SQL queries are written, utilizing functions such as datname and datepart, to solve business problems.
    - A report is created, and queries written in SQL Server are shared to provide insight into which queries were used for the KPIs.
16. Excel usage:
    - The dashboard is built using Excel, incorporating pivot tables and slicers.
    - Excel is first connected to the MSSQL server.
    - Data cleaning and processing are performed, followed by data analysis using pivot tables and pivot charts to create the dashboard.
    - Data visualization is carried out, formatting tables into charts as per stakeholder requirements, resulting in the final dashboard.
    - This sales data for the year 2015 is used to fulfill stakeholder requirements, employing both Excel and MSSQL.
    - The database is connected to Excel, and the data is loaded.
17. KPIs and chart calculations are performed in both SQL and Excel, with filters applied for stakeholder validation.
18.

Insights Gained:

1. Sales Trends:
    - Orders peaked on weekends, particularly Friday and Saturday evenings.
    - Maximum orders occurred between 12-1 PM and during the evening from 4-8 PM.
2. Product Insights:
    - Classic category pizzas contributed the most to sales and total orders.
    - Large size pizzas generated the highest revenue.
3. Top Sellers:
    - Classic Deluxe, Barbecue Chicken, and Hawaiian pizzas were among the top-selling products.

Outputs Achieved:

1. Interactive Dashboard:
    - Developed an Excel dashboard for visualizing sales data.
    - Included various KPIs, charts, and filters for easy exploration.
2. Key Performance Indicators (KPIs):

    - Total revenue, average order value, total pizzas sold, and total orders.
3. Insightful Visualizations:
    - Charts depicted daily and hourly sales trends, sales distribution by category and size, and top-selling products.

MISC:

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- First, check the data in MSSQL and verify it against the Excel dashboard to ensure correct values.
- The dashboard shown in Excel is tested on the SQL database. SQL queries are executed to validate the Excel dashboard values, ensuring that no incorrect insights are obtained.
- A complete interactive dashboard is built, and filters are created based on the year, which can also be changed to show monthly insights.
- On the dashboard, different KPIs are utilized, and daily trends such as the percentage of sales are displayed. Various charts including pie charts, funnel charts, and donut charts are also built.
- The top 10 best and worst pizza sellers are identified using a column chart.
- Summary for the dashboard is shown in panes, and it is condensed into two lines to facilitate easy insight extraction.
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