UNIFIED MENTOR
YOUR SKILL, SUCCESS & JOURNEY

Project Title	**pizza sales**
Tools	Tableau Desktop, SQL, Excel
Technologies	Business Analyst
Project Difficulties level	intermediate

Dataset : Dataset is available in the given link. You can download it at your convenience.

[Click here to download data set](#)

About Dataset

Contents

This pizza sales dataset make up 12 relevant features:

- `order_id`: Unique identifier for each order placed by a table

- `order_details_id`: Unique identifier for each pizza placed within each order (pizzas of the same type and size are kept in the same row, and the quantity increases)

- `pizza_id`: Unique key identifier that ties the pizza ordered to its details, like size and price

- `quantity`: Quantity ordered for each pizza of the same type and size

- `order_date`: Date the order was placed (entered into the system prior to cooking & serving)

- `order_time`: Time the order was placed (entered into the system prior to cooking & serving)

- `unit_price`: Price of the pizza in USD

- `total_price`: unit_price * quantity

- `pizza_size`: Size of the pizza (Small, Medium, Large, X Large, or XX Large)

- `pizza_type`: Unique key identifier that ties the pizza ordered to its details, like size and price

- `pizza_ingredients`: ingredients used in the pizza as shown in the menu (they all include Mozzarella Cheese, even if not specified; and they all include Tomato Sauce, unless another sauce is specified)

- `pizza_name`: Name of the pizza as shown in the menu

🍕The Pizza Challenge

For the Maven Pizza Challenge, you'll be playing the role of a BI Consultant hired by Plato's Pizza, a Greek-inspired pizza place in New Jersey. You've been hired to help the restaurant use data to improve operations, and just received the following note:

Welcome aboard, we're glad you're here to help!

Things are going OK here at Plato's, but there's room for improvement. We've been collecting transactional data for the past year, but really haven't been able to put it to good use. Hoping you can analyze the data and put together a report to help us find opportunities to drive more sales and work more efficiently.

Here are some questions that we'd like to be able to answer:

1. What days and times do we tend to be busiest?
2. How many pizzas are we making during peak periods?
3. What are our best and worst-selling pizzas?
4. What's our average order value?
5. How well are we utilizing our seating capacity? (we have 15 tables and 60 seats)

That's all I can think of for now, but if you have any other ideas I'd love to hear them – you're the expert!

Thanks in advance,

Mario Maven (Manager, Plato's Pizza)

Colllection Methodology

The public dataset is completely available on the Maven Analytics website platform where it stores and consolidates all available datasets for analysis in the Data Playground. The specific individual datasets at hand can be obtained at this link below: https://www.mavenanalytics.io/blog/maven-pizza-challenge

📌I set up the data model to include all the related instances in one single table so obtaining data for analysis is made easier.

My Inspiration

Complete details were also provided about the challenge in the link if you are interested. The purpose of uploading here is to conduct exploratory data analysis about the dataset beforehand with the use of Pandas and data visualization libraries in order to have a comprehensive review of the data and translate my findings and insights in the form of a single page visualization.

expand_less

Here's a detailed guide on how to carry out a Pizza Sales Revenue Analysis project using Tableau, including a step-by-step explanation and the Tableau code implementation:

Project Overview

Objective: To analyze pizza sales revenue, identify trends, and provide insights to improve sales.

Steps to Follow:

1. **Define the Scope and Objective**:
   - Analyze sales revenue data to identify trends and patterns.

- Understand the factors affecting pizza sales (e.g., time of day, day of the week, promotions, etc.).

2. **Data Collection**:
   - Gather relevant data such as sales transactions, date and time of sales, item details, revenue, etc.
   - Assume you have a dataset named `pizza_sales.csv` with columns like `TransactionID`, `Date`, `Time`, `Item`, `Quantity`, `Price`, and `Revenue`.

3. **Data Preparation**:
   - Clean the data to remove any inconsistencies or errors.
   - Combine data from different sources into a single dataset if necessary.
   - Use tools like Excel or SQL for data cleaning and preparation.

4. **Load Data into Tableau**:
   - Open Tableau and connect to your data source.
   - Load your prepared dataset into Tableau.

5. **Create Initial Visualizations**:
   - Start by creating basic visualizations to understand the data.
   - Use different chart types like bar charts, line charts, pie charts, and scatter plots to visualize various aspects of the data.

Tableau Code Example

Step-by-Step Tableau Dashboard Creation

1. **Connect to Data**:

Open Tableau and connect to your data source. For example, if you are using a CSV file:
mathematica
Copy code

```
Tableau > Connect > Text File > Select your CSV file
```

-

2. **Create Basic Charts**:
   - **Total Revenue Over Time**:

- - Drag `Date` to Columns.
    - Drag `Revenue` to Rows.
    - Change the chart type to a Line Chart.
  - **Revenue by Item**:
    - Drag `Item` to Columns.
    - Drag `Revenue` to Rows.
    - Use a Bar Chart to display revenue by item.
  - **Revenue by Day of Week**:

Create a calculated field for the day of the week:

sql

Copy code

```sql
Day of Week = DATEPART('weekday', [Date])
```

- - -
    - Drag `Day of Week` to Columns.
    - Drag `Revenue` to Rows.
    - Use a Bar Chart to show revenue by day of the week.
  - **Revenue by Time of Day**:

Create a calculated field for the hour of the day:

sql

Copy code

```sql
Hour of Day = DATEPART('hour', [Time])
```

- - -
    - Drag `Hour of Day` to Columns.
    - Drag `Revenue` to Rows.
    - Use a Line Chart to show revenue by hour of the day.
3. **Combine Visualizations into a Dashboard**:
   - Create a new Dashboard in Tableau.
   - Drag and drop your visualizations onto the dashboard.

- - Arrange the visualizations for a cohesive and intuitive layout.
  - Add filters and interactivity to allow users to explore the data.
4. **Add Insights and Annotations**:
   - Add text boxes to provide context and insights on key findings.
   - Use annotations to highlight important trends or outliers in the data.

Tableau Code Example

Here's a detailed example using Tableau code for creating visualizations. Note that Tableau uses a visual interface, but you can follow these steps in Tableau's interface to create similar outputs:

```
-- Connecting to Data
1. Open Tableau
2. Connect > Text File > Select your data file (e.g., pizza_sales.csv)


-- Creating Total Revenue Over Time Line Chart
1. Drag 'Date' to Columns
2. Drag 'Revenue' to Rows
3. Select 'Line' chart type


-- Creating Revenue by Item Bar Chart
1. Drag 'Item' to Columns
2. Drag 'Revenue' to Rows
3. Select 'Bar' chart type


-- Creating Revenue by Day of Week Bar Chart
1. Create Calculated Field 'Day of Week' with formula: DATEPART('weekday', [Date])
2. Drag 'Day of Week' to Columns
3. Drag 'Revenue' to Rows
4. Select 'Bar' chart type
```

-- Creating Revenue by Time of Day Line Chart

1. Create Calculated Field 'Hour of Day' with formula: DATEPART('hour', [Time])

2. Drag 'Hour of Day' to Columns

3. Drag 'Revenue' to Rows

4. Select 'Line' chart type

-- Creating Dashboard

1. Click on 'New Dashboard'

2. Drag and drop created visualizations onto the dashboard

3. Arrange visualizations for a cohesive layout

4. Add filters and interactivity

5. Add text boxes and annotations for insights

-- Save and Share Dashboard

1. Click on 'File' > 'Save As' > Choose location and save your Tableau workbook

2. Publish to Tableau Online or Tableau Server if needed

Conclusion

By following these steps, you can create a comprehensive pizza sales revenue analysis using Tableau. This project will help you visualize sales trends, identify key insights, and make data-driven decisions to improve sales.

SAMPLE CODE

PIZZA SALES ANALYSIS
SQL Project

Database: Pizza

Tool: SQL Server

Q1. Total Revenue

```sql
SELECT CAST(SUM(total_price) AS DECIMAL(10,2)) AS Total_Revenue
FROM Pizza.dbo.pizza_sales;
```

	Total_Revenue
1	817860.05

Q2. Average Order Value

```sql
SELECT CAST((SUM(total_price) / COUNT (DISTINCT order_id))AS
DECIMAL(10,2)) AS Avg_Order_Value
FROM Pizza.dbo.pizza_sales;
```

	Avg_Order_Value
1	38.31

Q3. Total Pizza Sold

```sql
SELECT SUM(quantity) AS Total_Pizza_Sold
FROM Pizza.dbo.pizza_sales ;
```

	Total_Pizza_Sold
1	49574

Q4. Total Orders

```sql
SELECT COUNT(DISTINCT order_id) AS Total_Orders
```

```
FROM Pizza.dbo.pizza_sales ;
```

	Total_Orders
1	21350

Q5. Avg Pizza Per Order

```
SELECT CAST(CAST(SUM(quantity) AS DECIMAL(10,2)) /
CAST(COUNT(DISTINCT order_id) AS DECIMAL(10,2)) AS DECIMAL(10,2))
AS Avg_Pizzas_per_order
FROM Pizza.dbo.pizza_sales
```

	Avg_Pizzas_per_order
1	2.32

Q6. Daily Trend for Total Orders

```
SELECT DATENAME(DW,order_date) AS Order_Day , COUNT(DISTINCT
order_id) AS Total_Orders
FROM Pizza.dbo.pizza_sales
GROUP BY DATENAME(DW,order_date)
ORDER BY Total_Orders;
```

	Order_Day	Total_Orders
1	Sunday	2624
2	Monday	2794
3	Tuesday	2973
4	Wednesday	3024
5	Saturday	3158
6	Thursday	3239
7	Friday	3538

Q7. Monthly Trend for Orders

```
SELECT DATENAME(MONTH,order_date) AS Month_Name , COUNT(DISTINCT
order_id) AS Total_Orders
FROM Pizza.dbo.pizza_sales
```

```
GROUP BY DATENAME(MONTH,order_date);
```

	Month_Name	Total_Orders
1	February	1685
2	June	1773
3	August	1841
4	April	1799
5	May	1853
6	December	1680
7	January	1845
8	September	1661
9	October	1646
10	July	1935
11	November	1792
12	March	1840

Q8. % of Sales by Pizza Category

```
SELECT pizza_category , CAST(SUM(total_price) AS DECIMAL(10,2)) AS
Total_Revenue ,
CAST(SUM(total_price) * 100 / (SELECT SUM(total_price) from
Pizza.dbo.pizza_sales) AS DECIMAL(10,2)) AS PCT
FROM Pizza.dbo.pizza_sales
GROUP BY pizza_category;
```

	pizza_category	Total_Revenue	PCT
1	Classic	220053.10	26.91
2	Chicken	195919.50	23.96
3	Veggie	193690.45	23.68
4	Supreme	208197.00	25.46

Q9. % of Sales by Pizza Size

```
SELECT pizza_size , CAST(SUM(total_price) AS DECIMAL(10,2)) AS
Total_Revenue ,
CAST(SUM(total_price) * 100 / (SELECT SUM(total_price) from
Pizza.dbo.pizza_sales) AS DECIMAL(10,2)) AS PCT
FROM Pizza.dbo.pizza_sales
```

```
GROUP BY pizza_size
ORDER BY pizza_size;
```

Results | **Messages** | **Client Statistics**

	pizza_size	Total_Revenue	PCT
1	L	375318.70	45.89
2	M	249382.25	30.49
3	S	178076.50	21.77
4	XL	14076.00	1.72
5	XXL	1006.60	0.12

Q10. Total Pizzas Sold by Pizza Category

```
SELECT pizza_category , SUM(quantity) AS Total_Quantity_Sold
FROM Pizza.dbo.pizza_sales
WHERE MONTH(order_date) = 2
GROUP BY pizza_category
ORDER BY Total_Quantity_Sold DESC
```

Results | **Messages** | **Client Statistics**

	pizza_category	Total_Quantity_Sold
1	Classic	1178
2	Supreme	964
3	Veggie	944
4	Chicken	875

Q11. Top 5 Pizzas by Revenue

```
SELECT Top 5 pizza_name, SUM(total_price) AS Total_Revenue
FROM Pizza.dbo.pizza_sales
GROUP BY pizza_name
ORDER BY Total_Revenue DESC
```

	pizza_name	Total_Revenue
1	The Thai Chicken Pizza	43434.25
2	The Barbecue Chicken Pizza	42768
3	The California Chicken Pizza	41409.5
4	The Classic Deluxe Pizza	38180.5
5	The Spicy Italian Pizza	34831.25

Q12. Bottom 5 Pizzas by Revenue

```sql
SELECT TOP 5 pizza_name , SUM(total_price) AS Total_Revenue
FROM Pizza.dbo.pizza_sales
GROUP BY pizza_name
ORDER BY Total_Revenue;
```

	pizza_name	Total_Revenue
1	The Brie Carre Pizza	11588.4998130798
2	The Green Garden Pizza	13955.75
3	The Spinach Supreme Pizza	15277.75
4	The Mediterranean Pizza	15360.5
5	The Spinach Pesto Pizza	15596

Q13. Top 5 Pizzas by Total Orders

```sql
SELECT TOP 5 pizza_name , COUNT(DISTINCT order_id) AS Total_Orders
FROM Pizza.dbo.pizza_sales
GROUP BY pizza_name
ORDER BY Total_Orders DESC;
```

	pizza_name	Total_Orders
1	The Classic Deluxe Pizza	2329
2	The Hawaiian Pizza	2280
3	The Pepperoni Pizza	2278
4	The Barbecue Chicken Pizza	2273
5	The Thai Chicken Pizza	2225

Q14. Bottom 5 Pizzas by Total Orders

```sql
SELECT TOP 5 pizza_name , COUNT(DISTINCT order_id) AS Total_Orders
FROM Pizza.dbo.pizza_sales
GROUP BY pizza_name
ORDER BY Total_Orders;
```

Results | Messages | Client Statistics

	pizza_name	Total_Orders
1	The Brie Carre Pizza	480
2	The Mediterranean Pizza	912
3	The Spinach Supreme Pizza	918
4	The Calabrese Pizza	918
5	The Chicken Pesto Pizza	938

Q15. Top 5 Pizzas by Quantity

```sql
SELECT TOP 5 pizza_name , SUM(quantity) AS Total_Pizza_Sold
FROM Pizza.dbo.pizza_sales
GROUP BY pizza_name
ORDER BY Total_Pizza_Sold DESC;
```

Results | Messages | Client Statistics

	pizza_name	Total_Pizza_Sold
1	The Classic Deluxe Pizza	2453
2	The Barbecue Chicken Pizza	2432
3	The Hawaiian Pizza	2422
4	The Pepperoni Pizza	2418
5	The Thai Chicken Pizza	2371

Q16. Bottom 5 Pizzas by Quantity

```sql
SELECT TOP 5 pizza_name , SUM(quantity) AS Total_Pizza_Sold
FROM Pizza.dbo.pizza_sales
GROUP BY pizza_name
ORDER BY Total_Pizza_Sold;
```
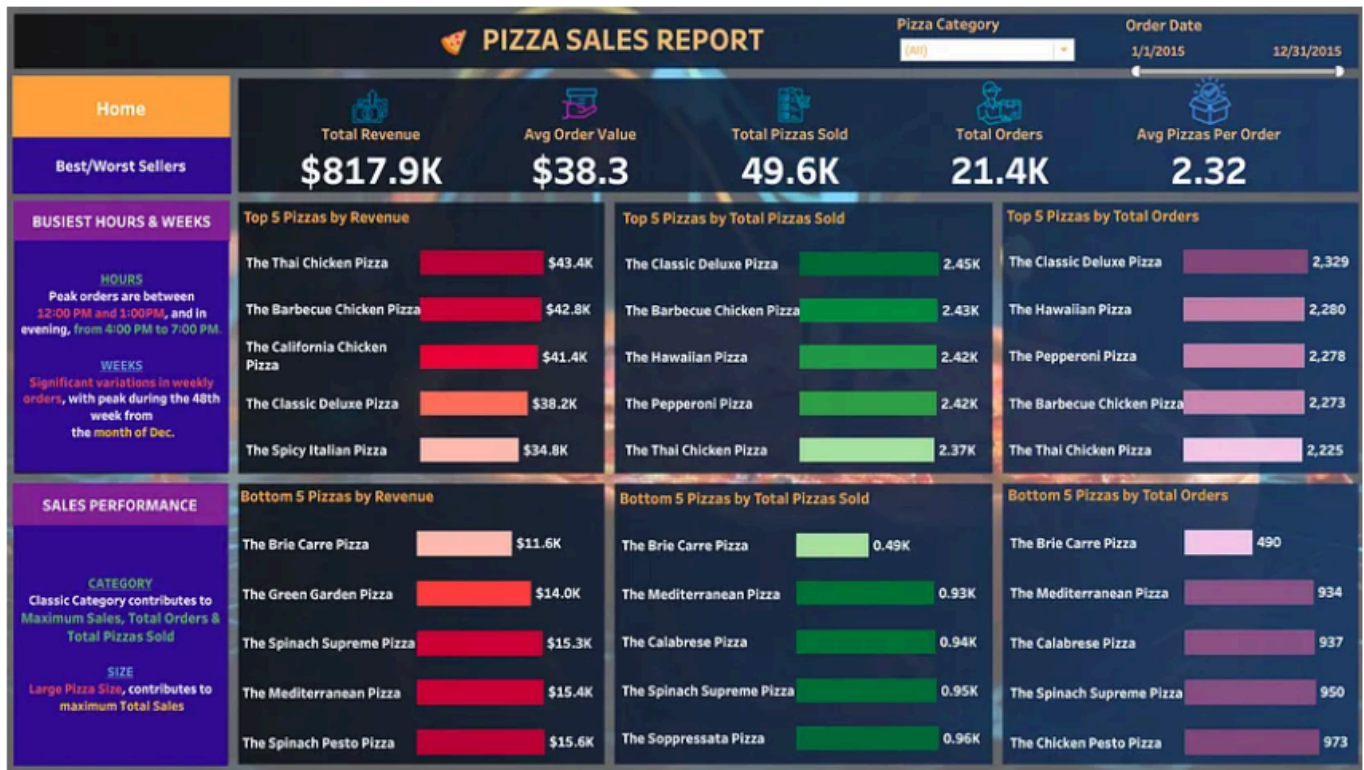
	pizza_name	Total_Pizza_Sold
1	The Brie Carre Pizza	490
2	The Mediterranean Pizza	934
3	The Calabrese Pizza	937
4	The Spinach Supreme Pizza	950
5	The Soppressata Pizza	961

PIZZA SALES REPORT

Pizza Category (All)　　Order Date 1/1/2015 — 12/31/2015

Home
Best/Worst Sellers

Total Revenue	Avg Order Value	Total Pizzas Sold	Total Orders	Avg Pizzas Per Order
$817.9K	$38.3	49.6K	21.4K	2.32

BUSIEST HOURS & WEEKS

HOURS
Peak orders are between 12:00 PM and 1:00PM, and in evening, from 4:00 PM to 7:00 PM.

WEEKS
Significant variations in weekly orders, with peak during the 48th week from the month of Dec.

Hourly Trend For Total Pizzas Sold — Supreme, Chicken, Classic, Veggie

0.0K (9), 0.0K (10), 2.7K (11), 6.8K (12), 6.4K (13), 3.6K (14), 3.2K (15), 4.2K (16), 5.2K (17), 5.4K (18), 4.4K (19), 3.5K (20), 2.5K (21), 1.4K (22), 0.1K (23)

Weekly Trend For Total Orders

Avg-402.8 ... 491 ... Avg-402.8 ... 171

SALES PERFORMANCE

CATEGORY
Classic Category contributes to Maximum Sales, Total Orders & Total Pizzas Sold

SIZE
Large Pizza Size, contributes to maximum Total Sales

Percentage of Sales by Pizza Category

Veggie 23.683%, $193.69K
Chicken 23.955%, $195.92K
Total Sales $817.86K
Supreme 25.456%, $208.20K
Classic 26.906%, $220.05K

Percentage of Sales by Pizza Size

Large	45.9%
Medium	30.5%
Regular	21.8%
X-Large	1.7%
XX-Large	0.1%

Total Orders & Pizzas Sold by Pizza Category

Chicken	(11,050)	8,536
Classic	(14,888)	10,859
Supreme	(11,987)	9,085
Veggie	(11,649)	8,941

Home Page

Best/Worst Selling Pizzas

[Reference link](#)