

# Project : Pizza Sales Analysis

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## Problem Statement

### KPI's REQUIREMENT

We need to analyze key indicators for our pizza sales data to gain insights into our business performance. Specifically, we want to calculate the following metrics:

1. **Total Revenue:** The sum of the total price of all pizza orders.
2. **Average Order Value:** The average amount spent per order, calculated by dividing the total revenue by the total number of orders.
3. **Total Pizzas Sold:** The sum of the quantities of all pizzas sold.
4. **Total Orders:** The total number of orders placed.
5. **Average Pizzas Per Order:** The average number of pizzas sold per order, calculated by dividing the total number of pizzas sold by the total number of orders.

### CHARTS REQUIREMENT

We would like to visualize various aspects of our pizza sales data to gain insights and understand key trends. We have identified the following requirements for creating charts:

1. **Hourly Trend for Total Pizzas Sold:** Create a stacked bar chart that displays the hourly trend of total orders over a specific time period. This chart will help us identify any patterns or fluctuations in order volumes on a hourly basis.
2. **Weekly Trend for Total Orders:** Create a line chart that illustrates the weekly trend of total orders throughout the year. This chart will allow us to identify peak weeks or periods of high order activity.
3. **Percentage of Sales by Pizza Category:** Create a pie chart that shows the distribution of sales across different pizza categories. This chart will provide insights into the popularity of various pizza categories and their contribution to overall sales.
4. **Percentage of Sales by Pizza Size:** Generate a pie chart that represents the percentage of sales attributed to different pizza sizes. This chart will help us understand customer preferences for pizza sizes and their impact on sales.

**5. Total Pizzas Sold by Pizza Category:** Create a funnel chart that presents the total number of pizzas sold for each pizza category. This chart will allow us to compare the sales performance of different pizza categories.

**6. Top 5 Best Sellers by Revenue, Total Quantity and Total Orders:** Create a bar chart highlighting the top 5 best-selling pizzas based on the Revenue, Total Quantity, Total Orders. This chart will help us identify the most popular pizza options.

**7. Bottom 5 Best Sellers by Revenue, Total Quantity and Total Orders:** Create a bar chart showcasing the bottom 5 worst-selling pizzas based on the Revenue, Total Quantity, Total Orders. This chart will enable us to identify underperforming or less popular pizza options.

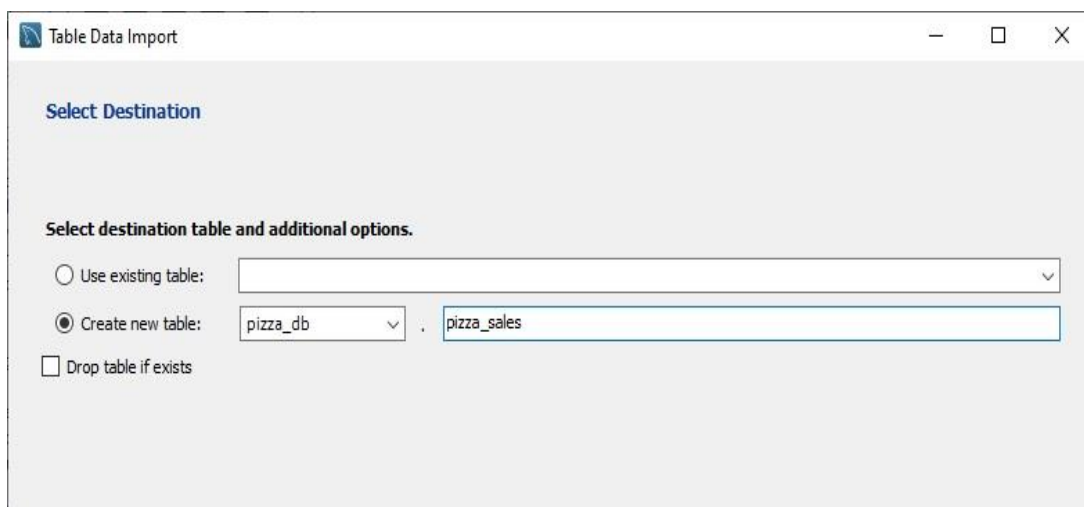
## Data Analysis using MySQL

Utilized MySQL for data extraction and calculation of key metrics such as Total Revenue, Average Order Value, Total Pizzas Sold, Total Orders, and Average Pizzas Per Order.

### DATA IMPORT




The screenshot shows the 'Table Data Import' window with the title bar 'Table Data Import'. The main heading is 'Select File to Import'. Below it, a text box states: 'Table Data Import allows you to easily import CSV, JSON datafiles. You can also create destination table on the fly.' The 'File Path:' label is followed by a text input field containing 'C:\Users\DELL\Desktop\pizza\_sale\_analysis\pizza\_sales.csv' and a 'Browse...' button.



The screenshot shows the 'Table Data Import' window with the title bar 'Table Data Import'. The main heading is 'Select Destination'. Below it, a text box states: 'Select destination table and additional options.' There are three options: 'Use existing table:' with a dropdown menu, 'Create new table:' with a radio button selected, and 'Drop table if exists' with an unchecked checkbox. The 'Create new table:' option shows a dropdown menu with 'pizza\_db' selected and a text input field with 'pizza\_sales'.

**Table Data Import**

**Configure Import Settings**

Detected file format: csv 

Encoding:

Columns:

Source Column	Field Type
<input checked="" type="checkbox"/> pizza_id	int
<input checked="" type="checkbox"/> order_id	int
<input checked="" type="checkbox"/> pizza_name_id	text
<input checked="" type="checkbox"/> quantity	int
<input checked="" type="checkbox"/> order_date	datetime
<input checked="" type="checkbox"/> order_time	datetime

pizza_id	order_id	pizza_name...	quantity	order_date	order_time	unit_price	total_price	pizza_size	pizza_cr
1	1	hawaiian_m	1	2015-01-01	11:38:36	13.25	13.25	M	Classic
2	2	classic_dlx_m	1	2015-01-01	11:57:40	16	16	M	Classic
3	2	five_cheese_l	1	2015-01-01	11:57:40	18.5	18.5	L	Veggie
4	2	ital suppr l	1	2015-01-01	11:57:40	20.75	20.75	L	Suprem

Decimal Separator:

**Table Data Import**

**Import Data**

The following tasks will now be performed. Please monitor the execution.

- ☒ Prepare Import
- ☒ Import data file




Finished performing tasks. Click [Next >] to continue.

## ANALYSIS OF DIFFERENT SQL STATEMENT ON DATA BASE

### A. KPI's

#### 1. Total Revenue:

```
SELECT SUM(total_price) AS total_revenue FROM pizza_sales;
```

Result Grid				Filter Rows
	total_revenue			
	817860.049999993			

#### 2. Average Order Value:

```
SELECT SUM(total_price) / COUNT(DISTINCT order_id) AS avg_order_value FROM pizza_sales;
```

Result Grid		Filter Rows
	avg_order_value	
▶	38.307262295081635	

### 3. Total Pizza Sold

```
SELECT SUM(quantity) AS total_pizza_sold FROM pizza_sales;
```

Result Grid		Filter Rows
	total_pizza_sold	
▶	49574	

### 4. Total Orders

```
SELECT COUNT(DISTINCT order_id) AS total_order FROM pizza_sales;
```

Result Grid		Filter Rows
	total_order	
▶	21350	



### 5. Average Pizzas Per Order

```
SELECT ROUND(SUM(quantity) / COUNT(DISTINCT order_id), 2) AS avg_pizza_per_order  
FROM pizza_sales;
```

Result Grid		Filter Rows
	avg_pizza_per_order	
▶	2.32	

## B. Hourly Trend for Total Pizzas Sold

```
SELECT HOUR(order_time) AS order_hours, SUM(quantity) AS total_pizzas_sold  
FROM pizza_sales  
GROUP BY HOUR(order_time)  
ORDER BY HOUR(order_time);
```

Result Grid    Filter Rows: 		
	order_hours	total_pizzas_sold
▶	9	4
	10	18
	11	2728
	12	6776
	13	6413
	14	3613
	15	3216
	16	4239
	17	5211
	18	5417
	19	4406
	20	3534
	21	2545
	22	1386
	23	68

### C. Weekly Trend for Orders

```

SELECT WEEK(order_date, 3) AS WeekNumber, YEAR(order_date) AS Year,
COUNT(DISTINCT order_id) AS Total_orders
FROM pizza_sales
GROUP BY WEEK(order_date, 3), YEAR(order_date)
ORDER BY Year, WeekNumber;

```

	WeekNumber	Year	Total_orders	Result Grid	Filter Rows:
▶	1	2015	254		
	2	2015	427		
	3	2015	400		
	4	2015	415		
	5	2015	436		
	6	2015	422		
	7	2015	423		
	8	2015	393		
	9	2015	409		
	10	2015	420		
	11	2015	404		
	12	2015	416		
	13	2015	427		
	14	2015	433		
	15	2015	408		
	16	2015	414		
	17	2015	437		
	18	2015	423		
	19	2015	399		
	20	2015	458		
	21	2015	414		
	22	2015	390		
	23	2015	423		
	24	2015	418		
	25	2015	410		
	26	2015	416		
	27	2015	474		
	28	2015	417		
	29	2015	420		
	30	2015	433		
	31	2015	419		
	32	2015	426		
	33	2015	435		
	34	2015	407		
	35	2015	394		
	36	2015	397		
	37	2015	435		
	38	2015	423		

	39	2015	288
	40	2015	433
	41	2015	334
	42	2015	386
	43	2015	352
	44	2015	371
	45	2015	394
	46	2015	400
	47	2015	392
	48	2015	491
	49	2015	424
	50	2015	417
	51	2015	430
	52	2015	298
	53	2015	171

### D. % of Sales by Pizza Category

```

SELECT pizza_category,
       ROUND(SUM(total_price), 2) AS total_revenue,
       ROUND(SUM(total_price) * 100 / (SELECT SUM(total_price) FROM pizza_sales), 2) AS
PCT
FROM pizza_sales

```

GROUP BY pizza\_category;

	pizza_category	total_revenue	PCT
▶	Classic	220053.10	26.91
	Veggie	193690.45	23.68
	Supreme	208197.00	25.46
	Chicken	195919.50	23.96

OR

SELECT pizza\_category,

ROUND(SUM(total\_price), 2) AS total\_revenue,

ROUND(SUM(total\_price) \* 100 / (SELECT SUM(total\_price) FROM pizza\_sales

WHERE MONTH(order\_date) = 1), 2) AS PCT

FROM pizza\_sales

WHERE MONTH(order\_date) = 1

GROUP BY pizza\_category;

	pizza_category	total_revenue	PCT
▶	Classic	18619.40	26.68
	Veggie	17055.40	24.44
	Supreme	17929.75	25.69
	Chicken	16188.75	23.20

## E. % of Sales by Pizza Size

SELECT pizza\_size,

ROUND(SUM(total\_price), 2) AS total\_revenue,

ROUND(SUM(total\_price) \* 100 / (SELECT SUM(total\_price) FROM pizza\_sales), 2) AS  
PCT

FROM pizza\_sales

GROUP BY pizza\_size

ORDER BY pizza\_size;

	pizza_size	total_revenue	PCT
▶	L	375318.70	45.89
	M	249382.25	30.49
	S	178076.50	21.77
	XL	14076.00	1.72
	XXL	1006.60	0.12

## F. Total Pizzas Sold by Pizza Category

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

	pizza_category	Total_Quantity_Sold
▶	Classic	14888
	Supreme	11987
	Veggie	11649
	Chicken	11050

## G. Top 5 Pizzas by Revenue

```
SELECT pizza_name, SUM(total_price) AS Total_Revenue
FROM pizza_sales
GROUP BY pizza_name
ORDER BY Total_Revenue DESC LIMIT 5;
```

	pizza_name	Total_Revenue
▶	The Thai Chicken Pizza	43434.25
	The Barbecue Chicken Pizza	42768.00
	The California Chicken Pizza	41409.50
	The Classic Deluxe Pizza	38180.50
	The Spicy Italian Pizza	34831.25

## H. Bottom 5 Pizzas by Revenue

```
SELECT pizza_name, SUM(total_price) AS Total_Revenue
FROM pizza_sales
GROUP BY pizza_name
ORDER BY Total_Revenue ASC LIMIT 5;
```

	pizza_name	Total_Revenue
▶	The Brie Carre Pizza	11588.50
	The Green Garden Pizza	13955.75
	The Spinach Supreme Pizza	15277.75
	The Mediterranean Pizza	15360.50
	The Spinach Pesto Pizza	15596.00



## H. Top 5 Pizzas by Quantity

```
SELECT pizza_name, SUM(quantity) AS Total_Pizza_Sold
FROM pizza_sales
GROUP BY pizza_name
ORDER BY Total_Pizza_Sold ASC
LIMIT 5;
```

	pizza_name	Total_Pizza_Sold
▶	The Brie Carre Pizza	490
	The Mediterranean Pizza	934
	The Calabrese Pizza	937
	The Spinach Supreme Pizza	950
	The Soppressata Pizza	961

## K. Top 5 Pizzas by Total Orders

```
SELECT pizza_name, COUNT(DISTINCT order_id) AS Total_Orders
FROM pizza_sales
GROUP BY pizza_name
ORDER BY Total_Orders DESC
LIMIT 5;
```

	pizza_name	Total_Orders
▶	The Classic Deluxe Pizza	2329
	The Hawaiian Pizza	2280
	The Pepperoni Pizza	2278
	The Barbecue Chicken Pizza	2273
	The Thai Chicken Pizza	2225

## L. Borrom 5 Pizzas by Total Orders

```
SELECT
    pizza_name,
    COUNT(DISTINCT order_id) AS Total_Orders
FROM pizza_sales
GROUP BY pizza_name
ORDER BY Total_Orders ASC
LIMIT 5;
```

	pizza_name	Total_Orders
▶	The Brie Carre Pizza	480
	The Mediterranean Pizza	912
	The Calabrese Pizza	918
	The Spinach Supreme Pizza	918
	The Chicken Pesto Pizza	938

### **NOTE**

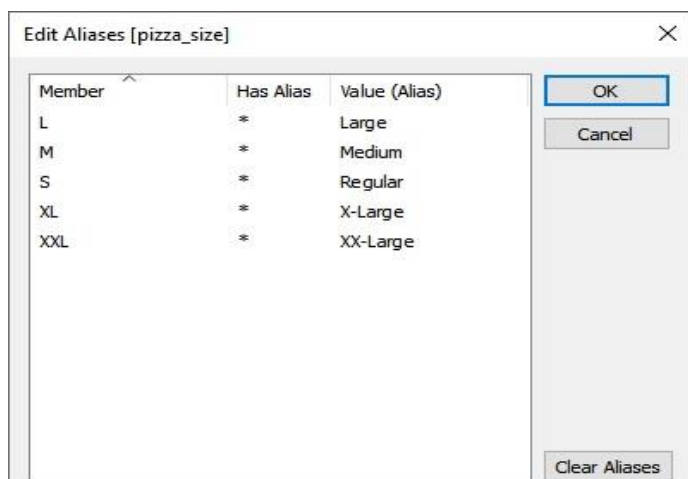
If you want to apply the pizza\_category or pizza\_size filters to the above queries you can use WHERE clause. Follow some of below examples

SELECT pizza\_name, COUNT(DISTINCT order\_id) AS Total\_Orders FROM pizza\_sales

WHERE pizza\_category = 'Classic' GROUP BY pizza\_name ORDER BY Total\_Orders ASC LIMIT 5;

## **Data Cleaning**

Pizza size category we have in our database is abbreviated and for dashboard we need it in full expanded form. For eg. L= large, M= medium etc, so we will create an alias to temporary change its name in required format.



## **Build Dashboard or a Report using Tableau**

Created a comprehensive dashboard in Tableau featuring key metrics and charts, including Hourly Trend, Weekly Trend, Sales by Category, Sales by Size, Total Pizzas Sold by Category, Top 5 Best Sellers, and Bottom 5 Worst Sellers.

### **KPI'S**

- **Total Revenue** SUM([order id])
- **Total Orders** COUNTD([order id])
- **Average Order Value** [total revenue] / [total orders]
- **Total Pizzas Sold** SUM([quantity])
- **Average Pizzas Per Order** [total pizzas sold] / [total orders]

Total Revenue	Avg Order Value	Total Pizzas Sold	Total Orders
\$817.9K	\$38.31	49.6K	21.4K

## KEY INSIGHTS

BUSIEST HOURS & WEEKS	SALES PERFORMANCE
<p><u>HOURS</u></p> <p>Peak orders are between 12:00 PM and 1:00 PM, and in evening from 4:00 PM to 7:00 PM.</p> <p><u>WEEKS</u></p> <p>Significant variations in weekly orders, with highest peak during the 48th week from the month of Dec.</p>	<p><u>CATEGORY</u></p> <p>Classic category contributes to Maximum sales, Total orders and Total pizzas sold.</p> <p><u>SIZE</u></p> <p>Large pizza size contributes to maximum Total sales.</p>

BUSIEST HOURS & WEEKS	SALES PERFORMANCE
<p><u>REVENUE</u></p> <p>The thai chicken pizza contributes to maximum revenue.</p> <p><u>QUANTITY</u></p> <p>The classic deluxe pizza contributes to maximum total quantities.</p> <p><u>TOTAL ORDERS</u></p> <p>The classic deluxe pizza contributes to maximum total orders</p>	<p><u>REVENUE</u></p> <p>The Brie Carre Pizza contributes to Minimum revenue.</p> <p><u>QUANTITY</u></p> <p>The Brie Carre Pizza contributes to Minimum total quantities.</p> <p><u>Total Orders</u></p> <p>The Brie Carre Pizza contributes to Minimum total orders.</p>

## DASHBOARD



## Tools, Software, and Libraries

- **MySQL**  
for data analysis and storage
- **Tableau 2024.3.0**  
for dashboard creation and visualization
- **Excel version 2021**  
for initial data exploration and manipulation