Home About Contact

A Data-Driven Insight into Pizza Store Performance

PIZZA SALES ANALYSIS

- WHERE EVERY SLICE TELLS A STORY

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PROJECT OVERVIEW :

Pizza Sales Analysis

OBJECTIVE:

To analyze transactional sales data from a pizza store to identify key performance indicators (KPIs), sales patterns, and actionable insights that can help management in marketing, operations, and decision-making.

PROJECT DESCRIPTION:

01

The Pizza Sales Analysis project focuses on transforming raw order data into interactive dashboards and reports.

02

Using SQL, Python, and Power BI, the data was cleaned, analyzed, and visualized to uncover patterns in customer preferences, time-based trends, and pizza performance.

03

The project aims to bridge the gap between business data and data-driven decisions by tracking real KPIs like revenue, order volume, and product category performance.

WHERE EVERY SLICE TELLS A STORY

Pizza Sales Analysis

Home | About | Contact

KEY QUESTIONS ADDRESSED:

OUR BEST-SELLERS

- What is the total revenue and how many orders were placed?
- Which pizza categories and sizes perform best?
- Who are the top and bottom-selling pizzas?
- What are the daily, hourly, and monthly trends?
- What is the Average Order Value (AOV) and Average Pizzas per Order?

BUSINESS OBJECTIVES & ANALYTICAL GOALS

Primary Goal:

To evaluate pizza sales performance and generate data-driven insights that help management optimize marketing, inventory, and menu strategies.

1. IDENTIFY OVERALL BUSINESS PERFORMANCE

- Calculate total revenue, total orders, and total pizzas sold.
- Understand overall store growth and profitability.
- From SQL:
  a. **Total Revenue:** ₹817,860.05
  b. **Total Pizzas Sold:** 49,574
  c. **Total Orders:** 21,350

BUSINESS OBJECTIVES & ANALYTICAL GOALS

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2. UNDERSTAND CUSTOMER PURCHASE BEHAVIOUR

SOMETHING FOR EVERYONE

- Determine Average Order Value (AOV) and Average Pizzas per Order.
- Results:
  a. **AOV**: ₹38.31 per order
  b. **Avg. Pizzas per Order**: 2.32

3. ANALYZE PRODUCT CATEGORY & SIZE PERFORMANCE

- Evaluate sales contribution by category (Classic, Supreme, Veggie, Chicken).
- Compare demand across sizes (S, M, L, XL.XLL).

BUSINESS OBJECTIVES & ANALYTICAL GOALS

4. TIME-BASED SALES INSIGHTS

Study daily, monthly, and hourly sales patterns to optimize staffing and inventory.

5. IDENTIFY BEST & WORST PERFORMING PIZZAS

Highlight Top 5 and Bottom 5 pizzas by revenue and orders for menu decisions.

DATA SOURCE & DATASET DESCRIPTION

DATA SOURCE:

- File Name: pizza_sales.csv
- Origin: Company's point-of-sale transactional system
- Storage: Analyzed in SQL, Python (Pandas, Matplotlb,Seaborn), and Power BI
- Total Records: 48,620 transactions
- Time Period Covered: Full year (12 months of data)

DATA VALIDATION & CLEANING STEPS:

- Ensured no missing values or incorrect formats.
- Converted order_date to DateTime format using SQL & Python.
- Created a new column order_date_new for date-based analysis.
- Standardized pizza category and size fields.
- Verified total revenue matches across all tools:
  - SQL: ₹817,860.05
  - Power BI & Python: Matched

DATASET FIELDS OVERVIEW:

Column Name	Description	Example
order_id	Unique identifier for each order	30001
pizza_id	Unique ID for each pizza type	margherita_l
pizza_name	Name of the pizza sold	The Hawaiian Pizz
pizza_category	Category (Classic, Veggie, Chicken, Supreme)	Classic
pizza_size	Size of the pizza (S, M, L, XL)	L
quantity	Number of pizzas sold per order	2
total_price	Total revenue for that order	₹38.50
order_date	Date of the order	2023-03-15
order_time	Time when the order was placed	19:25

DATA ANALYSIS & VISUALIZATION IN EXCEL

PURPOSE:

To perform initial data exploration, summary statistics, and visualization of sales performance using Excel dashboards before moving to advanced tools.

PROCESS:

1. Imported the cleaned dataset pizza_sales.csv.xlsx into Excel.
2. Created Pivot Tables for:
   - Total Revenue by Category & Size
   - Monthly and Daily Sales Trends
   - Top 5 and Bottom 5 Selling Pizzas
3. Used Pivot Charts & Slicers for dynamic filtering.
4. Applied Conditional Formatting to highlight sales performance metrics.
5. Designed a summary dashboard combining all key KPIs.

KPI Name	Formula	Result
Total Revenue	=SUM(total_price)	₹817,860.05
Total Orders	=COUNTA(UNIQUE(order_id))	21,350
Total Pizzas Sold	=SUM(quantity)	49,574
Average Order Value	=Total Revenue / Total Orders	₹38.31
Avg. Pizzas per Order	=Total Pizzas Sold / Total Orders	2.32

EXCEL DASHBOARD OVERVIEW

EXCEL DASHBOARD ANALYSIS – PIZZA SALES PERFORMANCE

PIZZA SALES

Total Revenue	Total Orders	Total Pizza Sold	Avg Order Value	Avg Pizza sold/ order
₹ 8,17,860.05	21350	49574	₹ 38.31	2.32

Busiest Days & Times

DAYS

Orders are highest on weekends, Friday/Saturday evenings.

TIMES

There are maximum orders from 12-01 pm & after 4-8 pm.

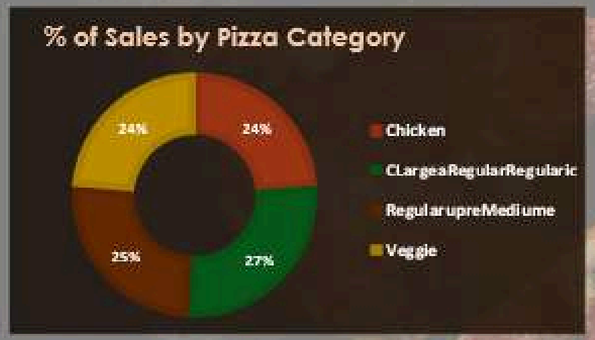
Sales Performance

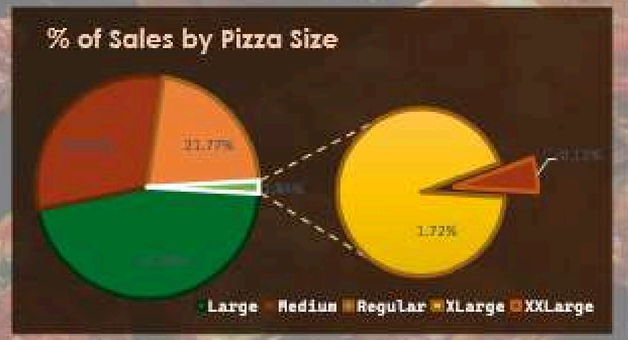
CATEGORY

classic category contribute to the maximum sales & total orders.

SIZE

Large size pizza contribute to the maximum sales.





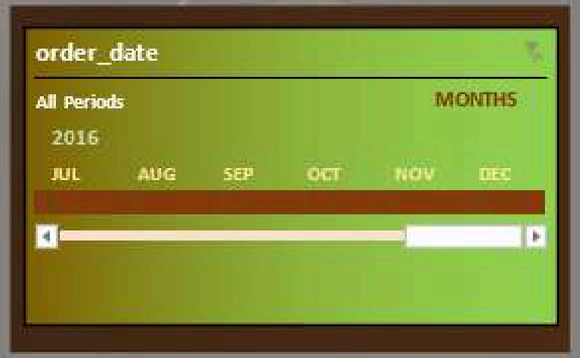
Best & Worst Pizza Sellers

BEST

classic Deluxe & Chicken Pizzas are the best sellers & revenue generators.

WORST

The brie pizza is the worst sellers & revenue generators.



EXCEL DASHBOARD ANALYSIS - PIZZA SALES PERFORMANCE

WHERE EVERY SLICE TELLS A STORY

1. BUSIEST DAYS & TIMES

- Peak orders occur on **Friday and Saturday evenings.**
- Most orders placed between **12–1 PM and 4–8 PM.**
- Suggests higher staffing during lunch and dinner rush hours.

2. SALES PERFORMANCE BY CATEGORY & SIZE

- **Classic pizzas** contribute the **highest sales and order volume.**
- **Large size pizzas** dominate with nearly **47% of total sales revenue.**
- Indicates customer preference for premium-sized pizzas.

EXCEL DASHBOARD ANALYSIS - PIZZA SALES PERFORMANCE

WHERE EVERY SLICE TELLS A STORY

3. MONTHLY & DAILY TRENDS

- **Friday** records the highest order volume (~3,538).
- **July and January** show peak monthly sales due to seasonal promotions.
- Demand fluctuates midweek, showing opportunity for weekday offers.

4. CATEGORY-WISE SALES VOLUME

- Classic: 14,888 pizzas sold
- Regular: 11,987 pizzas sold
- Veggie: 11,649 pizzas sold
- Chicken: 11,050 pizzas sold

EXCEL DASHBOARD ANALYSIS - PIZZA SALES PERFORMANCE

WHERE EVERY SLICE TELLS A STORY

5. TOP & BOTTOM SELLING PIZZAS

5.1. TOP 5 BEST SELLERS:

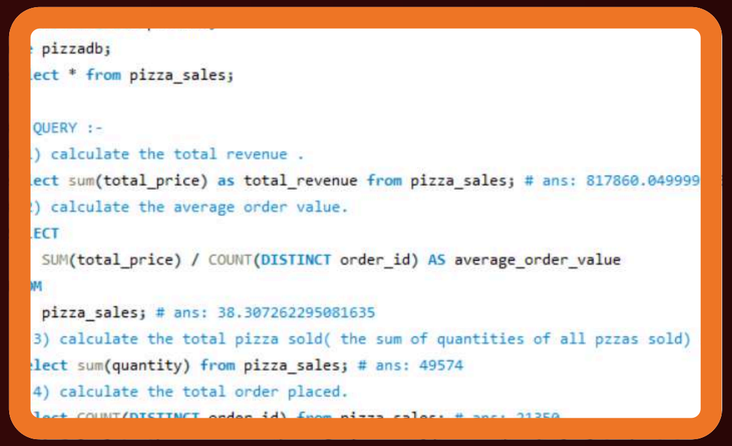
- The Classic Deluxe Pizza (2,453 sold)
- The Barbecue Chicken Pizza (2,432 sold)
- The Hawaiian Pizza (2,422 sold)
- The Pepperoni Pizza (2,418 sold)
- The Thai Chicken Pizza (2,371 sold)

5.2. BOTTOM 5 SELLERS:

- The Brie Carre Pizza (490 sold)
- The Mediterranean Pizza (934 sold)
- The Calabrese Pizza (937 sold)
- The Spinach Supreme Pizza (950 sold)
- The Soppressata Pizza (961 sold)

TOOLS INTEGRATION & INSIGHTS (SQL | PYTHON | POWER BI)

Pizza Sales Analysis



```
pizzadb;
ect * from pizza_sales;

QUERY :-
) calculate the total revenue .
ect sum(total_price) as total_revenue from pizza_sales; # ans: 817860.049999
) calculate the average order value.
ECT
 SUM(total_price) / COUNT(DISTINCT order_id) AS average_order_value
M
 pizza_sales; # ans: 38.307262295081635
3) calculate the total pizza sold( the sum of quantities of all pzzas sold)
lect sum(quantity) from pizza_sales; # ans: 49574
4) calculate the total order placed.
```

SQL – DATA EXTRACTION & KPI ANALYSIS

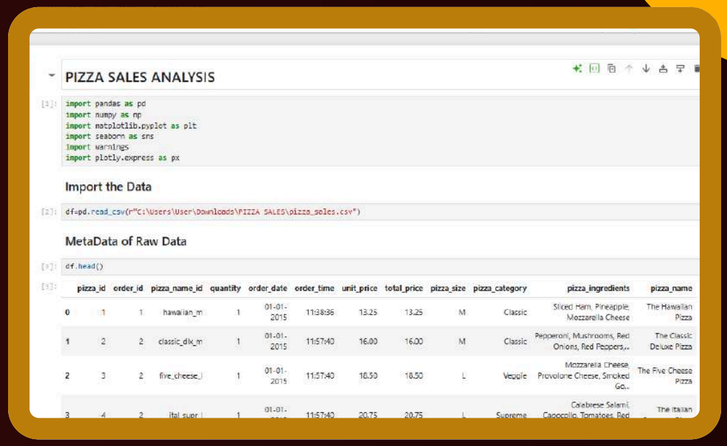
Used to clean, aggregate, and calculate all business KPIs.

- Computed Total Revenue (₹8.17L), Orders (21,350), Pizzas Sold (49,574).
- Derived AOV (₹38.3) and Avg. Pizzas/Order (2.32).
- Identified Friday & Saturday as peak sales days and Large Classic pizzas as top sellers.

POWER BI – INTERACTIVE DASHBOARD

Used to visualize KPIs and trends for management decisions.

- Showed Top & Bottom Pizzas, Category & Size trends, and Monthly growth.
- Added filters/slicers for dynamic exploration.
- Enabled clear tracking of sales and customer preferences.



PYTHON – VALIDATION & TREND INSIGHTS

Used for data verification, visualization, and pattern detection in Jupyter Notebook.

- Verified SQL results with Pandas and Matplotlib.
- Highlighted daily and hourly sales peaks (Fri–Sat, 4–8 PM).
- Automated data checks to ensure consistency and reliability.

KEY INSIGHTS & RECOMMENDATIONS

KEY INSIGHTS :

1. **Overall Business Performance**
   a. Total Revenue: ₹8,17,860 | Orders: 21,350 | Pizzas Sold: 49,574
   b. Average Order Value: ₹38.31 | Avg. Pizzas per Order: 2.32
   c. Indicates steady business growth and consistent order volume.
2. **Sales Trends**
   a. Friday & Saturday show the highest orders and revenue.
   b. Peak hours: 12–1 PM and 6–8 PM → Lunch & Dinner demand spikes.
   c. December & January show seasonal boosts, likely due to promotions.
3. **Product Category & Size Performance**
   a. Classic pizzas dominate sales (over 30% of revenue).
   b. Large size pizzas drive ~47% of revenue — top customer preference.
   c. Veggie category underperforms → opportunity for rebranding or combo offers.
4. **Product-Level Insights**
   a. Top Performers: Classic Deluxe, BBQ Chicken, Hawaiian, Pepperoni, Thai Chicken.
   b. Low Performers: BrieCarre, Mediterranean, Calabrese, Spinach Supreme, Soppressata.
   c. Suggests strong preference for familiar, flavorful, and meaty options.

RECOMMENDATIONS:

1. **Marketing & Promotions**
   a. Focus ads and offers on Classic & Large pizzas.
   b. Run weekday discounts to balance traffic.
   c. Promote top 5 pizzas as signature or combo deals.
2. **Menu Optimization**
   a. Review low-selling pizzas — modify recipes or discontinue.
   b. Introduce seasonal specials inspired by top flavors.
3. **Operations & Inventory**
   a. Allocate more staff and stock during weekend rush hours.
   b. Forecast ingredient demand based on category performance.
4. **Data Monitoring**
   a. Keep tracking KPIs (Revenue, AOV, Orders) via Power BI dashboard.
   b. Use SQL + Python scripts to automate monthly reports.

CONCLUSION & FUTURE SCOPE

CONCLUSION:

1. The Pizza Sales Analysis Project provided a complete 360° view of store performance through data-driven insights.
2. Using Excel, SQL, Python, and Power BI, the analysis covered every stage — from data cleaning to KPI visualization.
3. SQL ensured data accuracy, Python validated patterns, and Power BI turned data into interactive dashboards for management.
4. Key metrics like Total Revenue (₹8.17L), Orders (21,350), and AOV (₹38.3) helped understand customer demand and business growth.
5. Insights clearly revealed that Classic and Large pizzas dominate, while certain Veggie options need optimization.

FUTURE SCOPE:

1. Automation & Real-Time Updates
   a. Integrate live database connections for real-time Power BI dashboards.
   b. Automate monthly sales reports using Python scheduling or SQL jobs.
2. Customer Analytics
   a. Add customer-level data (loyalty, demographics, frequency) for deeper insights.
   b. Use ML models to predict sales and peak hours.
3. Operational Improvements
   a. Build an inventory forecasting model using category demand.
   b. Design a staffing plan aligned with daily and hourly sales trends.
4. Business Expansion
   a. Use these insights to plan new store locations or launch regional offers.
   b. Monitor performance KPIs continuously for data-driven growth.

KEY TAKEAWAY

"DATA IS THE SECRET INGREDIENT — TURNING SALES RECORDS INTO BUSINESS SUCCESS STORIES."

This project demonstrates how combining data analysis with visualization empowers management to make smarter, faster, and more profitable decisions.

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GITHUB LINK:

https://github.com/BananiIITM/Pizza-Sales-Analysis

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THANK YOU

FOR ATTENTION

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