



PIZZA PLACE SALES REPORT 2015

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SUMMARY

Pizza is a popular and widely consumed food item enjoyed by people of all ages around the world. In this project we have been provided with a year's worth of sales from a fictitious pizza place, which includes the date and time of each order and the pizzas served, with additional details on the type, size, quantity, price, and ingredients. This report analyses the customer preferences, peak hours, market trends and business performances to promote further growth and profitability of the business.

BACKGROUND

The pizza place aims to leverage its business strategy by understanding more about its customers preferences, peak hours, busiest days, best-selling pizzas, understanding the seasonality in the sales, least selling pizza, improving their staff management and building strategies to increase their revenue.

To perform our analysis, we have been provided with the data of a year's worth sales from a fictitious pizza place, which includes the date and time of each order and the pizzas served, with more details on the type, size, quantity, price, and ingredients. All the data are maintained in an Excel sheet which needs to be cleaned and analyzed.

METHODOLOGY

The following methods are followed in our data analysis-

1. Data Collection: We downloaded the csv dataset from Kaggle <https://www.kaggle.com/datasets/mysarahmadbhat/pizza-place-sales>.
2. Data Cleaning & organization: The collected data is cleaned and organized in a comprehensive manner. The date and time are converted into suitable formats and organized, and thorough understanding of the data dictionary is done to do necessary analysis.
3. Data Analysis: Using Excel formulas we performed necessary calculations. The obtained data is visualized using Excel tools like Pivot table graphs and charts.
4. Conclusions: On the basis of our analysis, we identified the business trends, sales patterns, peak hours and more opportunities for business growth.

GOALS

- 1) **Identify Customer Preferences:** The primary goal is to understand customer preferences as it helps in tailoring the menu offerings to serve the customers better.
- 2) **Optimize Menu and Pricing Strategies:** Analyzing pizza sales data helps determine the popularity and profitability of different menu items, thereby maximizing business revenue and profit.
- 3) **Identify Peak Sales Periods:** Analyzing sales data over different time periods allows businesses to identify peak hours and understand seasonal patterns. This information helps with inventory management, staffing decisions and promotional planning to meet customer demand during busy periods.
- 4) **Forecasting and Planning:** Using historical sales data, businesses can develop forecasting models to predict future sales and plan accordingly. This helps in inventory management, production planning, and resource allocation.

PROJECT SCOPE

Our analysis aims to answer the following questions-

1. How many customers do they have each day? Are there any peak hours?
2. How many pizzas are typically in an order? Do they have any bestsellers?
3. How much money did they make this year? Can we identify any seasonality in the sales?
4. Are there any pizzas they should take off the menu, or any promotions they could leverage?

KEY PERFORMANCE INDICATORS (KPIs)

The major KPIs in our entire pizza place sales analysis are as follows:

- Number of customers each day
- Number of orders in queue at a given time
- Peak hours
- Top bestselling pizza
- Revenue generated in a year
- Seasonality in sale
- Least selling pizza

ANALYSIS RESULTS

1a) How many customers do they have each day?

- To answer this question, we used the 'Orders' excel sheet and counted the total number of footfalls per day and took its average. Hence, **the number of customers per day = 60**

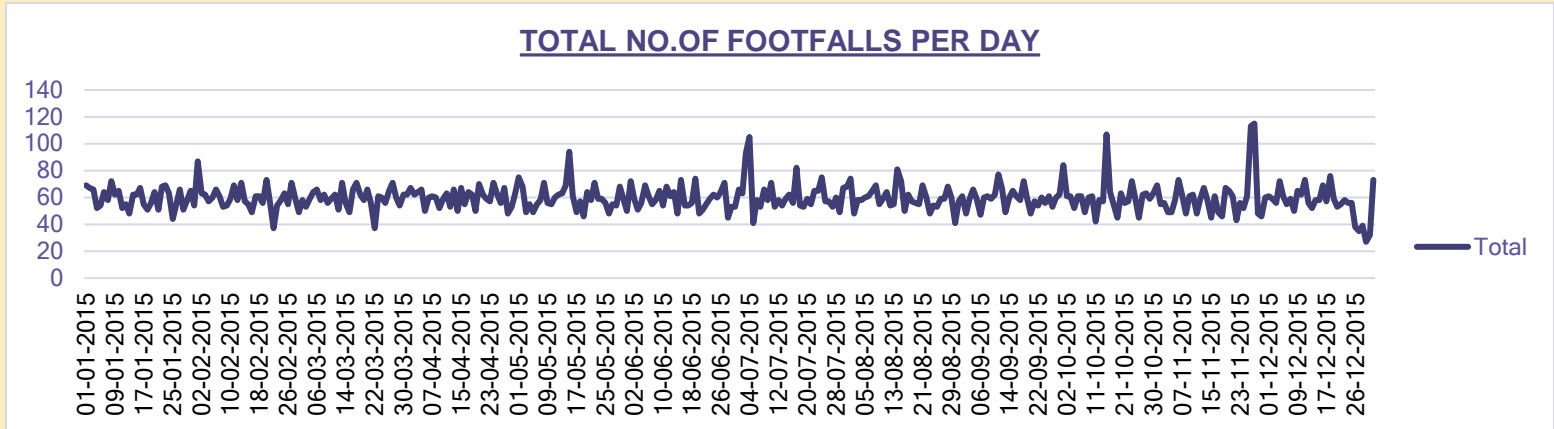


Figure 1: Total no. of footfalls per day in Pizza Place.

- Using the Pivot table, we have seen the average number of orders per day the pizza shop had fulfilled is around 60. And also, we can see that the highest sale was made on 26th-27th Nov,2015, which was Thanksgiving Day in USA.

Suggestion:

This suggests that the Pizza Place has the probability of high sales on holidays, Thanksgiving Day and Christmas.

1b) Are there any peak hours?

To calculate the peak hours, we used 'Orders' excel sheet and extracted the hours from the given time. Using the hours data, we created pivot table, calculated sales at various hours in each month and found that the peak hours in the Pizza place were **12-01 pm and 05-07pm**.

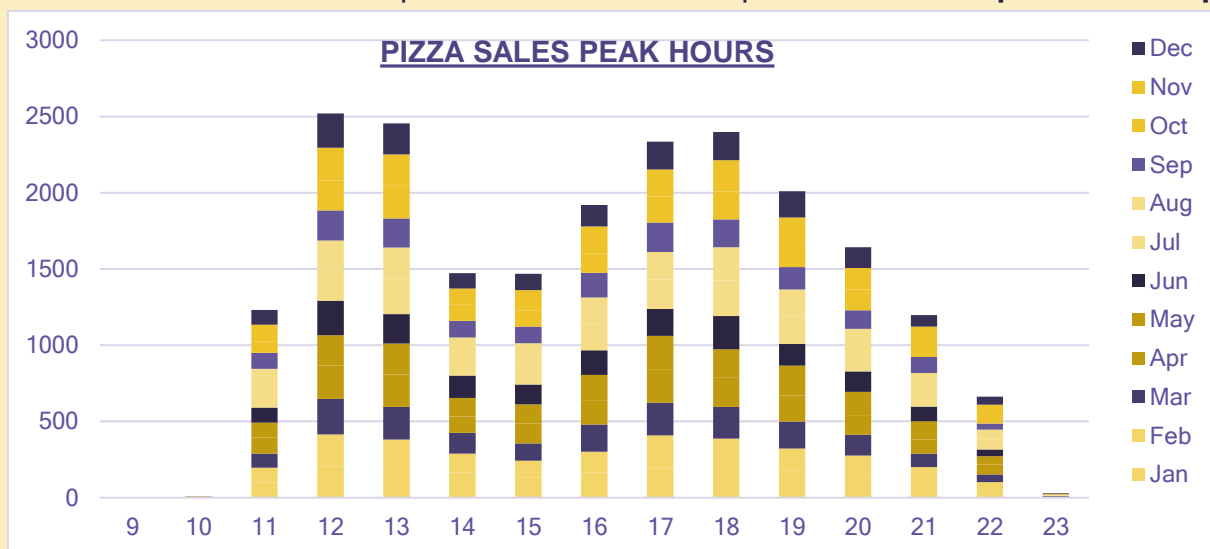


Figure 2: Peak hours for sale in Pizza Place.

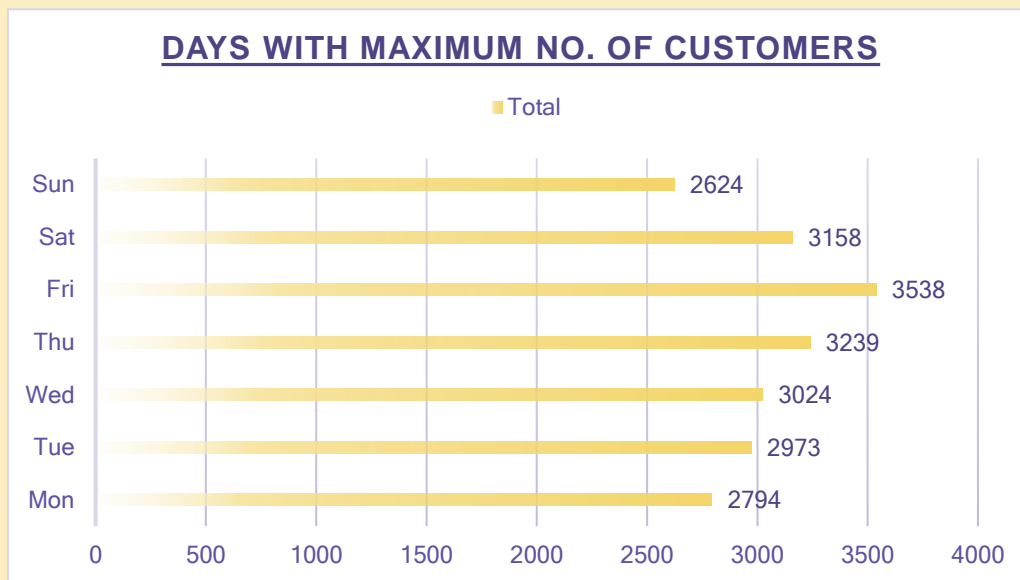


Figure 3: Days with maximum number of customers.

We have also calculated the busiest days of the week for the entire year, and we could see that **Thursday - Saturdays are the busiest days of the week**. This probably could be due to the fact that Fridays are the last working day of the week and people might love to grab something quick and easy to relish themselves.

Suggestion:

- This result suggests us that the Pizza place has rush hours during the lunch and supper times. This provides a great opportunity to the Pizza place to promote their menu and attract more customers by offering easy and quick meals during these times.
- The pizza place should be more efficient with their service and staff management on Thursdays-Saturdays as they are the busiest days for sale.

2a) How many pizzas are typically in an order?

To answer this question, we used the 'Orders_details' excel sheet. We counted the total Order_Details_ID against each Order_ID, we calculated its average and rounded up the value.

Hence, **the approximate number of pizzas present typically in an order = 3.**

2b) Do they have any bestsellers?

Here, we used the same 'Orders_details' excel sheet and counted the Order_ID against Pizza_ID and found **Big_meat_small** to be the most ordered pizza type.

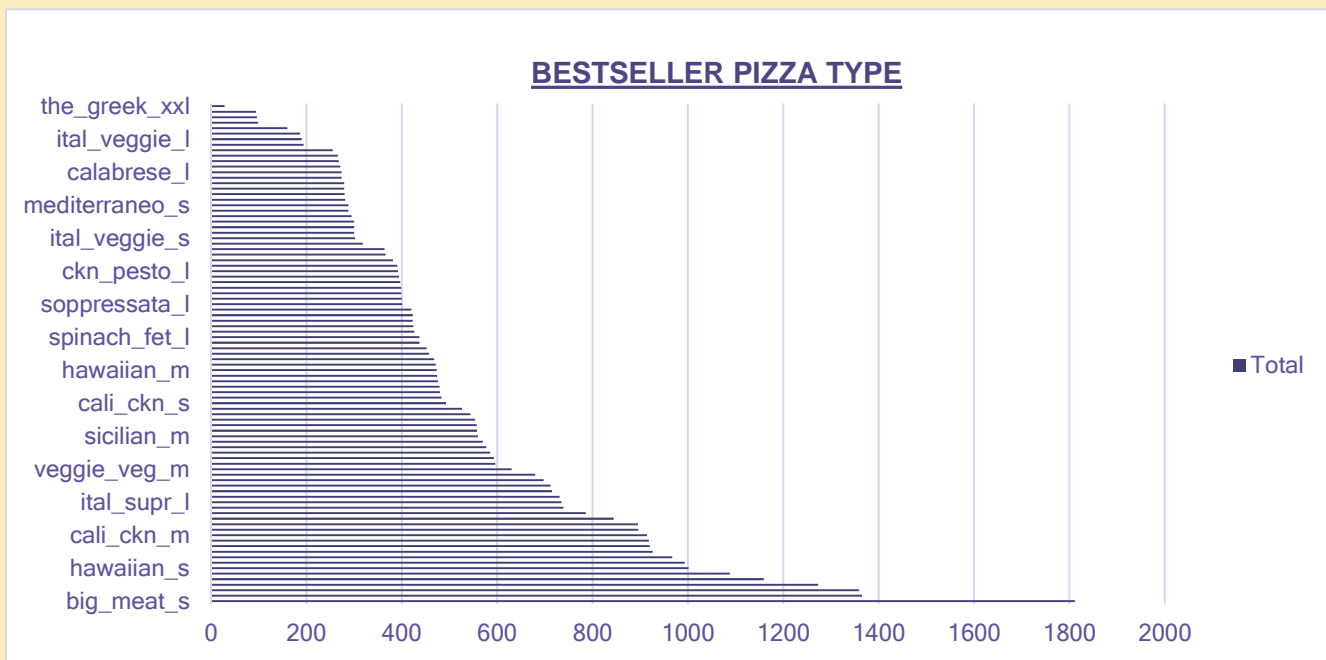


Figure 4: Best-seller Pizza type

Suggestion:

- Here, we can see that the average number of pizzas typically present in an order is 3. And also, that the Big_meat_small pizza is ordered maximum number of times suggesting a strong flavour of its ingredients, taste and affordable price being liked by the customers.

3a) How much money did they make this year?

To answer this question, we created a new sheet using 'Orders', 'Orders_details' and 'Pizza' excel sheets. Then using the VLOOKUP formula, we found the price of respective pizza and finally, multiplied the value with the amount of quantity. Then using pivot table, we calculated the sales for each month as shown in the graph below.

Hence, the total revenue generated in year 2015 was **\$ 817860 USD**.

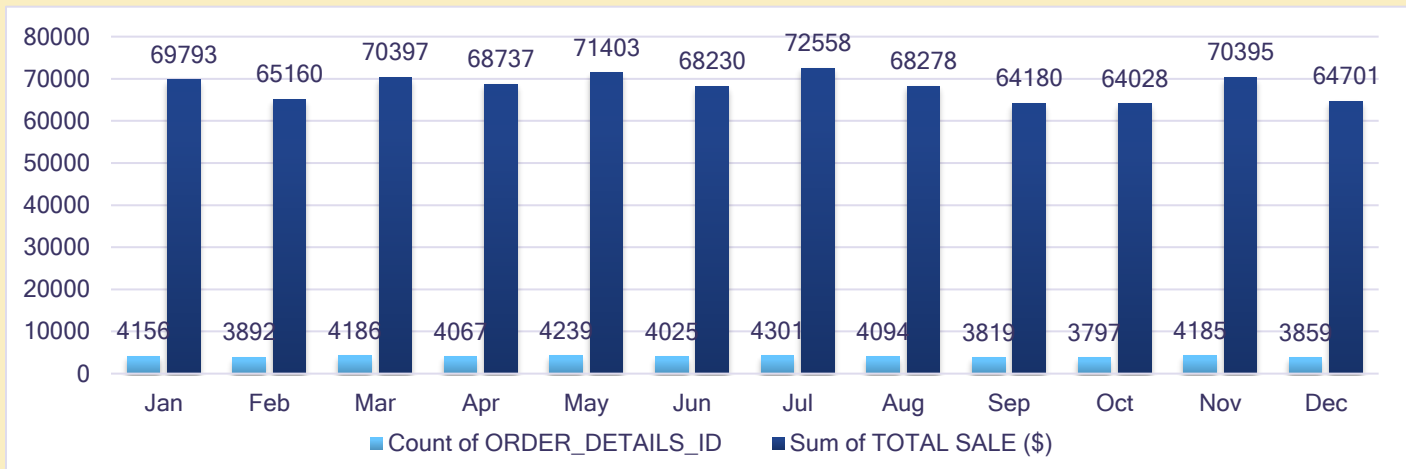


Figure 5: Total revenue generated in Pizza Place, 2015.

3b) Can we find any seasonality in the sale?

Using the same data and pivot table we can see **May - July** are the seasonal months.

3c) Which pizza has generated the highest revenue in year 2015? (Supplementary analysis)

Next, we wanted to see which pizza has fetched the highest revenue for the pizza place in one year. To calculate that we used the same pivot table and sorted it. It was profound to see

that **Thai_chicken_large**,

Five_Cheese_large,

Four_Cheese_large, **Spicy_Ital_large**,

Big_Meat_small,

Southwest_Chicken_large and

Barbeque_Chicken_large are the top 7

highest revenue generating pizzas.

PIZZA_ID	Sum of TOTAL SALE (\$)	Sum of QUANTITY
thai_ckn_l	29257.5	1410
five_cheese_l	26066.5	1409
four_cheese_l	23622.2	1316
spicy_ital_l	23011.75	1109
big_meat_s	22968	1914
southw_ckn_l	21082	1016
bbq_ckn_l	20584	992

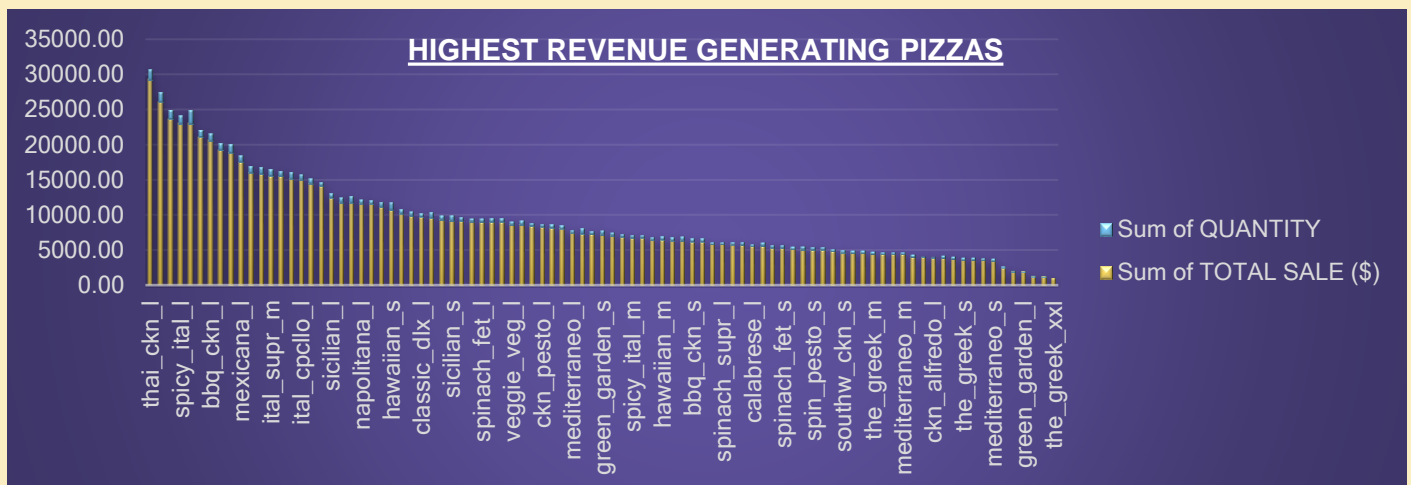


Figure 6: Pizzas generating highest revenue for Pizza Place.

Suggestions:

- As we can see that May - July are the seasonal months which could be due to several reasons such as summer breaks in universities, family functions, office parties, etc. Hence, the pizza place's staff management should be more vigilant with their menu and can also do some promotions.
- It is also important to note that the quality of their best-selling pizzas should not be compromised and be taken good care. They should also look to optimize the recipe of their best-selling pizzas.
- It is also crucial that the management staff and service providers should be more courteous, efficient and prompt in their services, as customers feedback would help them to build strong rapport among their customers and would also help to grow their business.

4a) Are there any pizzas they should take off the menu?

Using the same previous pivot table on sales we performed sorting and found that some of the pizzas were least revenue generating and can be taken off from the menu. It has been seen that **The_Greek_xxl** is the least ordered pizza in a year.

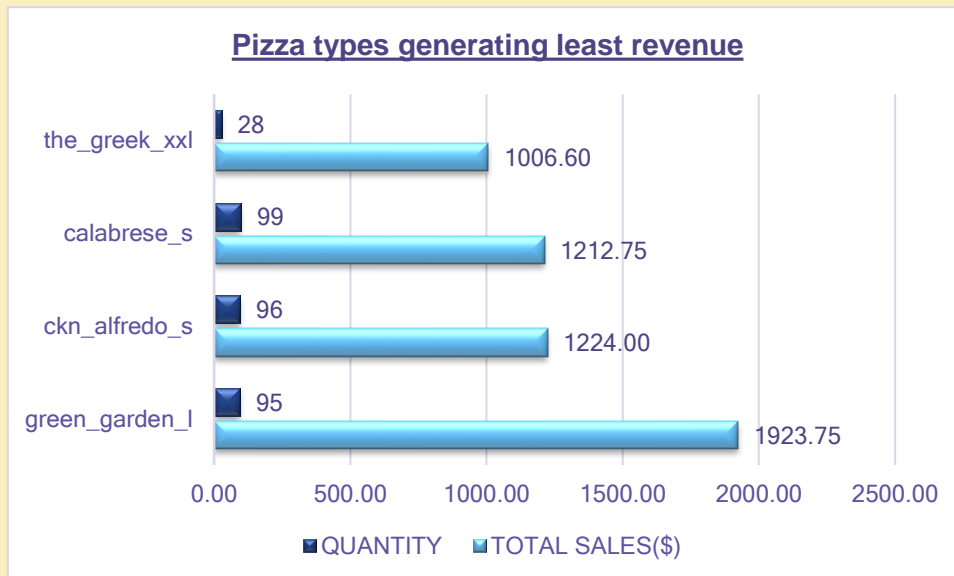


Figure 7: Pizzas that generated least revenue in year 2015.

4b) Should they do any promotions to leverage?

In our analysis we have observed that there are two pizzas that have been ordered above 1000 times, nearly same as the best-selling pizzas, they are **Classic_Deluxe_medium** and **Hawaiian_small**.

PIZZA_ID	Sum of TOTAL SALE (\$)	Sum of QUANTITY
big_meat_s	22968.00	1914
thai_ckn_l	29257.50	1410
five_cheese_l	26066.50	1409
four_cheese_l	23622.20	1316
classic_dlx_m	18896.00	1181
spicy_ital_l	23011.75	1109
hawaiian_s	10710.00	1020
southw_ckn_l	21082.00	1016
bbq_ckn_l	20584.00	992

Suggestion:

We suggest that recipe of toppings that are used in best-selling pizzas can also be tried on these pizzas too, thereby also optimizing their price at the same time. These pizzas also have the potential to generate more revenue and be in the top 10.

CONCEPTS USED

The key approach used in the Pizza Place Sales data analysis is mainly Excel based concepts.

1. **Data Import:** Excel allows us to import data from various sources, such as CSV files, databases, or other spreadsheet formats.
2. **Data Cleaning:** Excel provides tools to clean and prepare data for analysis. Here, we checked for blanks and used "Find and Replace" to correct errors or inconsistencies in the data. Also, we checked the formats of dates, time and modify them as per our need.
3. **Sorting and Filtering:** Excel allows us to sort and filter data based on specific criteria. We sorted data on the basis of Order_ID, Order_ID_Details, Sales and other fields for analysis. Filtering enables us to display specific subsets of data based on certain conditions or values.
4. **Formulas and Functions:** Excel's formula and function capabilities are essential for performing calculations and deriving insights from data. Functions such as SUM, AVERAGE, COUNT, COUNTIF, ROUNDUP, Multiplication, VLOOKUP, removal of delimiters, removing duplicates, sorting and conditional formatting are used in this analysis to calculate totals and perform conditional analysis.
5. **Pivot Tables:** Pivot Tables are a powerful feature in Excel for summarizing and analyzing large datasets. We created Pivot Tables to calculate total number of customers per day, total revenue generated, best-selling Pizza, peak hours and other information. Pivot Tables allow for easy exploration and visualization of data.
6. **Charts and Graphs:** Excel provides a range of chart types (bar charts, line charts, pie charts, etc.) to visually represent data. By creating charts and graphs, we visually analyzed patterns, trends, and disparities in the data.

By leveraging these Excel concepts, we effectively analyzed, manipulated, and visualized Pizza Place Sales data to gain insights, identify trends, and support evidence-based decision-making.

CONCLUSION

In conclusion, the analysis of pizza sales data has shed light on several important aspects of customer behavior, market trends, and business performance within the pizza industry. By examining the data, we have identified key findings and drawn insights that can guide decision-making and drive business growth.

Firstly, customer preferences analysis revealed that the most popular pizza toppings among our customer base includes-Bacon, Pepperoni, Italian Sausage, Chorizo Sausage which are offered in Big_Meat pizza. This insight should inform our menu offerings and promotional strategies to cater to customer demands effectively.

Secondly, analyzing sales data over different time periods exposed seasonal patterns, with peak sales occurring during weekends, afternoons and evenings. Understanding these peak sales periods enables us to optimize staffing, inventory management, and delivery operations, ensuring smooth and efficient customer service during busy periods.

Based on these findings, we recommend implementing the following actions: Firstly, revamp the menu to include more variety, reflecting popular toppings and innovative flavors. Secondly, invest in technology solutions to optimize services, thereby improving customer satisfaction. Thirdly, launch targeted promotions that emphasize the unique selling points, such as locally sourced ingredients or eco-friendly packaging.

It is essential to continuously monitor and analyze pizza sales data, adapting our strategies to evolving customer preferences and market dynamics. Regularly reviewing sales metrics, customer feedback, and competitor performance will enable us to stay ahead of the competition and identify new growth opportunities.

In conclusion, by leveraging the insights gained from the analysis of pizza sales data, we can make informed decisions, enhance customer satisfaction, and drive business growth in the highly competitive pizza market.