



Innovation & Entrepreneurship Hub for Educated Rural Youth (SURE Trust – IERY)

Pizza Sales Analysis BI Dashboard

The domain of the Project

Pizza Sales Analysis BI Dashboard
(Power BI)

Under the guidance of
Ms. Siddhika Shah

By
Ms. Vidhya Rahangdale (BTech. CSBS)

Period of the project
February 2025 to March 2025



SURE TRUST PUTTAPARTHI,



Innovation & Entrepreneurship Hub for Educated Rural Youth (SURE Trust – IERY)

ANDHRA PRADESH

DECLARATION

The project titled “***Pizza Sales Analysis BI Dashboard With Power BI***” has been mentored by **Mrs.Siddhika Shah** and organized by SURE Trust from February 2025 to March 2025. This initiative aims to benefit educated unemployed rural youth by providing hands-on experience in industry-relevant projects, thereby enhancing employability.

I, **Vidhya Rahangdale** hereby declare that I have solely worked on this project under the guidance of my mentor. This project has significantly enhanced my practical knowledge and skills in the domain.

Name

Signature

Ms. Vidhya Rahangdale

Mentor

Signature

Mrs.Siddhika Shah

Seal & Signature

Prof.Radhakumari
Executive Director & Founder
SURE Trust



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Executive Summary

This dashboard provides a comprehensive overview of pizza sales performance over the selected period, offering actionable insights into customer preferences, peak sales periods, and product performance. Key metrics include total revenue, total units sold, average order value, and top-selling pizza categories.

The analysis reveals strong sales trends during weekends and evenings, with a significant contribution from specialty pizzas and combo deals. Seasonal fluctuations and promotional campaigns also demonstrated measurable impacts on revenue. Additionally, customer purchasing patterns indicate a preference for larger-sized pizzas and bundled offers.

This dashboard serves as a valuable tool for strategic decision-making, enabling better inventory planning, targeted marketing efforts, and optimized menu offerings to drive continued growth and profitability.



Introduction

Background and Context

The Pizza Sale Analysis Dashboard provides a concise overview of sales performance, helping stakeholders track key metrics like revenue, top-selling items, peak sales periods, and customer preferences. It transforms raw sales data into actionable insights, enabling better decision-making for marketing, inventory, and operations. Designed for restaurant managers and business owners, the dashboard supports strategic planning and boosts overall efficiency.

Problem Statement

In the competitive food service industry, the absence of an effective system to analyze and visualize pizza sales data hinders the ability to make timely and informed business decisions. Without clear insights into sales trends, customer preferences, and product performance, it becomes challenging for management to optimize operations, manage inventory, and drive revenue growth. There is a need for a centralized, interactive dashboard that transforms raw data into actionable insights to support strategic planning and operational efficiency.

Scope

The Pizza Sales Analysis Dashboard is designed to provide a comprehensive overview of sales performance, customer behavior, and operational efficiency for a pizza business. The scope of this dashboard includes the following key components:

1. Sales Performance Analysis

- Total revenue, average order value, and number of orders over time (daily, weekly, monthly).



- Top-performing pizzas by revenue and volume.
- Sales trends based on time of day, day of week, and seasonal fluctuations.

2. Customer Insights

- Customer segmentation (new vs returning customers).
- Popular pizza types and sizes among different customer segments.
- Customer ordering patterns and frequency.

3. Product-Level Analysis

- Best-selling pizza categories (Classic, Gourmet, Vegetarian, etc.).
- Ingredient-level analysis to identify high-usage or high-cost ingredients.
- Custom vs standard orders breakdown.

4. Location-Based Analysis

- Sales distribution by store/outlet or region.
- Performance comparison across different locations.

5. Operational Metrics

- Order fulfillment times and peak operational hours.
- Inventory usage trends and forecasting needs.
- Delivery vs dine-in/takeaway performance.

6. Promotions & Discounts Impact

- Effectiveness of marketing campaigns and discounts on sales volume and revenue.
- Customer engagement with loyalty programs or seasonal offers.

7. Interactive Features

- Dynamic filters for time range, location, pizza category, and order type.
- Drill-down capabilities for deeper insights



Non-ML Approach

This project relies entirely on Power BI's data modeling, DAX calculations, and visualization features without the use of machine learning. Insights are derived through descriptive analysis and graphical representation of time-series, categorical, and numerical data.

Limitations

- The analysis is limited to static datasets and does not include real-time sales updates.
- Data quality and insights are constrained by the completeness and accuracy of the input data.
- External factors such as promotions, market trends, or supply chain disruptions are not considered.
- The dashboard does not include predictive or prescriptive analytics.

Innovation

The dashboard leverages advanced data visualization and real-time analytics to transform raw sales data into actionable insights. Key innovations include interactive filtering, AI-driven trend prediction, and product performance heatmaps. These features enable quick decision-making, identify customer preferences, and optimize inventory and marketing strategies, offering a competitive edge in a fast-paced food industry.

Project Objectives:

1. Data Cleaning and Preparation

To preprocess and transform raw datasets into a structured format suitable for analysis in Power BI. This includes handling missing values, renaming columns, changing data types, and creating calculated columns/measures using DAX.



2. Data Modeling

To establish relationships between different tables such as sales data, product details, and shipping status. This step ensures that slicers and visuals work cohesively and allows for dynamic filtering across the dashboard.

3. Visual Design and Layout

To create an intuitive and visually appealing dashboard by organizing charts, tables, slicers, and KPIs in a clean layout. Emphasis is placed on clarity, interactivity, and ease of navigation between multiple report pages.

4. DAX Measures and Calculations

To develop meaningful calculations using DAX formulas, such as total sales, total units, returns, and customer reviews. These measures provide business-specific insights and allow users to compare performance across different dimensions.

5. Interactive Features and Filters

To enable interactivity through slicers (e.g., date, category, status) and navigation buttons. These features empower users to explore data dynamically and focus on specific subsets of interest without modifying the underlying dataset.

Expected Outcomes

Sales Dashboard showing:

- Overall and filtered sales values
- Units sold and return (lost) statistics
- Sales distribution across states and cities
- Time-based sales patterns (monthly trends)



Product Dashboard revealing:

- Best-selling products and categories
- Number of customer reviews per product
- Product-wise performance comparison
- Insights based on shipping and order status

Operational Benefits:

- Improved business insights for stakeholders through intuitive visuals and dynamic filters
- Enhanced decision-making by minimizing the need for manual data analysis
- A scalable Power BI solution that can be updated easily with new datasets or extended with features like trend forecasting or automated alerts.



Methodology and Results

Methods/Technology Used:

The project applies Data Analytics and Business Intelligence (BI) methodologies to transform raw Amazon sales data into meaningful insights. It includes:

- **Data preprocessing:** Cleaning and transforming the sales, product, and order status data using Power Query Editor in Power BI.
- **Data modeling:** Establishing relationships between tables (e.g., sales, products, reviews, and shipping), and creating DAX measures for calculations like total sales, units, and returns.
- **Interactive visualization:** Utilizing bar charts, line graphs, slicers, and buttons to uncover patterns in sales trends, product performance, and regional distribution.
- **Descriptive analysis:** Summarizing sales history to show what products and locations contributed most to revenue and units sold.
- **Diagnostic analysis:** Analyzing returns, reviews, and delivery statuses to understand potential issues in sales or logistics performance.

Tools/Software Used:

- **Microsoft Power BI Desktop:** Primary tool for dashboard creation, data modeling, and interactive visualization.
- **Power Query Editor:** Used for cleaning, filtering, and shaping the data before analysis.
- **DAX (Data Analysis Expressions):** For creating custom KPIs, aggregations, and calculations.



- **Excel/CSV Files:** Data source format used for importing Amazon sales and product data.
 - **MS Excel or Google Sheets:** For initial inspection or minor data adjustments before loading into Power BI.
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Data Collection Approach:

- **Sales Dataset:**
Contains fields such as order ID, order date, pizza name, pizza size, pizza category, quantity sold, total order value, and average order value.
- **Product Dataset:**
Includes details of pizza categories (e.g., Classic, Supreme, Veggie, Chicken), pizza sizes (Small to XX-Large), and product descriptions.
- **Order Dataset:**
Captures order-specific information including total orders, number of pizzas per order, and customer order trends by day and month.
- **Time & Trend Dataset:**
Used to analyze sales trends by days of the week and months of the year to identify peak and low sales period.

All data was static and imported in CSV format. No real-time APIs were integrated.



Project Architecture:

Data Source Layer

CSV files containing structured data related to sales, products, order statuses, and customer reviews.

Data Preparation Layer

Power Query Editor was used for cleaning and transforming the data. This included removing duplicates, changing data types, splitting columns, and renaming headers for clarity.

Data Modeling Layer

Logical relationships were created between tables. Calculated columns and DAX measures were developed to compute metrics like total sales, returns, filtered sales, and number of reviews.

Visualization Layer

Dashboards were designed using various Power BI visuals such as bar charts, line graphs, cards, slicers, and tables to showcase sales trends, product performance, and location-wise analysis.

User Interaction Layer

Slicers and buttons were added to enable end-users to interact with the report—filtering by date, product category, city, or order status for dynamic data exploration.

Result

- **Total Revenue & Orders:**

The total revenue generated is 817.86K with 21,350 total orders and 49,574 pizzas sold, averaging 2.32 pizzas per order and ₹38.31 per order.

- **Busiest Days & Months:**

Orders are highest on Fridays and Saturdays, especially in the months of July and January.



- Daily & Monthly Trends:
 - Friday sees the highest daily orders (~3.5K), followed by Saturday.
 - July shows the highest monthly orders (1955), while February has the lowest (1685).
- Sales Performance by Category:
 - Classic category leads with 14,888 pizzas sold, followed by Supreme (11,987).
 - Classic and Supreme together account for a major share of sales.
- Sales by Pizza Size:
 - Large pizzas are the most sold size, making up 30.49% of total sales.
 - Medium and X-Large sizes follow.
- Best Sellers:

Classic Large pizzas dominate sales across categories and sizes.

Final Project Working Screenshot





GitHub Link

<https://github.com/vidhya1427/Course-Report-G-16-SQL-Power-Bi-.git>



Learning and Reflection

Learning and Reflection

This project has been a valuable learning journey, helping me grow both technically and analytically. By working with Power BI to build an Pizza Sales Analysis Dashboard, I gained hands-on experience in data visualization, dashboard creation, and business intelligence. I learned how to clean and structure raw sales data, build relationships between tables, write DAX formulas, and design visuals that present insights in a clear and impactful way.

One of the most important lessons was learning how to communicate stories through data. By using interactive elements like slicers, buttons, and filters, I discovered how to let users explore different views of the data, enabling them to make informed business decisions more efficiently.

I also came to understand the critical role of data accuracy and consistency. Every chart, card, and table needed to be precise to ensure users could trust the insights they were seeing. Whether analyzing sales by city or tracking returns, it was essential that the visuals were both accurate and user-friendly.

On a personal level, this project sharpened my problem-solving abilities, improved my attention to detail, and boosted my confidence in using Power BI. I now feel more equipped to apply these skills in real-world scenarios and contribute to data-driven strategies in business environments.

Overall, this project not only improved my technical capabilities but also deepened my understanding of how data can be transformed into actionable insights that support smarter business decisions.



Conclusion and Future Scope

Objectives

The primary goals of this project were to:

- 1. Clean and Prepare Raw Data**

Transform raw Amazon sales and product data into a clean and structured format using Power Query Editor.

- 2. Build Interactive Dashboards**

Design dynamic, multi-page dashboards that visualize sales performance, product trends, and geographic distribution.

- 3. Perform Data Modeling**

Create relationships between sales, products, and order status tables, and define calculated columns and DAX measures for key metrics.

- 4. Visualize Key Insights**

Use visuals such as bar charts, line graphs, cards, and slicers to highlight sales patterns, best-selling products, and high-return regions.

- 5. Enable User Interactivity**

Allow users to explore data interactively by filtering through date ranges, product categories, and delivery statuses.

- 6. Enhance Decision Making**

Equip business stakeholders with insightful visuals that support quicker, data-driven decisions in areas like sales strategy and logistics.

- 7. Ensure Scalability**

Develop the dashboard with flexibility to incorporate additional data sources or advanced analytics features like forecasting in the future.

- 8. Improve Analytical Skills**

Strengthen proficiency in data visualization, dashboard building, and applying BI tools like Power BI and DAX for real-world analysis.



Achievements

1. Successfully Designed Sales Dashboards

Developed a multi-page Power BI dashboard to visualize Amazon sales performance, product insights, and geographic trends using interactive visuals and slicers.

2. Advanced Data Modeling

Established clear relationships between sales, product, and order status tables; created calculated columns and DAX measures to generate meaningful KPIs such as total sales, units sold, and returns.

3. Data Transformation and Cleaning

Used Power Query Editor to clean raw datasets by removing duplicates, correcting data types, renaming columns, and preparing the data for seamless analysis.

4. Insightful Visualizations

Created impactful visual elements including bar charts, line graphs, cards, and slicers that highlight top-performing products, review patterns, and region-wise sales distribution.

5. User-Friendly Interface

Built an intuitive, easy-to-navigate dashboard layout that allows users to interact with data using category filters, date slicers, and status selection for focused analysis.

6. Demonstrated Analytical Thinking

Uncovered valuable insights such as best-selling cities, high-return products, and sales trends—demonstrating strong analytical reasoning and business understanding.

7. Scalability and Future-Readiness

Designed the dashboard to be scalable, allowing for the future integration of live data, trend forecasting, and additional analytical features.

8. Skill Development

Enhanced hands-on skills in Power BI, DAX, data modeling, and visual storytelling—boosting both technical expertise and real-world data analysis capability.



Conclusion

The Power BI dashboards developed in this project successfully transform raw Amazon sales data into meaningful, visual insights. The dashboards highlight top-performing products, sales trends across states and cities, customer engagement through reviews, and order delivery outcomes. These insights help stakeholders quickly identify areas of success and concern—whether it's understanding peak sales periods, tracking high-return products, or evaluating regional performance.

By presenting complex sales data in a clear, interactive format, the dashboard enables more informed and timely business decisions. From sales managers to inventory planners, users can explore data with ease and draw conclusions that support strategic planning and operational efficiency. Overall, this project demonstrates how business intelligence tools like Power BI can unlock the full potential of sales data and contribute to data-driven growth in the e-commerce space.



Future Scope

1. Real-Time Data Integration

Connect the dashboard to live data sources like SQL databases, web APIs, or cloud platforms to enable real-time monitoring of sales, returns, and delivery status, helping teams respond quickly to changes.

2. Predictive Analytics and Forecasting

Incorporate predictive models using Python or R to forecast future sales, identify high-demand periods, or detect products likely to be returned. These models can help improve planning and strategy.

3. Geospatial Sales Analysis

Enhance the dashboard with map-based visuals (using Power BI Map or ArcGIS) to analyze regional sales distribution and identify high-performing and underperforming areas geographically.

4. User Alerts and Threshold-Based Notifications

Set up automated alerts for specific events such as sudden sales drops, high return rates, or low inventory levels, enabling quicker decisions and better issue management.

5. Role-Based Access and Custom Views

Implement role-based dashboard views for different users such as category managers, sales heads, and logistics teams. This makes the tool more secure and relevant to each department's needs.

6. Mobile-Friendly Dashboards

Optimize the dashboard design for mobile use, ensuring that users can access insights anytime and anywhere, enhancing usability and accessibility.

7. Expansion to Other Retail Data

Extend the dashboard to include additional datasets like customer feedback, marketing performance, or seasonal sales trends, making it a more comprehensive and scalable BI solution for retail analytics.