Problems and background

The objective of the project is to analyze pizza sales data to identify key trends, optimize marketing strategies, and enhance decision-making for business growth. The primary issue to address is understanding which pizzas drive the most revenue and how sales vary by category, size, and time period. This strategic analysis will help align business operations to improve revenue, customer satisfaction, and product offerings. The problem is data-driven and requires in-depth examination to spot patterns, determine best-sellers, and identify underperforming items. Insights gathered will aid in strategic planning for promotions, inventory management, and customer targeting.

Project scope

To reach the project goal, the following step-by-step approach will be used:
1. **Data Collection**: Gather sales data from reliable sources.
2. **Data Preparation**: Clean, merge, and manipulate data to ensure readiness for analysis.
3. **Data Analysis**: Explore sales trends, customer behaviors, and product performance.
4. **Visualization**: Create charts and dashboards to visually communicate findings.
5. **Recommendation Report**: Provide actionable insights to optimize business strategies.

Timeline of Events:
- Week 1: Data collection and preparation
- Week 2: Data cleaning and merging
- Week 3: Data analysis and visualization
- Week 4: Review findings and compile the recommendation report

Marketing Domains Consideration:
- **Product**: Focus on identifying high and low-selling pizzas.
- **Price**: Assess revenue contribution and profitability by pizza size.
- **Promotion**: Develop targeted promotions based on best-selling categories.
- **Place**: Analyze order patterns by day and time.
- **People**: Understand customer preferences and behaviors.

Stakeholders

Key stakeholders include:
- **Marketing Team**: Utilize insights for targeted campaigns.
- **Operations Team**: Adjust inventory and supply chain strategies.
- **Sales Team**: Focus on products that maximize revenue.
- **Management**: Use data-driven insights for strategic planning.
- **Customers**: Benefit from tailored product offerings and promotions.

Methodology

Processes:
1. **Data Sources**:
   - SQL databases for historical data
2. **Data Wrangling**:
   - **Data Understanding**: initial data for structure and variables.
   - **Data Cleaning**: Removed duplicates, handled missing values, and standardized formats.
   - **Data Merging and Joining**: Combine data from multiple sources.
   - **Data Manipulation**: Aggregate and transform data for specific analyses.
3. **Data Analysis**:
   - Identifying trends like top-selling and least-selling pizzas
   - Examining sales performance by category and size.

o Analyzing order distribution by day and time.
4. **Data Visualization**:
   o Using charts and dashboards to showcase key findings

KPIs

1. **Sales Growth**: Increase sales by 10% within the next quarter.
2. **Product Optimization**: Improve revenue from underperforming products by 15%.
3. **Customer Retention**: Boost repeat purchase rates by 20% through targeted promotions.
4. **Operational Efficiency**: Reduce unsold inventory by 25% by focusing on high-demand products.

Business Concepts Used

Market Understanding: Analyzing the provided data, segmenting pizza sales by type (e.g., Veggie, Chicken, Supreme, Classic) and size (Small, Medium, Large) is essential. For example, the data shows that classic pizzas contribute the highest revenue at 30.03%, while small-sized pizzas, despite representing 29.05% of orders, only account for 21.77% of revenue. This segmentation allows the business to align their offerings to meet customer demand by promoting the most profitable combinations.

Customer Demographic Analysis: Tailoring strategies based on popular categories like Veggie (23.50% of orders) and Supreme (24.18% of orders) can enhance customer engagement. Knowing that larger pizzas generate the highest revenue (45.89%) suggests focusing marketing efforts on larger-sized pizzas that appeal to family or group purchases, thereby meeting customer needs more effectively.

Customer Behavior Analysis: From the data, peak purchasing times show that orders are higher on Fridays and Saturdays, with Friday reaching the highest sales at 8,242 orders. This insight can drive promotional campaigns on these days to maximize returns. Additionally, understanding that the afternoon is the most popular time for purchases (24,257 orders) allows targeted advertising and deals during this time.

Analysis:

☐ **Top-Selling and Revenue-Generating Pizzas**:
- **Top-selling pizzas** by volume include "The Classic Deluxe Pizza" (2,453 units) and "The Barbecue Chicken Pizza" (2,432 units).
- **Highest revenue-generating pizzas** are led by "The Thai Chicken Pizza" at $43,434, followed by "The Barbecue Chicken Pizza" at $42,768.

☐ **Least-Selling Pizzas**:
- "The Green Garden Pizza" and "The Chicken Alfredo Pizza" are among the least-selling items, with 997 and 987 units sold, respectively.
- The lowest revenue is generated by "The Brie Carre Pizza" at $11,588, indicating underperformance in both sales volume and revenue.

☐ **Revenue by Category and Size**:
- **Category Analysis**: Classic pizzas have the highest revenue contribution at 26.91%, while Veggie pizzas contribute the least at 23.63%.
- **Size Analysis**: Large pizzas contribute the highest share of revenue at 45.89%, highlighting their popularity and profitability, while Double Extra Large has a minimal share at 0.06%.

☐ **Order Patterns**:
- **Day of the Week**: Fridays and Saturdays have the highest number of orders, with Fridays leading at 8,242 orders.
- **Time Periods**: Afternoons see the highest number of orders at 24,257, followed by the evening with 18,568 orders.

Stakeholder Actions:

Marketing Team:
- **Targeted Campaigns**: Insights from top-selling and peak-time analysis should be used for the creation of promotions tailored to high-demand products and periods (e.g., Friday afternoons).
- **Category Focus**: Campaigns for profitable categories like Classic and Supreme pizzas should be highlighted to maximize returns.
- **Engagement Programs**: Loyalty programs that encourage repeat purchases and provide special deals for returning customers should be developed.

Operations Team:
- **Inventory Management**: Sufficient stock of top-selling pizzas should be ensured during high-demand times to prevent shortages.
- **Supply Chain Optimization**: Ordering and supply chain strategies should be streamlined based on insights to reduce excess inventory and improve turnaround times.
- **Resource Allocation**: Staffing and operational support should be adjusted during peak periods (e.g., weekends) to handle increased order volumes effectively.

Sales Team:
- **Product Prioritization**: Sales strategies should be focused on promoting high-revenue products such as large-sized pizzas and top-selling varieties like "The Thai Chicken Pizza."
- **Upselling Tactics**: Customers should be encouraged to choose larger pizza sizes or add-ons during high-volume times.
- **Customer Outreach**: Data insights should be used to engage with customers who frequently order during peak periods and personalized promotions should be offered.

Management:
- **Strategic Planning**: Data-driven insights should be utilized for making informed decisions regarding product offerings, promotional timings, and resource allocation.
- **Performance Metrics**: KPIs should be monitored to evaluate the impact of new strategies and adjustments should be made as needed.
- **Investment in Technology**: Investment in advanced data analytics tools should be supported to maintain a competitive edge and drive future decision-making.

Customers:
- **Enhanced Experience**: Promotions and product offerings tailored to customer preferences should be provided, leading to a better customer experience.
- **Exclusive Offers**: Special deals during peak times or for top-selling products should be accessed to encourage repeat business and build brand loyalty.
- **New Options**: Unique pizzas or promotional items that provide variety and novelty should be discovered by customers.