**Problems and background**

The pizza restaurant is experiencing a sales slump and aims to boost revenue by analyzing customer and order data. To achieve this, the management will conduct an in-depth examination of order trends and consumer behavior to identify key patterns, preferences, and areas for improvement. This data-driven approach will inform strategic decisions to drive sales growth and enhance customer satisfaction.

**Background**

An overview of pizza sales data from January 2015 to December 2015, aggregating insights from pizza joints across the United States to uncover trends and patterns in pizza sales.

**Solution**

To reverse declining sales, we propose an integrated solution that leverages data analysis, generates actionable insights, and fosters collaboration with key stakeholders.

1. **Data Analysis**
   * + Analyzed pizza sales data in-depth to uncover key trends and improvement opportunities. Key activities included
     + Building data tables in Excel for organized sales data storage and analysis
     + Creating interactive dashboards in Excel to visualize sales trends and patterns, enabling data-driven decision-making.
2. **Data-Driven Insights**
   * + Using data insights to pinpoint the causes of declining pizza sales, we can develop targeted strategies to address these issues.
     + If weekday sales are lagging, we could offer special discounts or promotions to boost orders.
     + If customers are dissatisfied with ingredient quality, we could upgrade our ingredients or refine our cooking process to improve customer satisfaction.
     + By taking a data-driven approach, we can create effective solutions to drive sales growth and enhance customer experience.
3. **Stakeholder Engagement**
   * + Engage staff and management in the process of gathering and
     + analyzing sales data.
     + Involve staff and management in data collection and analysis.
     + Gather staff insights on customer behavior.
     + Combine staff feedback with data analysis to reveal new insights.
     + Create dashboards to track sales performance and identify improvement areas.
     + Analyze customer reviews to address common complaints and enhance the experience.

**Project scope**

**Product**

* Analyze customer preferences to identify popular pizza toppings and combinations.
* Determine the most in-demand pizza sizes.
* Explore introducing new or limited-edition pizza products.

**Price**

* Ensure competitive pricing by analyzing competitors' prices.
* Offer discounts or promotions to attract new customers and encourage repeat business.
* Implement dynamic pricing to adjust prices based on demand.
* Offer value-added options like combo meals or sides to increase average order value.

**Promotion**

* Develop targeted marketing campaigns to reach the target audience.
* Utilize social media, email marketing, and other digital channels for promotion.
* Partner with local businesses for cross-promotional opportunities.
* Run contests and giveaways to generate excitement.

**Place**

* Ensure convenient location and easy access to the pizza restaurant.
* Offer online ordering and delivery for added convenience.
* Consider expanding distribution to grocery stores or retail outlets.
* Create a welcoming atmosphere in the restaurant.

**People**

* Train staff to provide excellent customer service.
* Develop a loyalty program to reward repeat customers.
* Offer employee training and development opportunities.
* Conduct customer surveys to gather feedback and identify areas for improvement.

**Methodology**

* **Data sources**

The pizza shop provides the data source, which consists of tables with data in an Excel format.

* **Data wrangling**

Identify, format, and clean the data by checking for outliers, null, or blank cells. Our task involves merging data from four tables into one Excel sheet, ensuring proper formatting.

* **Data analysis**

Analyze the dataset to uncover patterns, correlations, and insights. We'll utilize pivot tables, excel functions, and create new worksheets to facilitate further analysis. Pivot charts will visually represent key findings, providing insights into daily customer trends, volume, and pizza order quantities.

* **Data visualization**

Create a user-friendly dashboard that summarizes the analysis, offering a comprehensive overview of the data. This dashboard will enable informed decision-making based on key findings.

**Goals and KPIs**

* **Goal**
* Boost pizza sales by 10% within 6 months.
* Identify and resolve the underlying causes of declining sales.
* Enhance customer satisfaction and loyalty.
* Develop a deeper understanding of customer behavior and preferences.
* **Key Performance Indicator (KPI)**
* Total pizza sales revenue
* Number of pizzas sold
* Average order value

**Technical Processes**

* Data Collection (Excel)
* Data Cleaning and Preprocessing (Python)
* Exploratory Data Analysis (EDA)
* Time-Series Analysis (Python)
* Data Visualization (Python)

**Business Concepts Used**

Business processes or concepts used in the project

* Market Understanding
* Identify and understand the target market, analyzing their needs and preferences.
* Segment customers into groups and create targeted marketing campaigns for each.
* Customer Demographic
* Analyze the customer demographic data (e.g., age, gender, location, income) to better understand the customer base.
* Use this information to develop marketing campaigns and product offerings that are tailored to the specific needs of different customer groups.
* Customer Behavior
* Study customer behavior (order history, website traffic, social media engagement) to identify trends and improve the customer experience.
* Use this information develop new products and services, and target marketing campaigns more effectively.
* Customer Retention
* Implement retention strategies, such as loyalty programs and discounts, to keep existing customers.
* New Customer Acquisition
* Develop strategies to attract new customers, including marketing campaigns, PR initiatives, and partnerships.

**Recommended Analysis:**

* How many customers do we have each day? Are there any peak hours.
  + Our pizza outlet sees an average of 60 customers per day, with peak hours between 12-2 pm and 6-8 pm.
* How many pizzas are typically in order? Do we have any bestsellers?
  + Customers typically order 2 pizzas per transaction, with our top-selling pizza being the Classic Deluxe Pizza.
* How much money did we make this year? Can we identify any

seasonality in the sales?

* + This year we made $ 817,860.05 & Summer & December is the highest selling season.
* Are there any pizzas we should take off the menu, or any promotions we could leverage.
  + We can consider removing Brie Carre Pizza from our menu due to its low order volume. Additionally, given that summer is our peak season and fall is our slowest, we can introduce seasonal discounts or promotions to drive sales during off-peak periods.

**Project owner**

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