Problem Statement: Customer Churn Analysis

Background:
Customer churn, the loss of customers over time, is a significant challenge for businesses across industries. For companies providing subscription-based or recurring services, retaining customers is more cost-effective than acquiring new ones. Understanding the factors driving churn and developing strategies to retain valuable customers can directly impact revenue and business sustainability.

Objective:
The goal of this analysis is to identify the key factors contributing to customer churn and predict which customers are likely to leave the company in the near future. By doing so, businesses can implement targeted retention strategies and minimize revenue loss due to churn.

Scope:

- **Data Analysis**: We will analyze customer data to uncover patterns and trends that correlate with churn. We aim to identify which segments (e.g., small, medium, large) are most at risk of churn and understand the impact of factors like total spend, retention strategies, and tenure.
- **Churn Prediction**: Using machine learning models, we will predict customer churn based on various features in the dataset.
- **Retention Strategy Evaluation**: By comparing retention strategies, we will assess which methods (e.g., discounts, loyalty programs) are most effective at reducing churn.
- **Revenue Impact**: Understand how churn affects company revenue and identify customers whose loss could have a significant financial impact.

Key Questions to Address:

1. **Who is most likely to churn?**
    - Which customer segments (e.g., by size or spending) show the highest churn rates?
    - What retention strategies are in place, and how do they influence churn?
2. **What factors contribute most to churn?**
    - What relationship does tenure, spending, and retention strategies have with churn rates?
    - Is there a significant difference in churn rates between customers who have used specific retention strategies versus those who haven't?
3. **How can we predict customer churn?**
    - Which machine learning model best predicts customer churn based on available features?
    - How can the model be used for proactive intervention in high-risk customers?
4. **What is the revenue impact of churn?**
    - How does customer churn affect the overall revenue of the company?

- Can we identify the high-value customers at risk of leaving?

Deliverables:

1. **Exploratory Data Analysis (EDA)**: Visualizations and insights into customer data, including churn rates by segment, revenue impact, and correlations between features.
2. **Churn Prediction Model**: A machine learning model to predict which customers are likely to churn, with performance metrics (e.g., accuracy, F1-score).
3. **Retention Strategy Analysis**: A report on the effectiveness of different retention strategies and their impact on churn.
4. **Interactive Dashboard**: A Power BI or Tableau dashboard showcasing churn trends, retention strategy effectiveness, and revenue impact.

Business Impact:

- **Proactive Customer Retention**: The insights from this analysis will allow the business to proactively intervene with high-risk customers, reducing churn and increasing customer retention.
- **Optimized Marketing**: By understanding which retention strategies are most effective, the business can allocate resources to the strategies that provide the best ROI.
- **Revenue Growth**: Minimizing churn can directly increase customer lifetime value and prevent revenue loss, contributing to overall business growth.
