Customer Churn Analysis Report

1. Introduction

Customer churn, or customer attrition, refers to the percentage of customers who stop using a company's product or service during a given period. Predicting churn helps businesses take proactive measures to retain customers.

2. Objective

This project aims to:

- Predict customer churn using a **Support Vector Machine (SVM)** model.
- Visualize churn trends using **Tableau**.
- Analyze key factors influencing customer churn.

3. Dataset Overview

The dataset consists of customer records with various attributes such as:

- **Customer ID**: Unique identifier for each customer.
- **Gender**: Male or Female.
- **Payment Method**: Credit Card, PayPal, etc.
- **Subscription Type**: Monthly, Yearly, etc.
- **Age**: Age of the customer.
- **Monthly Spending**: Amount spent per month.
- **Support Tickets**: Number of times customer reached support.
- **Tenure**: Duration of customer association.
- **Total Spent**: Total amount spent by the customer.
- **Is Churned**: 1 = Churned, 0 = Retained.

4. Methodology

1. **Data Preprocessing**:
- Handling missing values.
- Encoding categorical variables.
- Scaling numerical features.
2. **Model Training**:
- **Algorithm**: Support Vector Machine (SVM)
- **Split Ratio**: 80% training, 20% testing.
- **Evaluation Metrics**: Accuracy, Precision, Recall, F1-score.
3. **Data Visualization**:
- **Pie Chart**: Percentage of churned vs. retained customers.
- **Bar Chart**: Monthly spending vs. churn rate.
- **Heatmap**: Correlation between features.

5. Findings & Insights

- **Churn Rate**: Approximately 70 % of customers have churned.