CUSTOMER-CHURN-ANALYSIS-FOR-TELECOM-INDUSTRY

INTRODUCTION

The Telco Customer Churn Prediction project aims to analyze customer data from a telecommunications company to identify patterns associated with customer churn. By leveraging machine learning techniques, the objective is to predict whether a customer is likely to leave the service, enabling proactive customer retention strategies.

ABSTRACT

This project utilizes historical customer data to build a classification model capable of predicting churn. The analysis involved data cleaning, exploratory data analysis (EDA), feature engineering, and training a machine learning model using Scikit-learn. Insights from the data helped understand key churn drivers, such as tenure, contract type, and monthly charges. The final model demonstrated strong predictive performance, supporting business decision-making for churn reduction.

TOOLS USED

- Python
- Pandas, NumPy
- Scikit-learn
- Matplotlib, Seaborn
- Jupyter Notebook

STEPS INVOLVED IN BUILDING THE PROJECT

1. Data Collection: Loaded the Telco Customer Churn dataset.

2. Data Preprocessing: Handled missing values, converted categorical variables, and standardized formats.

3. Exploratory Data Analysis (EDA): Visualized key metrics and identified churn-related patterns.

4. Feature Engineering: Created new features and selected relevant ones for modeling.

5. Model Building: Trained and evaluated models (Logistic Regression, Random Forest).

6. Model Evaluation: Assessed performance using accuracy, precision, recall, and confusion matrix.

7. Insights and Recommendations: Identified key factors influencing churn.

CONCLUSION

The project successfully demonstrated the use of machine learning to predict customer churn with high accuracy. The analysis uncovered those customers on month-to-month contracts, with higher monthly charges and shorter tenure, are more likely to churn. These insights can help the telecom company design targeted interventions to improve customer retention.