Customer Churn Prediction Project Report

1. Project Title

Customer Churn Forecasting System

Objective: Predict which customers are likely to stop using a product/service, helping the business proactively reduce churn and improve retention strategies.

2. Dataset Details

- **Dataset Name:** Telco Customer Churn
- **Source:** Local CSV file `WA_Fn-UseC_-Telco-Customer-Churn.csv`
- **Number of records:** 7043
- **Number of features:** 20
- **Target variable:** `Churn`
    - 0 → Customer retained
    - 1 → Customer churned

3. Data Preprocessing

- **Missing Values:** `TotalCharges` had blank values which is replaced with median
- **Numeric Features:** `tenure`, `Monthly Charges`, `Total Charges` which is scaled using Standard Scaler
- **Target Creation:** Converted `Churn` from Yes/No to 1/0

4. Exploratory Data Analysis (EDA)

- **Churn Distribution:**
    - More customers are retained (0) than churned (1).
    - Helps understand class imbalance.
- **Tenure vs Churn:**
    - Boxplot shows customers with shorter tenure are more likely to churn.
- ***Visualizations:***

1. Churn Distribution *(Bar Chart)*
2. Tenure vs Churn *(Box Chart)*

These graphs provide a clear insight into the customer behaviour .

6. Key Insights

- Customers with short tenure are more likely to churn → retention campaigns should focus on new customers.
- High `Monthly Charges` may influence churn → consider offering flexible plans.

7. How This Project Helps Reduce Churn and Improve Retention

1. **Early Identification of At-Risk Customers:**
   The model *predicts* which customers are *likely to churn*, allowing the business to *take action before they leave*.

2. **Targeted Retention Campaigns:**
   Insights from churn patterns like short tenure, high monthly charges enable *personalized offers* and *loyalty programs to retain customers*.

3. **Data-Driven Service Improvements:**
   Analysis highlights factors contributing to churn, helping businesses *improve products, plans, or support services* that *reduce customer dissatisfaction*.

4. **Optimized Resource Allocation:**
   By *focusing* on *high-risk segments*, the business can efficiently allocate *marketing and support efforts, reducing cost* and improving overall *customer retention*.

8. Conclusion

The churn prediction system can help the business **identify at-risk customers early** and **take proactive steps to retain them**, improving customer loyalty and revenue.