CUSTOMER CHURN PREDICTION USING MACHINE LEARNING

PRESENTED BY KHADIJA

INTRODUCTION

What is Customer Churn?

Churn occurs when customers stop using a company's service.

Retaining customers is cheaper than acquiring new ones.

Why Predict Churn?

Companies lose revenue when customers leave.

Predicting churn allows businesses to take **proactive action**.

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DATASET OVERVIEW

- Dataset Used: Telco Customer Churn dataset Key Features:
- Customer demographics (gender, senior citizen, partner, dependents)
- Subscription details (Internet service, contract type, payment method)
- Monthly & total charges

DATA PREPROCESSING

Steps Taken to Prepare Data:

Handling Missing Values: TotalCharges converted to numeric.

Encoding: One-hot encoding applied to categorical variables.

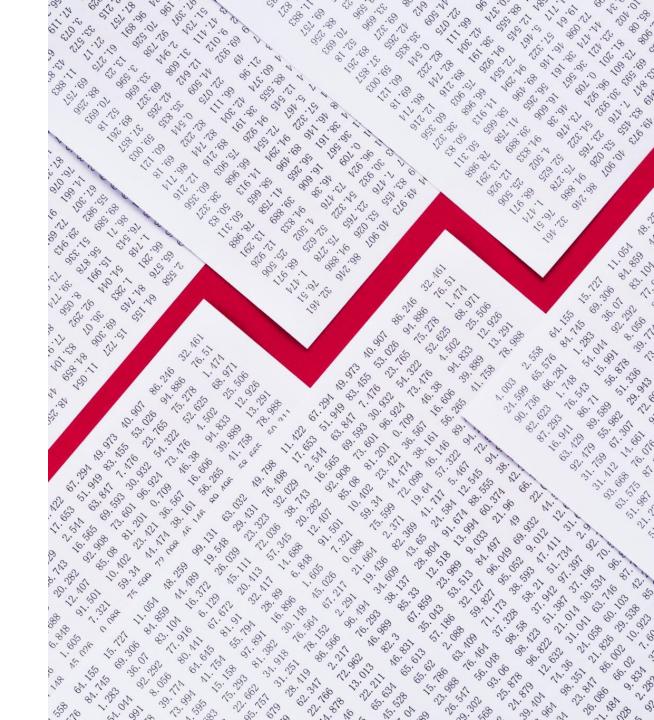
Scaling: Standardized tenure, MonthlyCharges, and

TotalCharges.

Splitting: 80% training, 20% testing.

EXPLORATORY DATA ANALYSIS (EDA)

- Class Distribution:
- Majority of customers **did not churn**, showing class imbalance.
- Need for balancing techniques like SMOTE.
- Correlation Analysis:
- Features like **MonthlyCharges** and **Contract Type** impact churn.



MODEL PERFORMANCE

Model	Accuracy Before SMOTE	Accuracy After SMOTE
Logistic Regression	82%	76%
Random Forest	80%	77.5%

- Accuracy dropped slightly after **SMOTE**, but recall improved.
- Random Forest performed better than Logistic Regression