

# Customer Churn Prediction Using Machine Learning

This project focuses on predicting customer churn using machine learning algorithms based on a Telco customer dataset.

## ## Author

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## ## Dataset

**\*\*Source:\*\*** [Telco Customer Churn Dataset](https://www.kaggle.com/datasets/blastchar/telco-customer-churn)

**\*\*File Used:\*\*** `telco.csv`

## ## Project Overview

This project uses data preprocessing, feature encoding, and three different models:

- Logistic Regression
- Decision Tree Classifier
- Random Forest Classifier

## ## Requirements

To run this notebook, make sure you have the following Python libraries installed:

```
```bash
pip install pandas numpy matplotlib seaborn scikit-learn
```
```

## ## Project Structure

Customer\_Churn\_Prediction/

- Customer\_Churn\_Prediction.ipynb # Jupyter Notebook with full code
- telco.csv # Dataset
- README.md # Project overview

## ## How to Run

1. Open the notebook using [Jupyter Notebook](<https://jupyter.org/install>) or [Google Colab](<https://colab.research.google.com/>).
2. Upload both the notebook and dataset file.
3. Run each cell sequentially.

## ## Output

- Classification reports and accuracy for each model
- Confusion matrix plots
- Sample prediction using the trained Random Forest model

## ## Future Improvements

- Use deep learning techniques like neural networks
- Add model performance visualizations
- Build a Flask web app for user input and prediction