Customer Churn Prediction:
End-to-End ML Project with Streamlit App

Overview:

This is an end to end Machine Learning project for predicting customer churns. It includes EDA, model building and creating UI for user interaction.

Objective:

This app predicts whether customers are likely to churn and helps the business owner to take immediate action.

- Performed preprocessing,missing value treatment
- EDA to understand and derive insights from data.
- Visualization to understand trends and patterns.
- Used SMOTE technique for imbalanced data.
- Tried different algorithms to find the best one for this data
- Searched for best hyperparameter values for selected algorithm(RandomsizedSearchCV)
- Build an ml model that predicts customer churn.(Gradient Boosting Classifier)
- Test the model performance on unseen data
- Pickled model
- Build an app for the model to provide an engaging UI interface.

Technologies

- Python(pandas, numpy, seaborn, matplotlib, scikit-learn)
- Streamlit (for building app)
- Pickle to save and load model
- Jupyter Notebook

KeyFeatures

1. **EDA:**
- Missing value treatment
- Data cleaning
- Feature engineering(categorical to numeric value conversion)

2. **Model Building:**

- Tried different algorithm
- Used Gradient Boosting Algorithm for final model
- Achieved 0.86 accuracy

3. **User Interface:**
- Created an engaging app to improve user experience.
- Accepts input from user and predicts churn

How to run

Jupyter Notebook(Customer Churn.ipynb)
- This file has all the eda and model building code.
- Open file in vs code and run all the cells. This will create a pickle file(saved in same folder where python code is running

app.py
- This file have a code for UI interface
- Load the file in vs code
- pip install streamlit if not installed already
- In vs terminal give a path where the app.py file is stored(save all file in same folder)
- Run the streamlit run app.py code in terminal
- Web version UI will display in the browser. It runs apps locally.

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- Enter the user input and check result