Customer Churn Prediction Model

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Introduction: This report provides an overview of a Streamlit-based web application for customer churn prediction. The application uses a pre-trained machine learning model to predict whether a customer is likely to churn (leave) or stay with a subscription-based service.

Application Overview: The Streamlit application is designed to collect relevant customer information and provide predictions based on that data. Below is a breakdown of the key components and functionality:

Page Configuration:

- **Page Title:** "Churn Prediction Model"
- **Page Icon:** 🐼
- **Layout:** Centered

Data Input: The application collects the following customer information:

1. **Customer Age:** The age of the customer.
2. **Customer Gender:** The gender of the customer (Male or Female).
3. **Customer Location:** The customer's location selected from options including Houston, Los Angeles, Miami, Chicago, and New York.
4. **Subscription Length (in Months):** The number of months the customer has been subscribed.
5. **Monthly Bill:** The monthly bill amount for the customer.
6. **Total Usage (in GB):** The total gigabytes of content consumed by the customer.

Data Processing: The collected data is structured into a dictionary and then converted into a Pandas DataFrame. This DataFrame is used as input for the pre-trained machine learning model.

Machine Learning Model: The application loads a pre-trained machine learning model using the pickle library. This model has been previously trained to predict customer churn based on historical data.

Prediction:

- When all required information is provided by the user, the model makes a prediction.
- If the model predicts a churn probability of 1, it suggests that the customer may be nearing exit, and a warning is displayed.
- If the model predicts a churn probability of 0, it indicates strong customer loyalty, and a positive message is displayed.

How to Run the Application: To run the Streamlit application, follow these steps:

1. Open a command prompt or terminal.

2. Navigate to the directory where your Streamlit app script (webApp.py) is located. Use the cd command to change directories.

4.Run the Streamlit app using the following command:

streamlit run webApp.py

Conclusion: This Streamlit-based web application provides a user-friendly interface for predicting customer churn. By inputting customer data, users can receive insights into the likelihood of a customer churning or remaining loyal to the service.