📈 Customer Churn Prediction

A machine learning–powered web application that predicts **whether a customer is likely to churn** (i.e., stop using a service or product). The model analyzes customer information and returns both a binary outcome and confidence score.

🚀 Live Demo

Access the deployed app here:
🔗 **https://customer-churn-prediction-y73h.onrender.com**

About the Project

Customer churn prediction is the process of identifying which customers are likely to stop using a product or service. Accurate churn prediction helps businesses reduce churn costs by identifying at-risk customers early and taking proactive retention actions.

This application takes user inputs related to customer attributes and feeds them into a pre-trained machine learning model to determine the likelihood of churn.

☐ How It Works

1. **Input Form:** Users fill in customer details such as demographic and service information.
2. **Machine Learning Model:** The application uses a classification model trained on historical churn data. It may use techniques such as one-hot encoding for categorical features and appropriate scaling for numeric values.
3. **Prediction:** The model outputs whether the customer is likely to churn and displays the probability.

☐ Model Insights

Typical features used in churn prediction include:

- Tenure and usage metrics
- Contract type
- Payment methods
- Monthly charges

- Customer service interaction indicators

(The exact feature list may vary depending on the model training dataset.)

The model outputs:

- **Churn Prediction:** `Yes` / `No`
- **Confidence/Probability** of churn

🛠 Built With

This project typically uses:

- **Python**
- **Machine Learning libraries** (e.g., scikit-learn)
- **Web framework:** Flask (backend API that serves predictions)
- **Frontend:** HTML/CSS, Bootstrap (for the user interface)

🚀 Deployment

The app is deployed using **Render**, a cloud hosting platform that makes it easy to host web services. Render automates build and deployment steps using the `requirements.txt` and application scripts.

💡 Usage Instructions

1. Open the live web app in your browser.
2. Fill in the required input fields (customer details).
3. Click the submit button.
4. View the churn prediction and confidence score.

📊 Why Churn Prediction Matters

Predicting customer churn is a crucial capability for subscription-based and recurring-revenue models. Businesses can:

- **Identify at-risk customers before they leave**
- **Implement personalized retention strategies**

- **Improve customer lifetime value**
  By anticipating churn, companies can allocate resources more effectively and foster loyalty.

📝 Notes

- This app is intended for **demo and educational purposes**.
- Prediction results should be considered along with business context and additional data.
- Accuracy depends on model quality and feature engineering.

📇 Contact

For feedback or questions about the app, feel free to reach out to the project maintainer (if available on the repo hosting the app).

If you want, I can generate a **downloadable README.md file** content ready for GitHub or help you tailor it to your **specific model details and features**!

remove contact details and generate

Here's the **cleaned-up README** without any contact details, ready to use for your churn prediction app:

📈 Customer Churn Prediction Web App

A machine learning–powered web application that predicts **whether a customer is likely to churn** (i.e., stop using a service or product). The model analyzes customer information and returns both a binary outcome and confidence score.

🚀 Live Demo

Access the deployed app here:
🔗 **https://customer-churn-prediction-y73h.onrender.com**

☐ About the Project

Customer churn prediction is the process of identifying which customers are likely to stop using a product or service. Accurate churn prediction helps businesses reduce churn costs by identifying at-risk customers early and taking proactive retention actions.

This application takes user inputs related to customer attributes and feeds them into a pre-trained machine learning model to determine the likelihood of churn.

☐ How It Works

1. **Input Form:** Users fill in customer details such as demographic and service information.
2. **Machine Learning Model:** The application uses a classification model trained on historical churn data. Techniques such as one-hot encoding for categorical features and scaling for numeric values are applied.
3. **Prediction:** The model outputs whether the customer is likely to churn and displays the probability.

☐ Model Insights

Typical features used in churn prediction include:

- Tenure and usage metrics
- Contract type
- Payment methods
- Monthly charges
- Customer service interaction indicators

The model outputs:

- **Churn Prediction:** `Yes` / `No`
- **Confidence/Probability** of churn

🛠 Built With

- **Python**
- **Machine Learning libraries** (e.g., scikit-learn)
- **Web framework:** Flask (backend API that serves predictions)
- **Frontend:** HTML/CSS, Bootstrap (for the user interface)

🚀 Deployment

The app is deployed using **Render**, a cloud hosting platform that automates build and deployment steps using the `requirements.txt` and application scripts.

💡 Usage Instructions

1. Open the live web app in your browser.
2. Fill in the required input fields (customer details).
3. Click the submit button.
4. View the churn prediction and confidence score.

📊 Why Churn Prediction Matters

Predicting customer churn is a crucial capability for subscription-based and recurring-revenue models. Businesses can:

- **Identify at-risk customers before they leave**
- **Implement personalized retention strategies**
- **Improve customer lifetime value**

By anticipating churn, companies can allocate resources more effectively and foster loyalty.

📝 Notes

- This app is intended for **demo and educational purposes**.
- Prediction results should be considered along with business context and additional data.
- Accuracy depends on model quality and feature engineering.