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import streamlit as st
import pandas as pd
import matplotlib.pyplot as plt

st.title("■ EV Charging Data Analysis Dashboard")

st.write("Upload your EV charging dataset (.csv) to explore insights.")

uploaded_file = st.file_uploader("Choose CSV file", type="csv")

if uploaded_file is not None:
    df = pd.read_csv(uploaded_file)
    st.success("■ Dataset Loaded")

    st.subheader("■ Dataset Preview")
    st.dataframe(df.head())

    st.subheader("■ Summary Statistics")
    st.write(df.describe())

    st.subheader("■ Missing Values")
    st.write(df.isnull().sum())

    if "StartTime" in df.columns:
        df["StartTime"] = pd.to_datetime(df["StartTime"], errors="coerce")
        df["Hour"] = df["StartTime"].dt.hour

        st.subheader("■ Peak Charging Hours")

        hour_counts = df["Hour"].value_counts().sort_index()

        fig, ax = plt.subplots()
        hour_counts.plot(kind="bar", ax=ax)
        ax.set_xlabel("Hour of the Day")
        ax.set_ylabel("Count")
        ax.set_title("EV Charging Count by Hour")
        st.pyplot(fig)

    if "EnergyConsumption" in df.columns:
        st.subheader("■ Energy Consumption Distribution")

        fig2, ax2 = plt.subplots()
        df["EnergyConsumption"].plot(kind="hist", ax=ax2)
        ax2.set_xlabel("Energy (kWh)")
        ax2.set_title("Energy Usage Histogram")
        st.pyplot(fig2)

else:
    st.info("■ Please upload a CSV file to continue.")

```