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# For Google Colab: Upload file
from google.colab import files
uploaded = files.upload()

# Import the pandas library
import pandas as pd

# Read the uploaded CSV file (update filename as needed)
df = pd.read_csv("Anu.csv") # adjust filename if different
df.head()

import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

from sklearn.model_selection import train_test_split
from sklearn.preprocessing import LabelEncoder, StandardScaler
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import classification_report, confusion_matrix,
accuracy_score

# Step 2: Basic EDA
print("First 5 rows of the dataset:")
print(df.head())

print("\nMissing values in each column:")
print(df.isnull().sum())

print("\nData types and summary:")
print(df.info())

# Step 3: Encoding categorical variables
le = LabelEncoder()
for col in df.select_dtypes(include=['object']).columns:
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df[col] = le.fit_transform(df[col])

# Step 4: Correlation heatmap
plt.figure(figsize=(12, 8))
sns.heatmap(df.corr(), annot=True, fmt='.2f', cmap='coolwarm')
plt.title('Feature Correlation')
plt.show()

# Step 5: Define features and target
target_column = 'Churn' # Adjust if your target column is named
differently
X = df.drop(target_column, axis=1)
y = df[target_column]

# Step 6: Split data into train and test sets
X_train, X_test, y_train, y_test = train_test_split(X, y,
test_size=0.2, random_state=42)

# Step 7: Scale the features
scaler = StandardScaler()
X_train = scaler.fit_transform(X_train)
X_test = scaler.transform(X_test)

# Step 8: Train the model
model = LogisticRegression()
model.fit(X_train, y_train)

# Step 9: Evaluate the model
y_pred = model.predict(X_test)

print("\nClassification Report:")
print(classification_report(y_test, y_pred))

print("Confusion Matrix:")
print(confusion_matrix(y_test, y_pred))

print("Accuracy Score:", accuracy_score(y_test, y_pred))

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