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import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

# Load the Pima Indians Diabetes dataset
url =
"https://raw.githubusercontent.com/jbrownlee/Datasets/master/pima-indians-
diabetes.data.csv"
names = ['preg', 'plas', 'pres', 'skin', 'test', 'mass', 'pedi', 'age',
'class']
diabetes_data = pd.read_csv(url, names=names)

# Line plot: Age distribution
plt.figure(figsize=(8, 6))
sns.histplot(diabetes_data['age'], kde=True, color='blue')
plt.title('Age Distribution')
plt.xlabel('Age')
plt.ylabel('Frequency')
plt.show()

# Scatter plot: Glucose vs. Insulin
plt.figure(figsize=(8, 6))
sns.scatterplot(x='plas', y='test', data=diabetes_data, palette='viridis')
plt.title('Glucose vs. Insulin')
plt.xlabel('Glucose')
plt.ylabel('Insulin')
plt.show()

# Bar plot: Diabetes diagnosis count
plt.figure(figsize=(18, 6))
sns.countplot(x='age', data=diabetes_data)
plt.title('Diabetes Diagnosis Count')
plt.xlabel('Diabetes Diagnosis')
plt.ylabel('Count')
plt.show()

# Density plot: BMI distribution
plt.figure(figsize=(8, 6))
sns.kdeplot(diabetes_data['mass'], shade=True, color='green')
plt.title('BMI Distribution')
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plt.xlabel('BMI')
plt.ylabel('Density')
plt.show()

# Pie chart: Distribution of diabetes diagnoses
plt.figure(figsize=(8, 8))
diabetes_data['class'].value_counts().plot.pie(autopct='%0.1f%%',
colors=['lightblue', 'lightgreen'])
plt.title('Distribution of Diabetes Diagnoses')
plt.ylabel('')
plt.show()

# Heat map: Correlation matrix
plt.figure(figsize=(10, 8))
sns.heatmap(diabetes_data.corr(), annot=True, cmap='coolwarm', fmt=".2f")
plt.title('Correlation Matrix')
plt.show()
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