```python
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import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt

df =
pd.read_csv("https://raw.githubusercontent.com/Eowin2210/Estadistica-
inferencial/refs/heads/main/data%20(3).csv")
df.dropna(inplace = True)
df

correlation_matrix = df.corr()
plt.figure(figsize=(15, 9))
sns.heatmap(correlation_matrix, annot=True, cmap='coolwarm',
fmt=".2f", square=True, cbar_kws={"shrink": .8})
plt.title('Mapa de Calor de la Matriz de Correlación')

X = df[["Duration", "Maxpulse"]]
Y = df["Calories"]

import statsmodels.api as sm
x_constante = sm.add_constant(X)
modelo = sm.OLS(Y, x_constante).fit()

Yc = modelo.predict(x_constante)

plt.figure()
plt.scatter(Y, Yc, color = 'purple')
plt.show()

from sklearn.metrics import r2_score
r2 = r2_score(Y, Yc)
print(f'Coeficiente de determinación: {r2: 0.4f}\n')

residuales = modelo.resid

from scipy.stats import shapiro
_, valor_p_sh = shapiro(residuales)
print(f'valor-p de Shapiro: {valor_p_sh: 0.14f}\n')


from statsmodels.stats.api import het_breuschpagan
_, valor_p_bp, _, _ = het_breuschpagan(residuales, x_constante)
print(f'valor_p de Breusch-Pagan: {valor_p_bp: 0.14f}\n')
```