import pandas as pd

import matplotlib.pyplot as plt

import seaborn as sns

import scipy.stats as stats

# Step 1: Create DataFrame

data = {

    "age": [23, 23, 27, 27, 39, 41, 47, 49, 50, 52, 54, 54, 56, 57, 58, 58, 60, 61],

    "%fat": [9.5, 26.5, 7.8, 17.8, 31.4, 25.9, 27.4, 27.2, 31.2, 34.6,

             42.5, 28.8, 33.4, 30.2, 34.1, 32.9, 41.2, 35.7]

}

df = pd.DataFrame(data)

# Step 2: Calculate mean, median, std

stats\_summary = df.agg(["mean", "median", "std"])

print("📊 Statistics (Mean, Median, Std):\n")

print(stats\_summary)

# Step 3: Boxplots

plt.figure(figsize=(10, 5))

plt.subplot(1, 2, 1)

sns.boxplot(y=df["age"], color="lightblue")

plt.title("Boxplot of Age")

plt.subplot(1, 2, 2)

sns.boxplot(y=df["%fat"], color="lightgreen")

plt.title("Boxplot of %Fat")

plt.tight\_layout()

plt.show()

# Step 4: Scatter Plot

plt.figure(figsize=(6, 5))

plt.scatter(df["age"], df["%fat"], color="red", edgecolor="black")

plt.xlabel("Age")

plt.ylabel("%Fat")

plt.title("Scatter Plot: Age vs %Fat")

plt.show()

# Step 5: Q-Q Plot

plt.figure(figsize=(6, 5))

stats.probplot(df["%fat"], dist="norm", plot=plt)

plt.title("Q-Q Plot of %Fat")

plt.show()

plt.figure(figsize=(6, 5))

stats.probplot(df["age"], dist="norm", plot=plt)

plt.title("Q-Q Plot of Age")

plt.show()

OUTPUT:

📊 Statistics (Mean, Median, Std):

age %fat

mean 46.444444 28.783333

median 51.000000 30.700000

std 13.218624 9.254395

