```
In [1]:  #13

         import numpy as np
         import scipy.stats as stats

         np.random.seed(42)

         sample_size = 25
         sample_data = np.random.normal(loc=102, scale=15, size=sample_size)

         population_mean = 100

         sample_mean = np.mean(sample_data)
         sample_std = np.std(sample_data, ddof=1)


         n = len(sample_data)

         t_statistic, p_value = stats.ttest_1samp(sample_data,
         population_mean)

         print(f"Sample Mean: {sample_mean:.2f}")
         print(f"T-Statistic: {t_statistic:.4f}")
         print(f"P-Value: {p_value:.4f}")

         alpha = 0.05
         if p_value < alpha:
           print("Reject the null hypothesis: The average IQ score is significantly dif
         else:
           print("Fail to reject the null hypothesis: There is no significant differenc
```

```
Sample Mean: 99.55
T-Statistic: -0.1577
P-Value: 0.8760
Fail to reject the null hypothesis: There is no significant difference in avera
ge IQ score from 100.
```