[10]:

```python
# A sample of 10 students scored the following marks in an exam:
# [72, 68, 75, 70, 74, 69, 71, 73, 70, 72] We want to test whether the average mark = 70 (μ₀ = 70) at
# 5% significance level using python
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import numpy as np
from scipy import stats

marks = np.array([72, 68, 75, 70, 74, 69, 71, 73, 70, 72])

mu_0 = 70

t_stat, p_value = stats.ttest_1samp(marks, mu_0)
print(f"T-statistic: {t_stat:.3f}")
print(f"P-value: {p_value:.4f}")
alpha = 0.05
if p_value < alpha:
    print("Reject Null Hypothesis → Mean is significantly different from 70.")
else:
    print("Fail to Reject Null Hypothesis → No significant difference.")
```

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T-statistic: 1.993
P-value: 0.0774
Fail to Reject Null Hypothesis → No significant difference.
```