Module 2: Data Analytics with Python - Statistics

Assignment 2.3: Advanced Statistics

Objective:

Chi-Square Test

Task 1: Understanding the Chi-Square Test

Instructions:

- The Chi-Square test is used to determine whether there is a significant association between two categorical variables.
- The test compares the observed frequencies in each category to the frequencies you would expect if there was no association between the variables.
- This task will demonstrate how to perform a Chi-Square test using a 2x3 table.

```
from scipy.stats import chi2_contingency

# Example 2x3 table
table = [[10, 20, 30], [6, 9, 17]]

# Perform the Chi-Square test
stat, p, dof, expected = chi2_contingency(table)

# Output the p-value
print('P value:', p)

# Interpret the result
if p > 0.05:
    print('Independent')
else:
    print('Dependent')
```

Expected Output:

- The p-value from the Chi-Square test.
- A conclusion on whether the variables are independent or dependent based on the p-value.