COP2073C Practice Exercise 8

Adult domestic cats of a certain breed are said to have an average weight of 3.5 kilograms. A feline enthusiast disagrees and collects a sample of 73 cat weights from this breed. From her sample, she calculates a mean weight of 3.97 kilograms with a standard deviation of 2.21 kilograms. Conduct a hypothesis test to evaluate her claim that the true mean weight, μ, differs from 3.5 kilograms. Set up the appropriate hypotheses, carry out the analysis, and interpret the p-value (assuming a significance level of $\alpha = 0.05$).

Non-Functional Requirements:

- Include a 4-line ID header at the beginning of your script.
- Include vertical spacing (a blank line) between logical blocks for readability.
- Comment your code thoughtfully (avoid excessive commenting).
- Ensure each line of code does not exceed 80 columns.

Expected Output:

```
test statistic = 1.817051
p-value = 0.07337077
significance = 0.05
insufficient evidence to reject the null hypothesis
```