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**Assessment Cover Page**

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| *Module Title* | Statistical Techniques for Data Analysis |
| *Assessment Title* | CA2 |
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**Declaration**

By submitting this assessment, I confirm that I have read the CCT policy on academic misconduct and understand the implications of submitting work that is not my own or does not appropriately reference material taken from a third party or other source.

I declare it to be my own work and that all material from third parties has been appropriately referenced. **I acknowledge the use of Grammarly for the purpose of improving spelling and grammar.**

I further confirm that this work has not previously been submitted for assessment by myself or someone else in CCT College Dublin or any other higher education institution**.**

Task 1:

Load the dataset Q1.csv. It contains the exam scores (in percentages) of a sample of 50 students from a Dublin secondary school.

For task 1, we want to test the hypothesis that the teacher's suspicion that the average is below the national average of 70%. So, in this case, we want to analyze two averages of the same population.

The first step is to analyze if it is different from the population average and for this, it is important to choose an appropriate statistical test.

Defining hypothesis:

1. State the Null Hypothesis: Mean score = 70%

2. Alternative Hypothesis: Mean score < 70%

Before choosing the appropriate hypothesis test, it is necessary to test the normality of the data distribution. In some statistical tests, if the distribution of data, errors or differences is not normal, it is necessary to do some kind of transformation or use a non-parametric version (Mello, 2012). Verifying normality of distribution is a requirement for running several of the well-known statistical tests such as Student’s t-test and ANOVA (Biostats, n.d.).