A. ASSIGNMENT RECAP

- Write **a 1200-word report** analysis on macroeconomic indicators for a sample of countries to evaluate **economic conditions**, including calculating **summary statistic**s, **confidence intervals**, and **hypothesis tests.**

Suggested Structure:

I. **Question 1**
   A. **Country group introduction (Suggested 100 words)**
   B. **Data source Overview (Suggested 100 words)**
   C. **Histograms Analysis (Suggested 150 words)**

II. **Question 2**
   A. **95% CI for HDI and Gini (Suggested 150 words)**
   B. **Normality Assessment (Suggested 150 words)**
   C. **Compare 95% vs 99% CIs (Suggested 150 words)**

III. **Question 3:**
   A. **Describe HDI calculation (Suggested 100 words)**
   B. **Hypothesis testing for HDI (Suggested 100 words)**
   C. **Compare significance levels (Suggested 200 words)**

B. KEYWORD EXPLANATIONS

1. **Confidence interval**

An estimated range of values that is likely to contain the true population parameter, calculated from sample data at a specified confidence level.

2. **Indifferent consumer**

In the Hotelling model, the consumer who is indifferent between purchasing from the two firms, is located at the point where they are equidistant.

3. **Hypothesis testing**

The use of statistical analysis to determine whether a hypothesis about a population parameter can be rejected based on evidence from a sample, at a given significance level.

4. **Normal distribution**

A symmetrical bell-shaped probability distribution is described by its mean and standard deviation, which many natural phenomena and sample means approximate.

5. **Significance level**

The probability of rejecting the null hypothesis when it is true, reflects the maximum risk of making a Type I error the researcher is willing to accept.

6. **Summary statistics**

Measures used to describe and summarize the essential information about key characteristics of a sample data set, such as the mean, median, and standard deviation.

7. **Coefficient**

A numerical parameter estimate calculated from a sample that quantifies the relationship between variables in a statistical model.

8. **Mean**

A measure of central tendency calculated as the sum of all values divided by the number of values in a sample or population distribution.

9. **Standard Deviation**

A measure of dispersion calculated as the square root of the variance, showing how spread out a distribution is from its mean.

10. **Null Hypothesis**

A statement of no statistical significance or effect that is tested and either supported or rejected based on evidence from a sample.

11. **Alternative hypothesis**

A statement of statistical significance or effect that is positioned as the alternative to the null hypothesis and adopted if the null is rejected.