

HOMEWORK - 1 (SLR - 1)

ECO 204 (Spring 2025)
Instructor: Shaikh Tanvir Hossain

Due: 20th April (Section 1) and 21st April (Section 9) in Class, Individual Submission

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Please write all the answers on paper and submit in class, and submit the excel / R script file in the classroom before coming to the class.

1. You have a data set titled `data_msales_aprice.xlsx`, it has an independent variable average price in BDT, and a dependent variable monthly sales (measured in 1000 taka), now answer following questions,
 - (a) How do you think the average price and monthly sales are related? Just give a qualitative answer without any data work?
 - (b) Calculate the covariance between average price and monthly sales. Write the formula you used to calculate the covariance. What can you say about the relationship based on the covariance?
 - (c) Calculate the correlation between average price and monthly sales. Write the formula you used to calculate the correlation. What can you say about the relationship based on the correlation?
 - (d) Why do we need correlation when we have covariance?
 - (e) Plot the scatter plot between average price and monthly sales. Do you see any linear relationship?
 - (f) Calculate the slope and intercept of the regression line between average price and monthly sales. What is the slope and intercept?
 - (g) Write the regression equation or equation of the best fitted linear line.
 - (h) How would you interpret the intercept and slope in this case?
 - (i) Calculate the in-sample predicted values (or fitted values) of monthly sales using the regression equation. What is the sum of squared error in this case?
 - (j) Calculate the predicted values of monthly sales when average price is 300 BDT and also 1000 BDT.