STK 310
Serial correlation assignment

Question 1

t	x	y
1	107	5557
2	114	5911
3	105	5440
4	149	7631
5	114	5906
6	123	6367
7	97	5064
8	45	2452
9	100	5198
10	87	4557
11	105	5474
12	65	3480
13	41	2303
14	106	5521
15	96	5039
16	96	5053
17	128	6646
18	70	3746
19	103	5392
20	91	4787

Use SAS to answer the following questions:

a) Estimate the function: $Y = \beta_1 + \beta_2 X + u$ - OLS without any transformation
b) Calculate and interpret the Durbin Watson statistic.
c) Calculate $\hat{\rho}$.
d) Estimate the function: $Y = \beta_1 + \beta_2 X + u$ - Adjusting for serial correlation **excluding** the Prais-Winsten transformation.
e) Test the residuals of the transformed model (d) for serial correlation.
f) Give the final estimated regression model.
g) Determine a 95 % confidence interval for the value of β_2.

Question 2:

- Use PROC IML to redo Question 1 (a) to (d)
- Estimate ρ by using $\hat{\rho} = \dfrac{\sum_{t=2}^{n} \hat{u}_t \hat{u}_{t-1}}{\sum_{t=1}^{n} \hat{u}_t^2}$