Problem 1:
As the sample size increases, the values of OLS and conditional multivariate normal distribution will become approximately the same.

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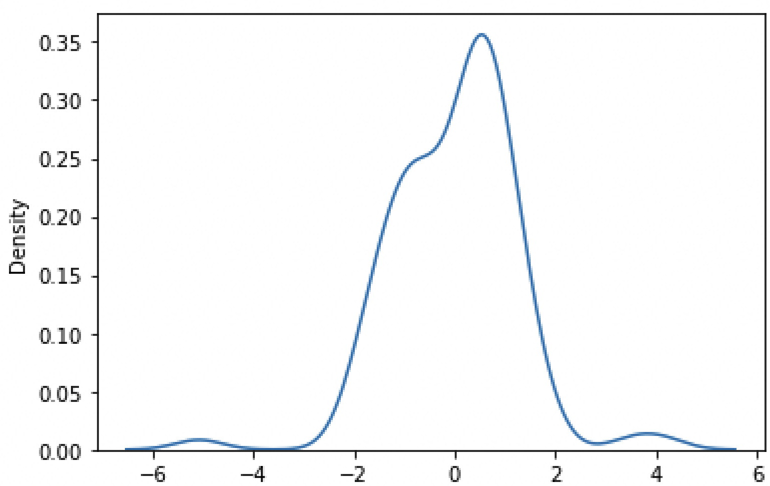
Conditional Distribution beta: 0.42800370505631674
Ordinary Least Squares beta: 0.4280037050563169
Conditional Distribution beta: -0.003130961381779616
Ordinary Least Squares beta: 0.03787686146454787
```

I ran tests on sample size 100 and the beta are approximately the same, while the interception to y-axis are slightly different to support my point.

Problem 2:
The error vectors in OLS regression appears to be approximately normal



Problem 3:
For the AR process,the ACF plot will gradually decrease and simultaneously the PACF should have a sharp drop after p significant lags. For a MA process, the ACF should show a sharp drop after a certain q number of lags while PACF should show a geometric or gradual decreasing trend. If both ACF and PACF plots demonstrate a gradual decreasing pattern, then the ARMA process should be considered for modeling.