**Practice Exercise (0 Points)**

For this assignment, use the data set data set **new\_home\_sales** available in SAS format. This data set contains two variables: Period (Year and Quarter) and Value (new single family home sales in USA in thousands of units – downloaded from the census.gov site).

1. Plot the data and comment about what do you see in the plot about time series components? Do the data make general sense given what you know about the US Housing market? (**1 point**)
2. Create a Naïve forecast and plot this forecast against the actual values. How does the plot look? Do you think the Naïve forecast is doing a good job? (**1 point**)
3. Run an ESM model (no trend and seasonality) and plot this forecast against the actual values. How well did this model perform? Are the parameters in the model significant? How does the plot look? Do you think this forecast is doing a better job than the forecasts you have seen so far? Why or why not? (**2 points**)
4. Run an ESM model (linear (Holt) trend and no seasonality) and plot this forecast against the actual values. How well did this model perform compared to the models built in earlier steps? Are the parameters in the model significant? How does the plot look? Do you think this forecast is doing a better job than the forecasts you have seen so far? Why or why not? (**2 points**)
5. Run an ESM model (linear (Holt) trend and additive seasonality) and plot this forecast against the actual values. How well did this model perform compared to the models built in earlier steps? Are the parameters in the model significant? How does the plot look? Do you think this forecast is doing a better job than the forecasts you have seen so far? Why or why not? (**2 points**)
6. Run an ESM model (linear (Holt) trend and multiplicative seasonality) and plot this forecast against the actual values. How well did this model perform compared to the models built in earlier steps? Are the parameters in the model significant? How does the plot look? Do you think this forecast is doing a better job than the forecasts you have seen so far? Why or why not? (**2 points**)

Please write your answers in a concise manner but with appropriate details. Please turn in your answer via appropriate drop box by the due date and time.