We have processes that generated some time-series data. We know that one of these processes is easy to formulate mathematically (and the data is quite clean) while the other two are noisy. Also while all the problems are time series (non-iid data), for the different problems the amount of information we get from the recent past behavior can be quite different. For all of these we need to be able to explain to our stakeholders:

1. Are there any periodic behaviors?
2. Is there any seasonal or global trend in the data?
3. What is the error in predicting, if we can use the first ¾ of the data for training and we need to predict the remaining ¼ ?
4. Can we provide confidence intervals for our predictions (and respective plots)?
5. For the third dataset, which are the most important features? Are there any bonds or bond categories we should prefer to invest on?
6. Any other insights that you consider significant to communicate?

Finally, make the model you have created accessible through an API: anything like tensorflow serving, Flask, lambda functions, etc. is ok as long as we can use the API to make predictions live (speed is not a big consideration for this task).

Notes: for the third dataset the trade price is the target variable and the curve\_based\_price is a naive baseline estimate, which we can include as a feature to our model.

Note: some of the questions are intentionally open ended and many correct answers are possible.