**Exercise:**

1. Download Amazon Fine Food Reviews dataset from Kaggle. You may have to create a Kaggle account to download data. (<https://www.kaggle.com/snap/amazon-fine-food-reviews>)
2. Split data into train and test using time based slicing as 70% train & 30% test.
3. Perform featurization, BoW, tf-idf,Avg Word2Vec, tf-idf-Word2Vec.
4. Apply GridsearchCV and RandomsearchCV on train data to find optimal lambda.
5. Implement L1 and L2 regularizer to avoid overfitting or underfitting.
6. Try L1 regularization, and keep increasing lambda, to calculate error and sparsity.
7. Perform Multicollinearity-(Pertubation test) on features and show feature importance.(Add small epsilon to perform perturbation test)
8. To test the performance of the model, calculate test error, train error, accuracy,precision,recall,F1-score,confusion matrix(TPR,TNR,FPR,FNR)
9. Write your observations in English as crisply and unambiguously as possible. Always quantify your results.