**INF8245E: Machine Learning | Assignment #1**

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1. Sampling
   1. Pseudocode
   2. Sampling
2. Model selection
   1. Fit a 20-degree polynomial to the data
      1. Training and validation RMSE
      2. Visualization
      3. Overfitting or underfitting
   2. L2 regularization
      1. Plot training RMSE and validation RMSE
      2. Find best value of lambda
      3. Visualization
      4. Overfitting or underfitting
   3. What do you think is the degree of the source polynomial? Can you infer that from the visualization produced in 2.2.3?
3. Gradient descent for regression
   1. Fit linear regression model to dataset using stochastic gradient descent
   2. Steps
   3. Visualizations
   4. Full-batch gradient descent
   5. Full-batch vs stochastic
4. Real life dataset