Hi All, in the ML course this semester, 10 marks have been kept for the coding assignments. You will be getting these assignments almost every week for practice. Although the grading will be done based on a bigger project whose details will be shared later, non-submission of these regular assignments will lead to a penalty.

So here is your first assignment based on Linear Regression (to be done individually):

- Write a Python code to implement Linear Regression for multi-dimensional input and one-dimensional output using Matrix Inverse. You can use NumPy to do matrix inverse, but you are encouraged to write your own code for this task also.

- Verify your results using the scikit-learn Linear Regression package.

- Write a code to minimise the squared error function using Gradient Descent, and compare the results with the above methods.

- Find the best fit hyperplane for the four synthetic datasets attached. Two of them will directly give good results with the usual Linear Regression algo, one of them will require a non-linear transformation of the input features, and for one of them the standard Linear Regression algo is not suitable. You need to figure out which of the 4 datasets belongs to which of these categories, with proper reasoning.