

## **Reflection on Gradient Descent and Linear Regression**

From this homework, I learned how to implement linear regression using gradient descent from scratch. Start with data loading and standardization, I gradually learned building functions to initialize required parameters, make predictions, calculate cost (mean squared error), update parameters using gradients, and run a model using iterations. I also explored how different learning rates impact model training. Moreover, I learned how to find the best model parameters. By comparing the model's initial predictions to its final learned predictions, I visually saw how the model improves and fits the data better. The error analysis, including average absolute error, mean squared error, and the number of bad predictions helped me understand the model performance more clearly.

Overall, this hands-on exercise helped me better understanding how gradient descent works and how we can approach the step by step process of implementing linear regression. Besides, I gained more confidence in understanding and applying both linear regression and gradient descent.