Homework 1: Linear Regression and Logistic Regression

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You can install all the required dependencies by running the following command in your terminal:

```
pip install -r requirements.txt
```

1. Run and carefully review the Jupyter notebook on Linear Regression.

2. Tune the hyperparameters in the gradient descent implementation to improve performance. Which hyperparameters did you modify, and why?

3. Apply a similar linear regression analysis using the following dataset. Use both the scikit-learn model and the from-scratch implementation: `https://www.kaggle.com/datasets/CooperUnion/cardataset`

4. Follow the instructions in the Logistic Regression notebook. You are required to complete the dataset description section and perform the data preprocessing. The model implementation and result exploration are already provided.

5. Find a dataset of your choice on Kaggle and carry out a similar analysis. Include SHAP value analysis to interpret the model. Write a brief paragraph summarizing your findings (e.g., model performance, feature impact according to SHAP, etc.).