Homework 1

January 21, 2026

1. Given the insurance.csv please do the following:

   (a) Extract information into a Dataframe, as pandas, to manipulate the csv data.

   (b) Generate a simple Linear Regression (Which needs to be programmed from scratch using Jax https://github.com/jax-ml/jax) to generate an estimator of insurance cost.

   (c) Explain this estimator.

2. Now using the Jax implementation, please use the data from

   ```
   from sklearn.datasets import load_breast_cancer
   data = load_breast_cancer()
   ```

   to get the data for breast cancer with labels "malign" and "benign." Then, split the data in the following percentages

   - 90% training
   - 10% testing

   Then, report the precision and accuracy benchmarks on the testing dataset.

Note: Use https://colab.research.google.com/ to get access for basic gpu's.