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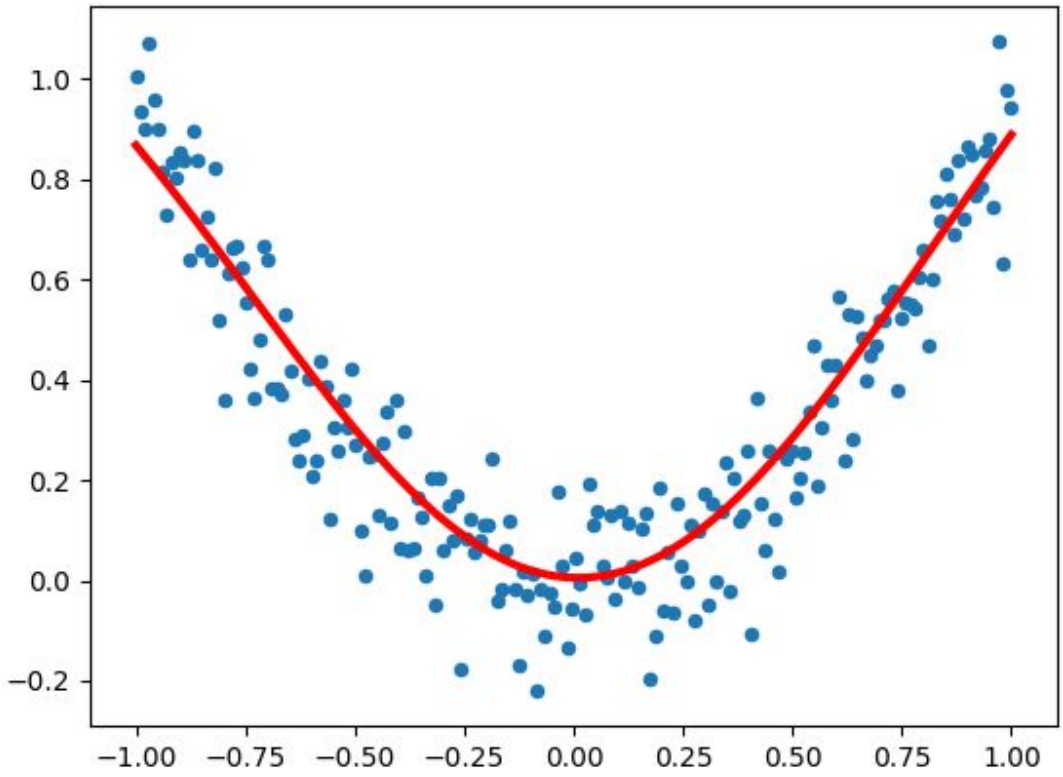
Assignment 4 Report

For this assignment, I began by implementing the compute_activation, compute_gradient and update_weights functions of the layers.py file. The output of a layer was computed using the dot product of the input data and the weight, then adding the bias. The gradients of the error with respect to the scalar weight was computed by taking the dot product of the gradient of the error w.r.t. output and the input, then taking the transpose to match the shape of other gradient errors. Other gradient errors were computed by following the provided formulas. update_weights was completed by following the provided formula. The missing functions were then implemented in neural_network.py, in the order of compute_activations, compute_gradients, and update_weights, by utilizing the provided formulas.

Toy regressor: Validation Loss 0.011963719361285072

Prime detection: Validation Loss: 0.02454812, Validation Accuracy: 97.08%



data_and_function.py