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CS3120

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Homework 1 Report

Here is the graph I get when I run my program:

A screenshot of a computer

Description automatically generated with medium confidence

As provided in the example, I initialized w and b as 0, and the iteration as 10000. The way the gradient descent process is terminated in my program is that the counter checks for the number of the current iteration of b and w and compares it to the target gradient (which is 0.0001). If the current iteration of both is less than the target, then the loop terminates.

The way the learning rate and the iteration number affect the program is the following:

* Learning rate is how large the change of w and b is during each iteration.
* The iteration number is how many times we would like to update and print w and b in the program.

Ideally, the more iterations and the smaller the learning rate, but more accurate the plot.