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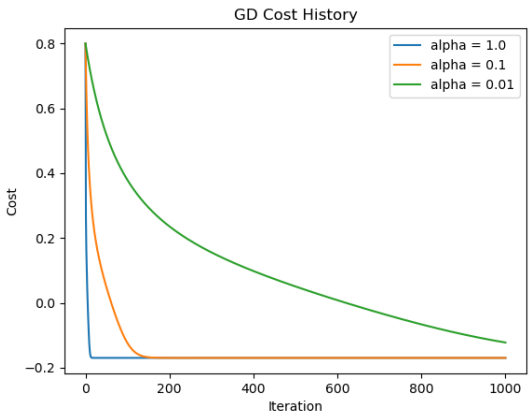
CS589 HW2 Report

Task 1:

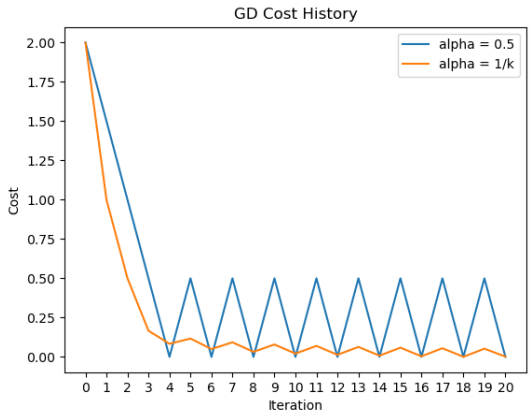


g(2) = 0.8

g'(2) = 0.92

For the initial point w_0=2, a step-length of 1 achieves the best result. It converges very fast (~20 iterations). The smaller step-lengths are much slower to converge. This is because the area around the global minimum of this function already has a flat enough gradient that step-length is only a hindrance to progress.

Task 2:



The diminishing step-length provides stability to gradient descent here.