

Machine Learning Assignment 1 Report

111062117, Hsiang-Sheng Huang

September 22, 2024

1 Regression Equation

$$y = \Phi(X)\mathbf{w}$$

where $\Phi_j(x) = x^j$ is a polynomial function.

2 Variables and Regression Equation in Advance Part

I used all given variables and processed outliers with IQR truncation. The equation is same as the basic part, excluding the degree. I used a higher degree to try to catch more features and get a better w .

3 Difficulty Encountered

At the beginning, the cost got larger after iterations, sometimes it became NaN and got overflow exception.

4 Solutions and Reflections

I adjusted a lot of parameters. After a long time, I found that the learning rate is too large to handle the gradient decent. Then I picked a smaller learning rate, it worked. After the lab, I reflected that the learning rate could not be too large at first. We should pick a small value first. If it worked, we adjusted it larger.