M4L2 Exercises

April 8, 2023

Exercise A

What is Gradient Descent? Briefly explain its concept.

Exercise B

For the cost function

$$J = \frac{1}{m} \sum_{i=1}^{m} (y_i - \theta_0 - \theta_i x_i)^2$$

derive the partial derivatives w.r.t to θ_0 and θ_1.

Exercise C

Retrieve the gas consumption dataset with tax, income, highway, drivers and gas as features columns. Fit a linear regression and plot the cost function

$$J = \frac{1}{m} \sum_{i=1}^{m} (y_i - \theta_0 - \theta_i x_i)^2$$

This is a univariate problem where your X is the percentage of population driving and y is the gas consumption in million gallons.

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