Problem Set 1 – Supervised Learning

DS542 – DL4DS

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Note: Refer to the equations in the *Understanding Deep Learning* textbook to solve the following problems.

Problem 2.1

To walk "downhill" on the loss function (equation 2.5), we measure its gradient with respect to the parameters ϕ_0 and ϕ_1. Calculate expressions for the slopes $\frac{\partial L}{\partial \phi_0}$ and $\frac{\partial L}{\partial \phi_1}$.

Problem 2.2

Show that we can find the minimum of the loss function in closed-form by setting the expression for the derivatives from Problem 2.1 to zero and solving for ϕ_0 and ϕ_1.