CSC411 Project 1

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Part 1

Part 6

Subsection A

We have

$$J(\theta) = \sum_i (\sum_j (\theta^T x^{(i)} - y^{(i)})_j^2) \tag{1}$$

We can use the chain rule compute the partial derivative with respect to θ_{pq} (ie. to each individual theta element in the vector) as

$$\frac{\partial J}{\partial \theta_{pq}} = 2 \sum_i (\sum_j ((\theta^T x^{(i)} - y^{(i)}) * \frac{\partial \theta^T x^{(i)}}{\partial \theta_{pq}}))_j \tag{2}$$