CPSC 340 Tutorial

Week 1

September 13, 2021

Notation and Gradients

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- Sanity check: If $x \in \mathbb{R}^n$ and $f : \mathbb{R}^n \to \mathbb{R}$, $\nabla f(x) \in \mathbb{R}^n$

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- This can be extended to the gradient case by computing each element of the gradient as above. If $x \in \mathbb{R}^n$:

$$(\nabla f(x))_i \approx \frac{f(x_1, \ldots, x_i + \epsilon, \ldots, x_n) - f(x)}{\epsilon}$$

Python and Numpy Basics (Demo)