[ML20] Assignment 1

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Due: Jan 31 (before class)

[1] Please expand this polynomial $(x - 1)^2 = x^2 - 2x + 1$.

[2] Please simplify the following fraction.

$$
\begin{aligned}
f(x_1, x_2) &= \frac{x_1^2 - 2x_1x_2 + x_2^2}{x_1^2 - x_2^2} \\
&= \frac{x_1 - x_2}{x_1 + x_2}
\end{aligned}
\tag{1}
$$

[3] Please compare the following two probabilities using $\leq$ or $\geq$.

$$
\Pr\{z \in \{0, 1\}\} \quad \geq \quad \Pr\{z \in \{0, 1, 2\}\}
\tag{2}
$$

[4] Please refer the the formula of task [3] as formula (2).

[5] Please show a screenshot of your installed Python in Figure 1.

Fig. 1. Screenshot of Python

[6] Please fill the following table with random numbers.

Table 1. Example Table

Hyper-Parameter λ	1e0	1e1	1e2
Training Error	1	2	3
Testing Error	4	5	6