M2 ~~L~~ Lab 4

t-SNE → unsupervised non-linear technique

How does t-SNE work?

- calculates a similarity measure between pairs of instances in high-d & in low-d space.
- It then tries to optimize these two similarity measures using a cost function.

- Student tail → wider variance.

① Assume point scattered in space
② Pick a random
③ centre a normal distribution
④ Grad descent
⑤ find prob for other points close to chosen point
find corresponding y-axis values
⑥ Make sure they all add to 1 (∵ unscaled)
Normalization.
⑦ matrix : each row represents similarity
⑧ Take t-distr^n with 1 deg of freedom. (in y-axis)

Goal: Optimize the dist b/w them.
KL cost function : calc loss b/w the two matrices

Sk-learn

1. n components
2. perplexity
3. n_iter
4. method → Barne's hut O(nlogn)

use images of size 8x8

does not calcale exact calculation & grad descent ~~appo~~ approximation of nearest neighbours