**Ex 4: So sánh t-SNE và PCA**

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|  | **PCA** | **t-SNE** |
|  | It is a linear Dimensionality reduction technique | It is a non-linear Dimensionality reduction technique |
|  | It tries to preserve the global structure of the data | It tries to preserve the local structure of data |
|  | It does not work well as compared to t-SNE | It is one of the best dimensionality reduction technique |
|  | It does not involve Hyperparameters | It involves Hyperparameters such as perplexity, learning rate and number of steps |
|  | It gets highly affected by outliers | It can handle outliers |
|  | PCA is a deterministic algorithm | t-SNE is a non-deterministic algorithm |
|  | It works by rotating the vectors for preserving variance | It works by minimising the distance between the point in a gaussian |
|  | We can find decide on how much variance to preserve using eigen values | We cannot preserve variance instead we can preserve distance using hyperparameters |