REPORT

Assignment #2_Unsupervised Learning

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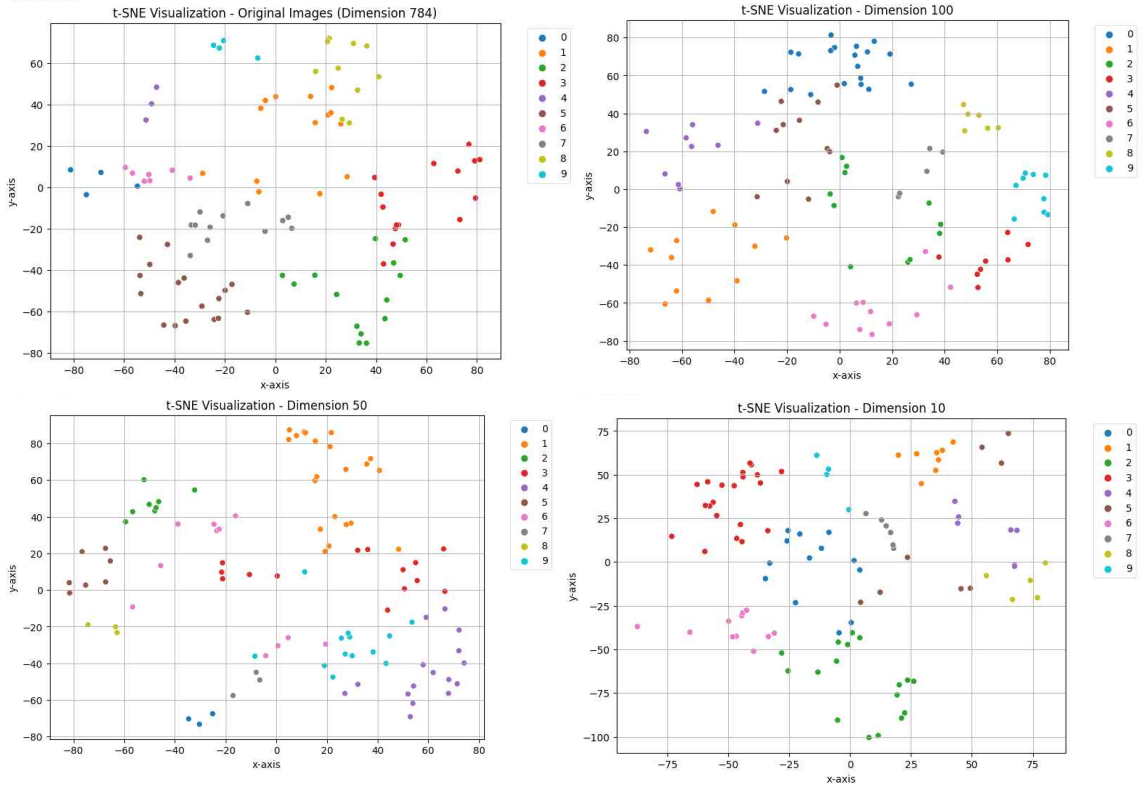
I used Google Colab for machine learning training. The environment of the computer is as follows.
The CPU type of this machine is Intel(R) Core(TM) i7-8700.
It has 6 cores, 12 logical processors, and clock speed is 3.19GHz.
The memory size is 16GB. The speed of the memory is 2666MHz.
The OS type is 64-bit operating system, x64 based processor.
This Colab's Jupiter notebook's Ram is max 30GB and draft session's disk size is max 73.1GB.

First, this is K-means report.

- Show visualization results after k-means with four dimensions (784, 100, 50, 10).



- Compute the clustering results using ARI (Adjusted Rand Index) for the four different dimensions (784, 100, 50, 10). Show results on test set (not train set) in a table.

ARI result

	Dimension	ARI
0	784	0.343258
1	100	0.342292
2	50	0.342603
3	10	0.340881

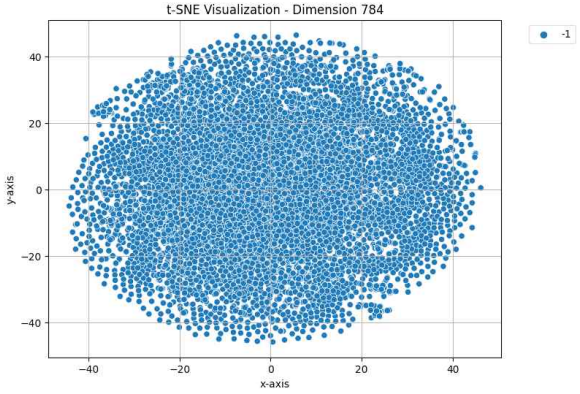
Second, this is DBSCAN report.

- Perform DBSCAN for four different dimensions (784, 100, 50, 10) and show clustering results on test set in a table and visualization results

Clustering Result - Dimension 784

Cluster	Label	
-1	0	1000
	1	1000
	2	1000
	3	1000
	4	1000
	5	1000
	6	1000
	7	1000
	8	1000
	9	1000

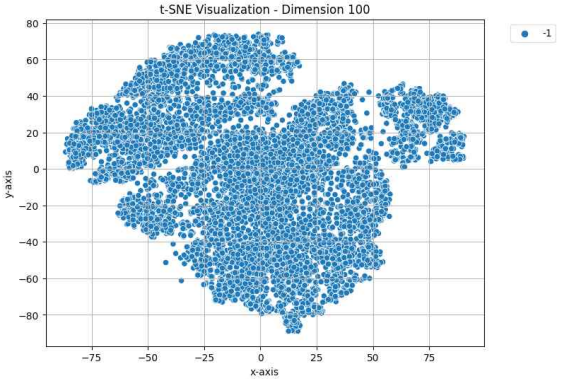
dtype: int64



Clustering Result - Dimension 100

Cluster	Label	
-1	0	1000
	1	1000
	2	1000
	3	1000
	4	1000
	5	1000
	6	1000
	7	1000
	8	1000
	9	1000

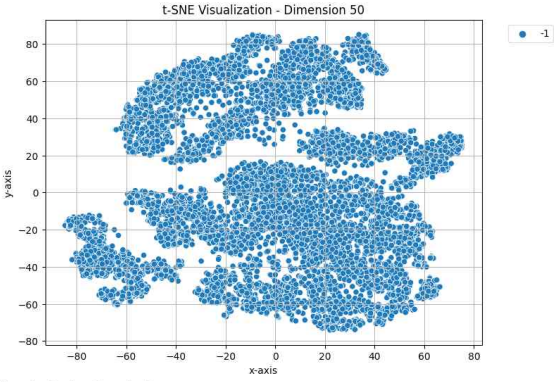
dtype: int64



Clustering Result - Dimension 50

Cluster	Label	
-1	0	1000
	1	1000
	2	1000
	3	1000
	4	1000
	5	1000
	6	1000
	7	1000
	8	1000
	9	1000

dtype: int64



Clustering Result - Dimension 10

Cluster	Label	
-1	0	901
	1	361
	2	966
	3	924
	4	991
	...	
48	3	5
49	0	4
50	6	5
51	0	2
	6	2

Length: 87, dtype: int64