

OUTPUT:

1. Classification Accuracy

K-Nearest Neighbors (KNN) Accuracy

- K = 3, Accuracy = 0.8765
- K = 5, Accuracy = 0.8802
- K = 7, Accuracy = 0.8781

Support Vector Machine (SVM) Accuracy

- Kernel = linear, C = 1, Accuracy = 0.8350
- Kernel = linear, C = 10, Accuracy = 0.8392
- Kernel = rbf, C = 1, Accuracy = 0.8953
- Kernel = rbf, C = 10, Accuracy = 0.9005

2. t-SNE Visualization

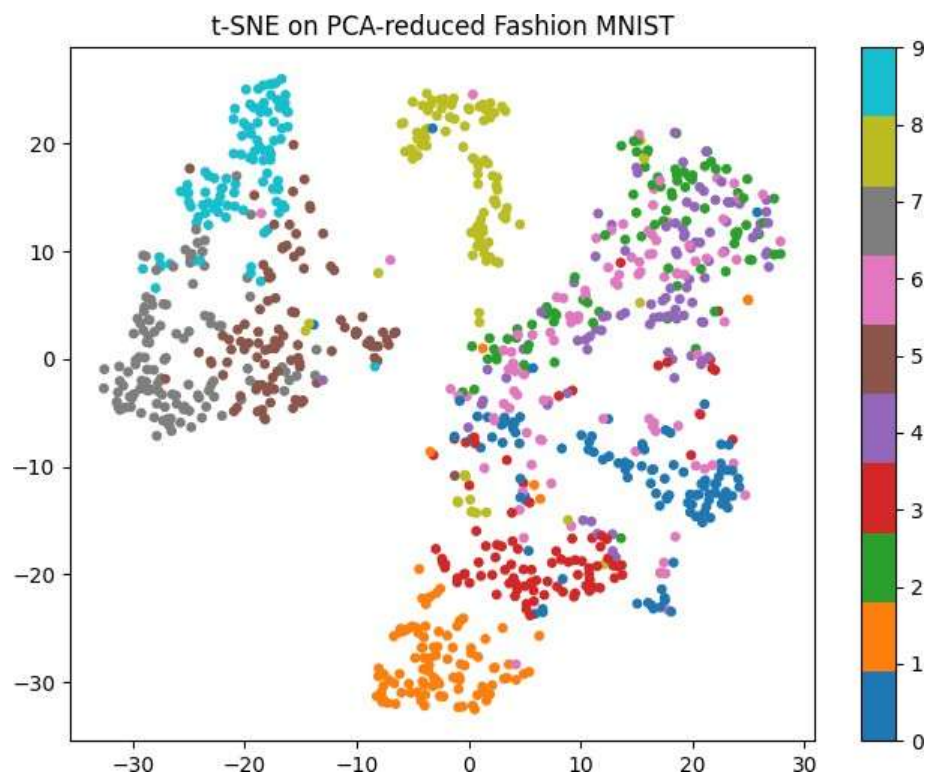


Figure 1: t-SNE visualization of PCA-reduced Fashion MNIST data (1000 samples). Different colors represent different classes.

3. Classification Reports

KNN Classification Report (K=5)

	precision	recall	f1-score	support
0	0.73	0.83	0.78	200
1	0.99	0.94	0.97	203
2	0.72	0.78	0.75	214
3	0.85	0.85	0.85	190
4	0.77	0.69	0.73	219
5	0.98	0.78	0.87	195
6	0.57	0.56	0.57	197
7	0.85	0.93	0.89	200
8	0.97	0.92	0.94	194
9	0.86	0.96	0.91	188
accuracy			0.82	2000
macro avg	0.83	0.82	0.82	2000
weighted avg	0.83	0.82	0.82	2000

SVM Classification Report (RBF Kernel, C=10)

	precision	recall	f1-score	support
0	0.87	0.81	0.84	200
1	0.97	0.96	0.96	203
2	0.76	0.83	0.79	214
3	0.85	0.86	0.86	190
4	0.81	0.78	0.79	219
5	0.95	0.95	0.95	195
6	0.68	0.71	0.69	197
7	0.92	0.96	0.94	200
8	0.98	0.95	0.97	194
9	0.98	0.94	0.96	188
accuracy			0.87	2000
macro avg	0.88	0.88	0.88	2000
weighted avg	0.88	0.87	0.87	2000

4. Confusion Matrices Visualization

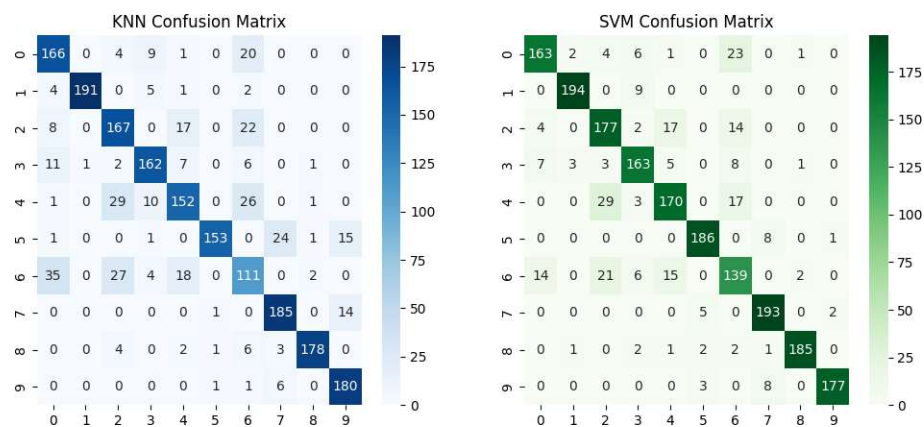


Figure 2: Combined Confusion Matrices for KNN and SVM