

## RESULT OF TESTING

### 1. Testing on MNIST dataset

The precision and recall for each class are computed as follows:

- Method 1: GEN
- Method 2: FRQ
- Method 3: AVE

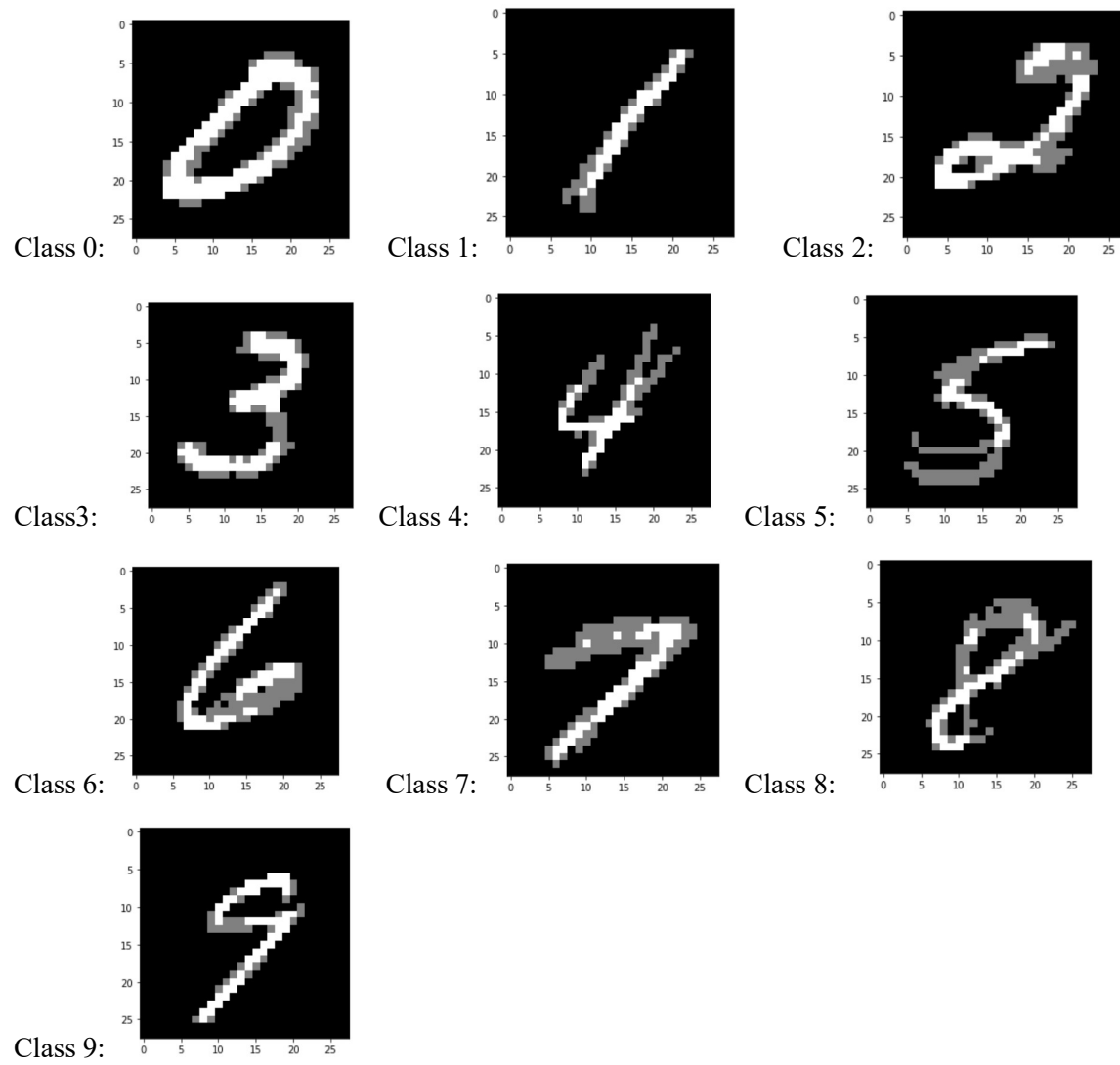
	Predicted as Positive	Predicted as Negative
Actual: Positive	True Positive (TP)	False Negative (FN)
Actual: Negative	False Positive (FP)	True Negative (TN)

$$\text{Precision} = \frac{TP}{TP + FP}, \text{ Recall} = \frac{TP}{TP + FN}, \text{ Accuracy} = \frac{TP + TN}{TP + TN + FP + FN},$$

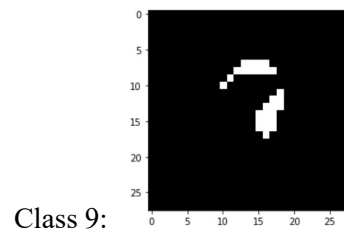
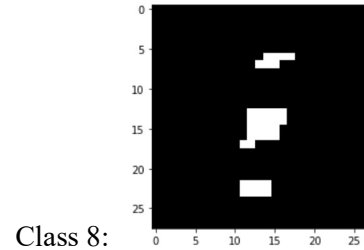
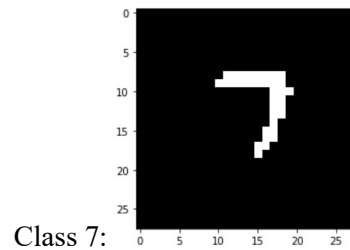
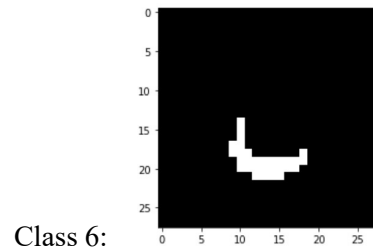
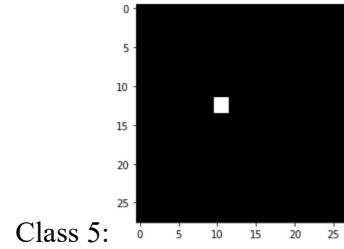
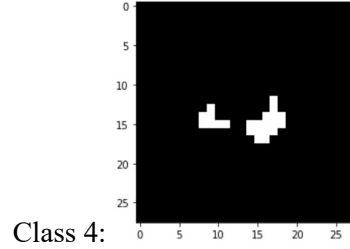
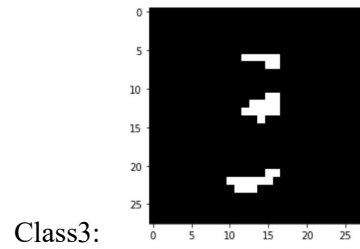
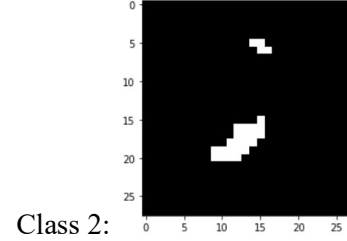
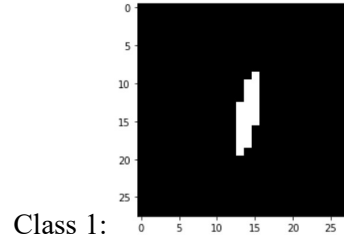
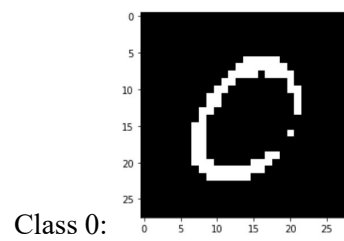
Class	Method 1			Method 2			Method 3		
	Precision	Recall	Accuracy	Precision	Recall	Accuracy	Precision	Recall	Accuracy
0	0.42	0.91	0.94	0.75	0.65	0.94	0.82	0.94	0.98
1	0.93	0.49	0.88	0.92	0.80	0.96	0.99	0.35	0.79
2	0.19	0.86	0.91	0.39	0.65	0.92	0.42	0.97	0.94
3	0.61	0.50	0.9	0.70	0.61	0.92	0.62	0.72	0.94
4	0.80	0.34	0.83	0.79	0.71	0.95	0.67	0.83	0.96
5	0.51	0.38	0.88	0.24	0.34	0.89	0.33	0.87	0.94
6	0.44	0.60	0.92	0.72	0.67	0.94	0.79	0.86	0.97
7	0.17	0.61	0.90	0.70	0.62	0.92	0.77	0.86	0.96
8	0.22	0.66	0.91	0.59	0.59	0.92	0.44	0.86	0.94
9	0.33	0.32	0.86	0.52	0.58	0.91	0.78	0.69	0.94
<b>Average</b>	<b>0.46</b>	<b>0.57</b>	<b>0.89</b>	<b>0.63</b>	<b>0.62</b>	<b>0.93</b>	<b>0.66</b>	<b>0.80</b>	<b>0.94</b>

# Feature Images:

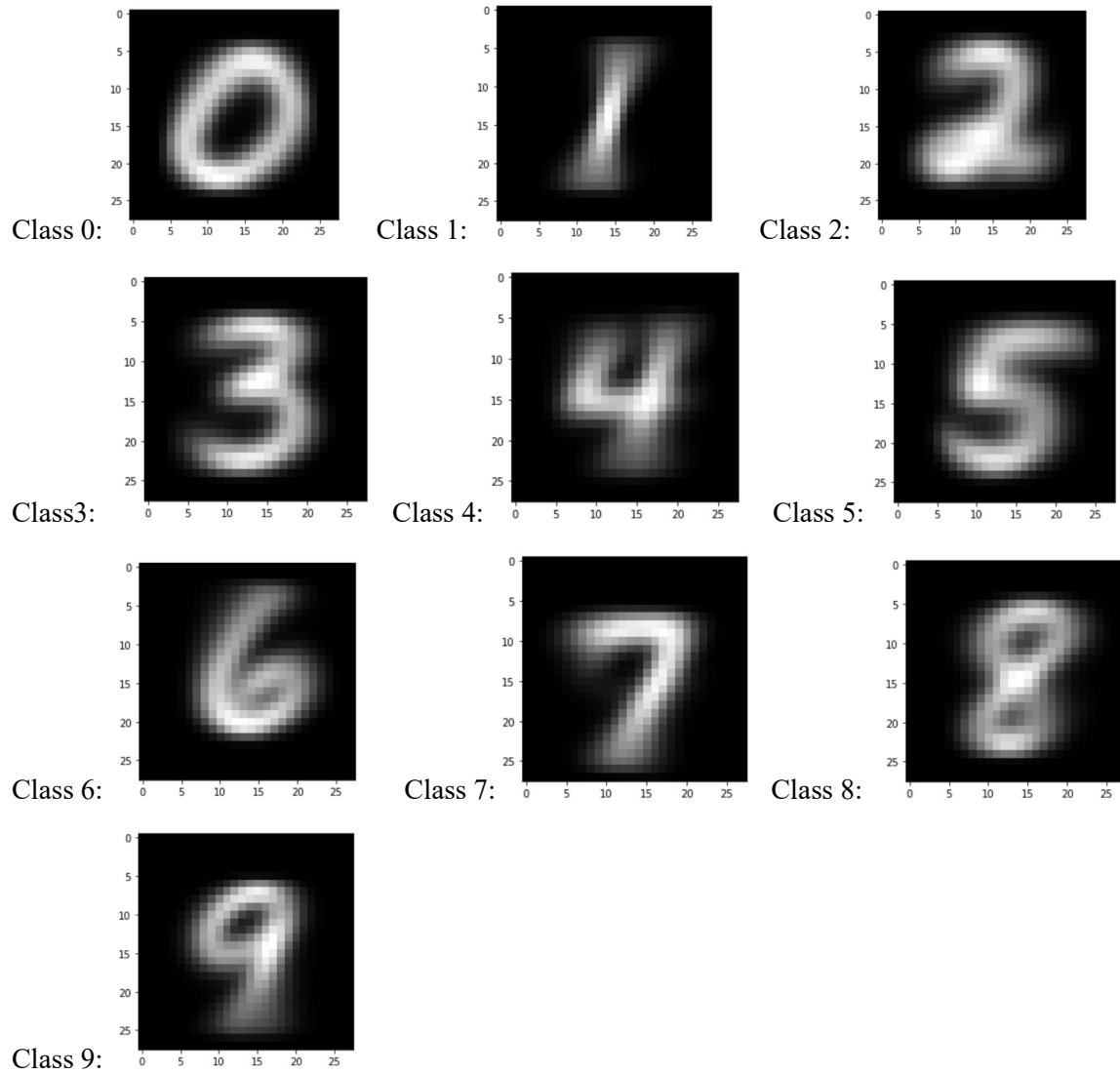
## *Method 1:*



***Method 2:***



### ***Method 3:***



## **2. Testing on fashion-mnist dataset**

The precision and recall for each class are computed as follows:

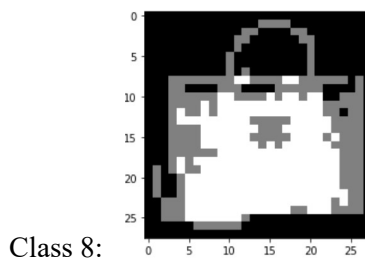
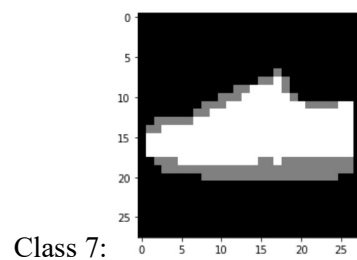
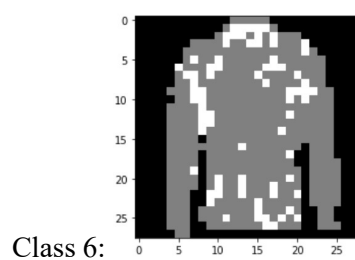
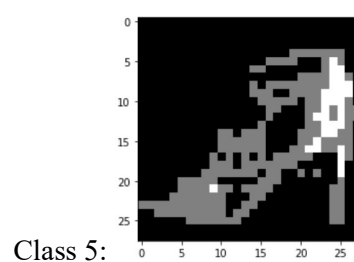
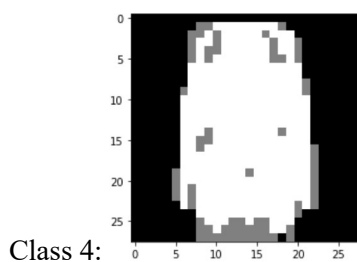
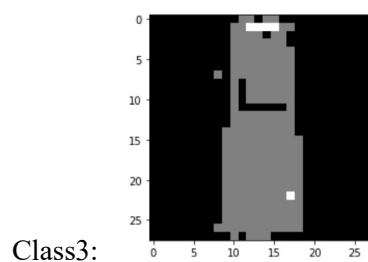
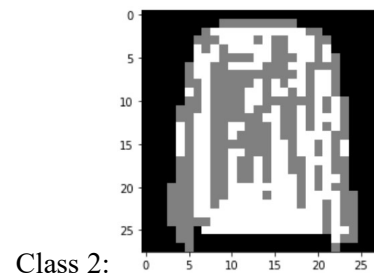
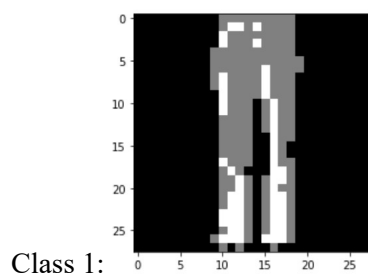
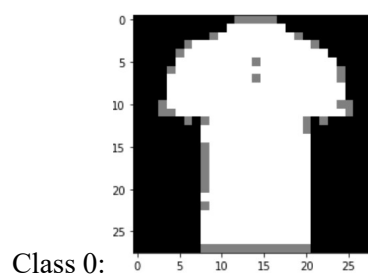
- Method 1: GEN
- Method 2: FRQ
- Method 3: AVE

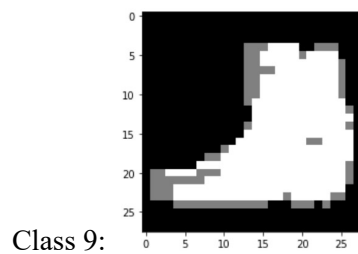
$$\text{Precision} = \frac{TP}{TP + FP}, \text{ Recall} = \frac{TP}{TP + FN}, \text{ Accuracy} = \frac{TP + TN}{TP + TN + FP + FN},$$

Class	Method 1			Method 2			Method 3		
	Precision	Recall	Accuracy	Precision	Recall	Accuracy	Precision	Recall	Accuracy
0	0.61	0.48	0.90	0.16	0.23	0.86	0.62	0.76	0.94
1	0.87	0.72	0.95	0.83	0.97	0.98	0.94	0.76	0.96
2	0.21	0.47	0.90	0.44	0.40	0.88	0.25	0.64	0.91
3	0.25	0.22	0.84	0.48	0.82	0.94	0.69	0.55	0.91
4	0.68	0.37	0.85	0.63	0.27	0.80	0.66	0.43	0.88
5	0.43	0.73	0.93	0.56	0.32	0.84	0.53	0.42	0.88
6	0.14	0.35	0.89	0.01	0.06	0.89	0.17	0.37	0.89
7	0.89	0.54	0.91	0.37	0.74	0.92	0.89	0.57	0.92
8	0.47	0.96	0.95	0.046	0.155	0.88	0.56	0.96	0.95
9	0.8	0.8	0.96	0.93	0.52	0.91	0.79	0.85	0.97
Average	<b>0.54</b>	<b>0.56</b>	<b>0.91</b>	<b>0.45</b>	<b>0.45</b>	<b>0.89</b>	<b>0.61</b>	<b>0.63</b>	<b>0.92</b>

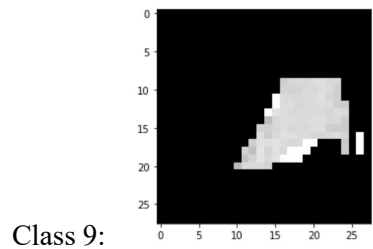
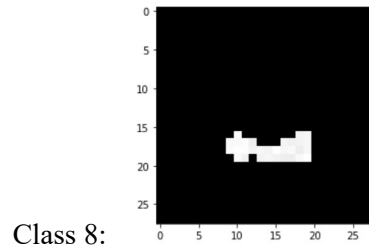
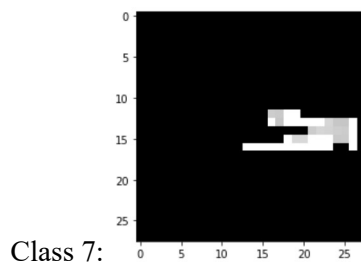
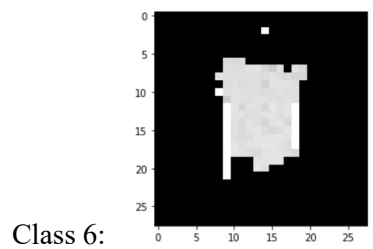
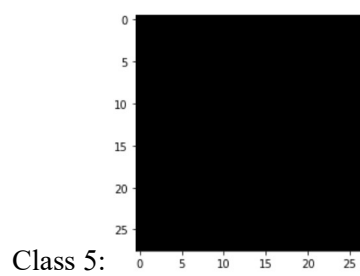
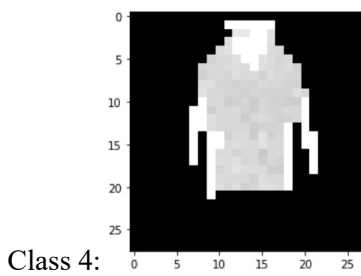
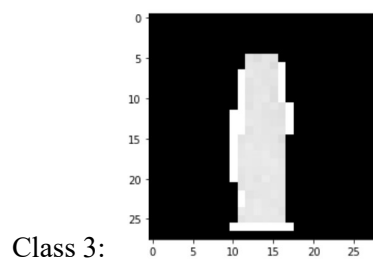
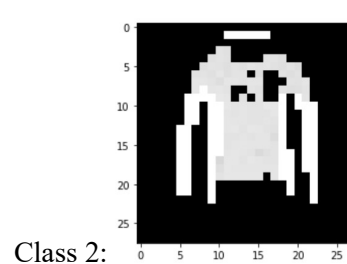
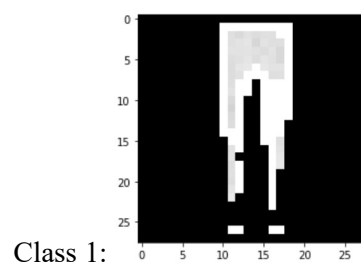
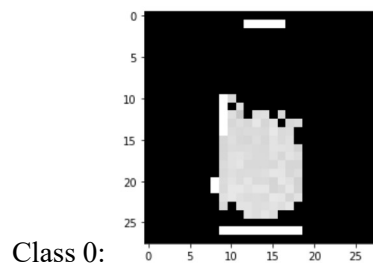
## Feature Images:

### *Method 1:*





***Method 2:***



***Method 3:***

