MCC Hw-2

MFCC without noise :

	precision	recall	f1-score	support
0	0.73	0.67	0.69	260
1	0.50	0.45	0.48	230
2	0.44	0.27	0.34	236
3	0.52	0.62	0.56	248
4	0.59	0.71	0.64	280
5	0.55	0.60	0.57	242
6	0.59	0.77	0.67	262
7	0.73	0.58	0.64	263
8	0.48	0.56	0.52	243
9	0.61	0.45	0.52	230
accuracy			0.57	2494
macro avg	0.57	0.57	0.56	2494
weighted avg	0.58	0.57	0.57	2494

MFCC with noise :

	precision	recall	f1-score	support
0	0.64	0.57	0.60	260
1	0.39	0.35	0.37	230
2	0.44	0.27	0.33	236
3	0.48	0.50	0.49	248
4	0.55	0.62	0.58	280
5	0.53	0.61	0.57	242
6	0.61	0.72	0.66	262
7	0.65	0.56	0.60	263
8	0.42	0.53	0.46	243
9	0.55	0.50	0.52	230
accuracy			0.53	2494
macro avg	0.52	0.52	0.52	2494
weighted avg	0.53	0.53	0.52	2494

Spectrogram without noise:

	precision	recall	f1-score	support
0	0.71	0.67	0.69	260
1	0.50	0.49	0.49	230
2	0.49	0.35	0.41	236
3	0.54	0.63	0.58	248
4	0.58	0.74	0.65	280
5	0.60	0.59	0.60	242
6	0.65	0.73	0.69	262
7	0.71	0.59	0.64	263
8	0.51	0.60	0.55	243
9	0.61	0.47	0.53	230
accuracy			0.59	2494
macro avg	0.59	0.59	0.58	2494
weighted avg	0.59	0.59	0.59	2494

Spectrogram with noise :

	precision	recall	f1-score	support
0	0.62	0.58	0.60	260
1	0.41	0.46	0.43	230
2	0.42	0.31	0.35	236
3	0.52	0.56	0.54	248
4	0.61	0.71	0.66	280
5	0.63	0.63	0.63	242
6	0.61	0.71	0.65	262
7	0.63	0.56	0.59	263
8	0.50	0.55	0.53	243
9	0.59	0.46	0.52	230
accuracy			0.56	2494
macro avg	0.55	0.55	0.55	2494
weighted avg	0.56	0.56	0.55	2494

Inferences: We can observe that the accuracy drops when noise is added to the input. Noise coefficient was taken as 0.1. The performance of both the methods is almost the same without

noise ~ 60% and with noise Mfcc's accuracy drops to 53% while Spectrogram's accuracy drops to 56%. Overall class-7 is the best-predicted class with the highest F1 and precision scores.