

## Figures:

```

Cumulative variance explained
[0.28173931 0.45682201 0.59778051 0.7080743
 8 0.79528275 0.85524714
 0.90831906 0.94676967 0.97810077 0.9945856
 1 1.          ]

```

Figure 1. Cumulative variance explained by principle components

	precision	recall	f1-score	support
3	1.000	0.500	0.667	2
4	0.000	0.000	0.000	21
5	0.642	0.787	0.707	207
6	0.602	0.513	0.554	195
7	0.413	0.365	0.388	52
8	0.000	0.000	0.000	3
accuracy			0.590	480
macro avg	0.443	0.361	0.386	480
weighted avg	0.570	0.590	0.575	480

Figure 2. report of QDA classification on original quality scores

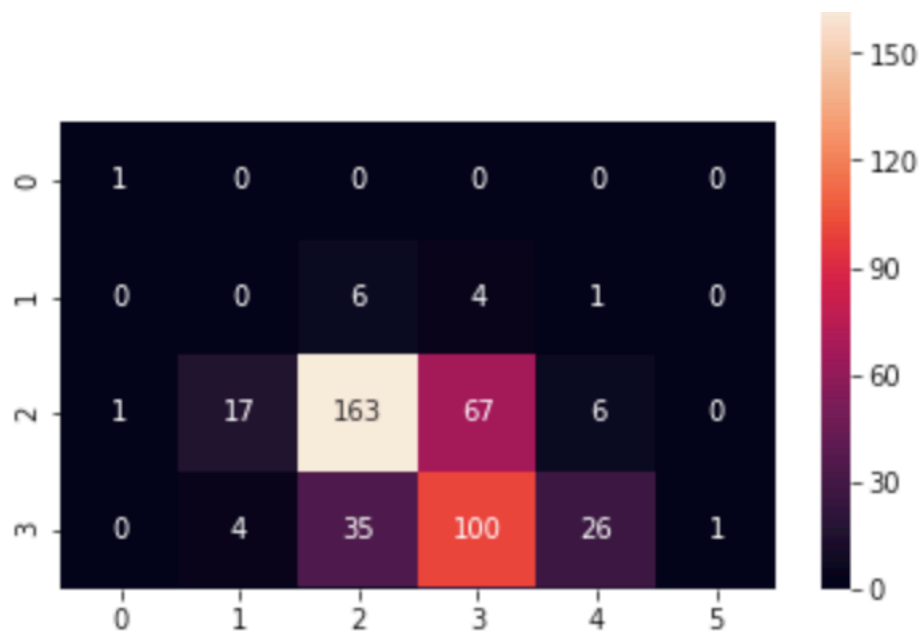
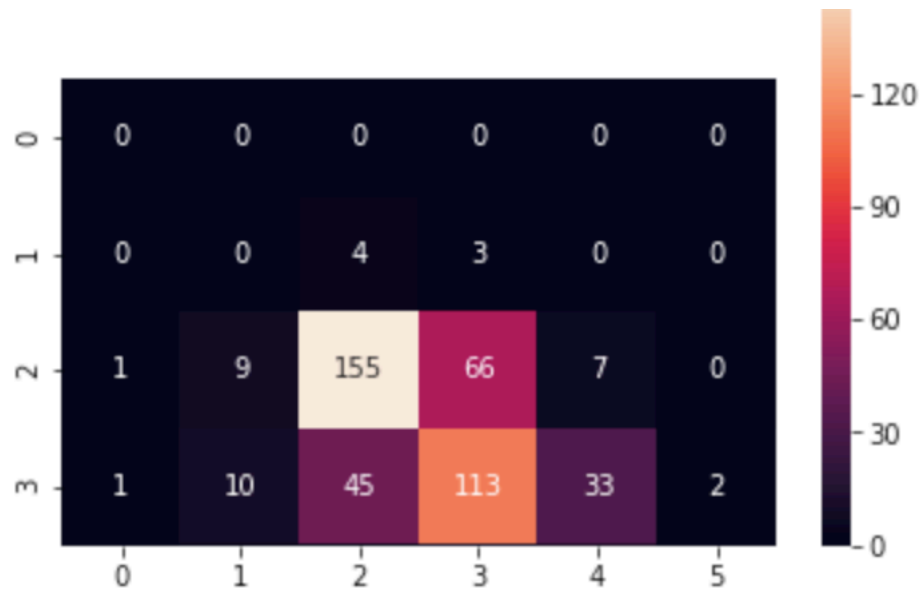


Figure 3. Confusion matrix of QDA classification on original quality scores

	precision	recall	f1-score	support
3	0.000	0.000	0.000	2
4	0.000	0.000	0.000	21
5	0.628	0.749	0.683	207
6	0.523	0.523	0.523	195
7	0.429	0.288	0.345	52
8	0.000	0.000	0.000	3
accuracy			0.567	480
macro avg	0.263	0.260	0.258	480
weighted avg	0.530	0.567	0.544	480

**Figure 4. report of LDA classification on original quality scores**



**Figure 5. Confusion matrix of LDA classification on original quality scores**



**Figure 6. Pair plots after re-coding the quality variable**