0.1 Plots of single attributes

0.1.1 volatile acidity

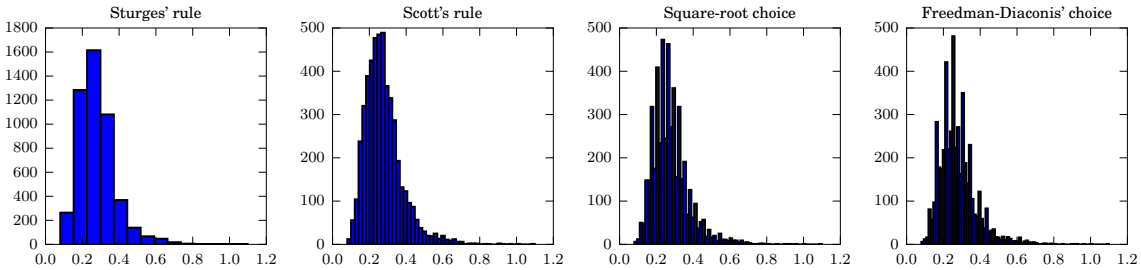

Figure 1: Histograms of attribute *volatile acidity* using different binning methods

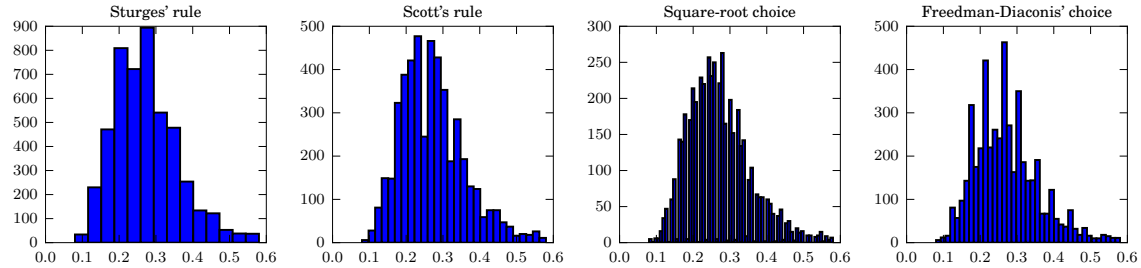

Figure 2: Histograms of attribute *volatile acidity* with outliers further than 3 standard deviations from the mean filtered

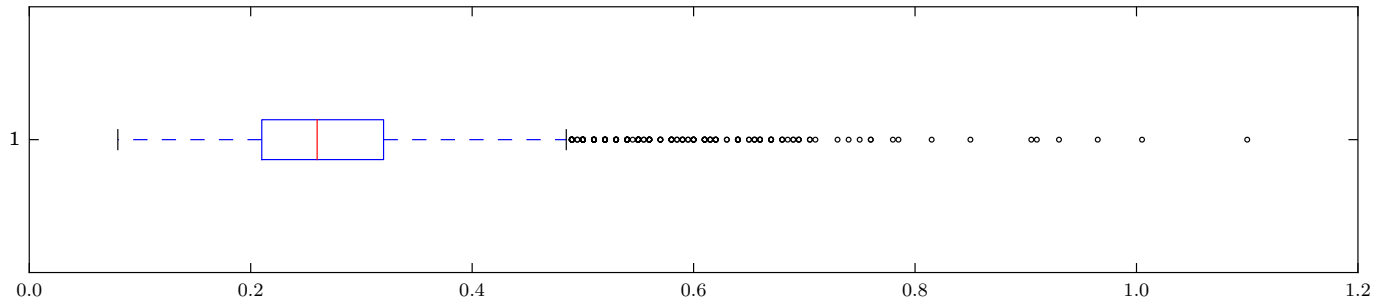

Figure 3: Boxplot of attribute *volatile acidity*

0.1.2 fixed acidity

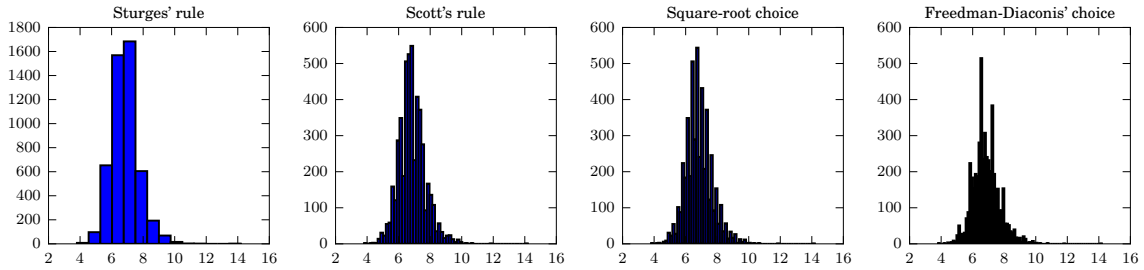

Figure 4: Histograms of attribute *fixed acidity* using different binning methods

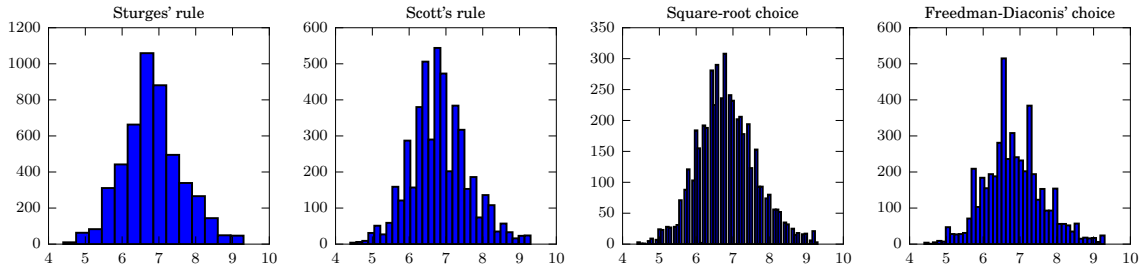

Figure 5: Histograms of attribute *fixed acidity* with outliers further than 3 standard deviations from the mean filtered

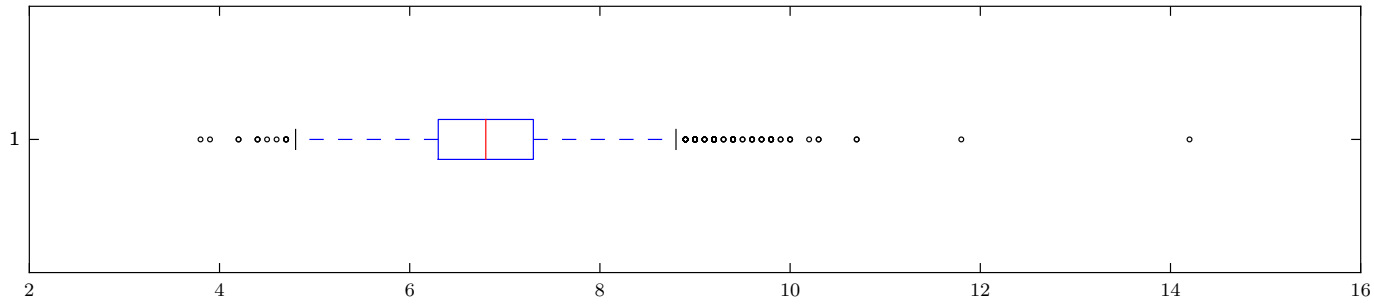

Figure 6: Boxplot of attribute *fixed acidity*

0.1.3 citric acid

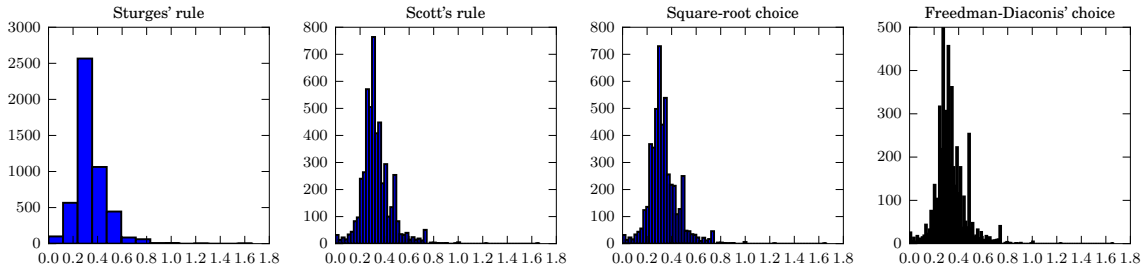

Figure 7: Histograms of attribute *citric acid* using different binning methods

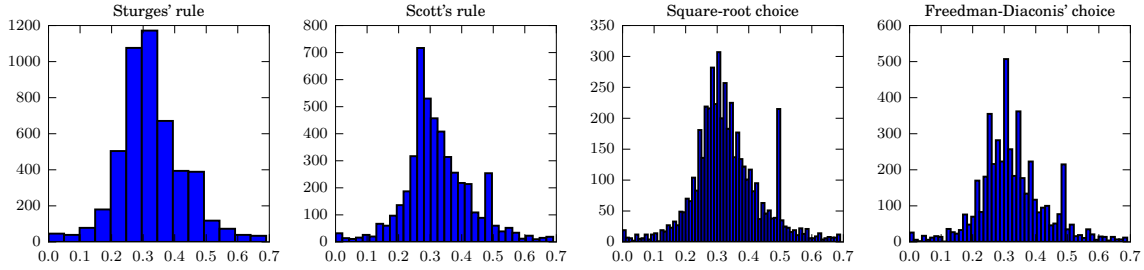

Figure 8: Histograms of attribute *citric acid* with outliers further than 3 standard deviations from the mean filtered

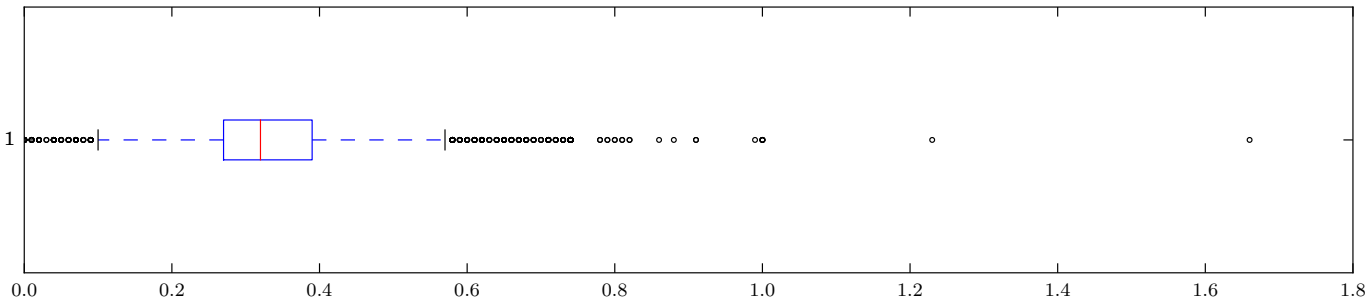

Figure 9: Boxplot of attribute *citric acid*

0.1.4 chlorides

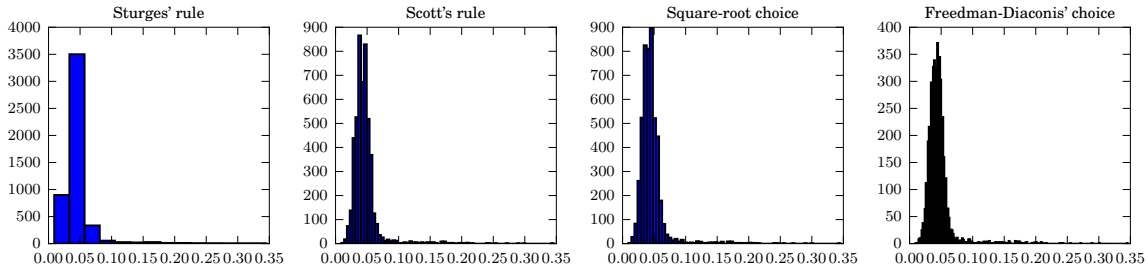

Figure 10: Histograms of attribute *chlorides* using different binning methods

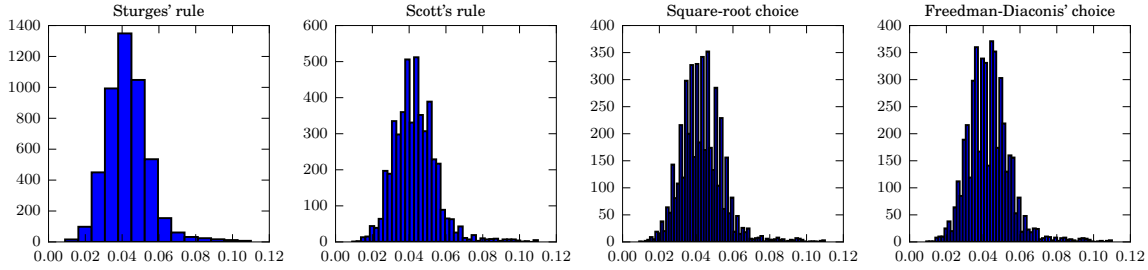

Figure 11: Histograms of attribute *chlorides* with outliers further than 3 standard deviations from the mean filtered

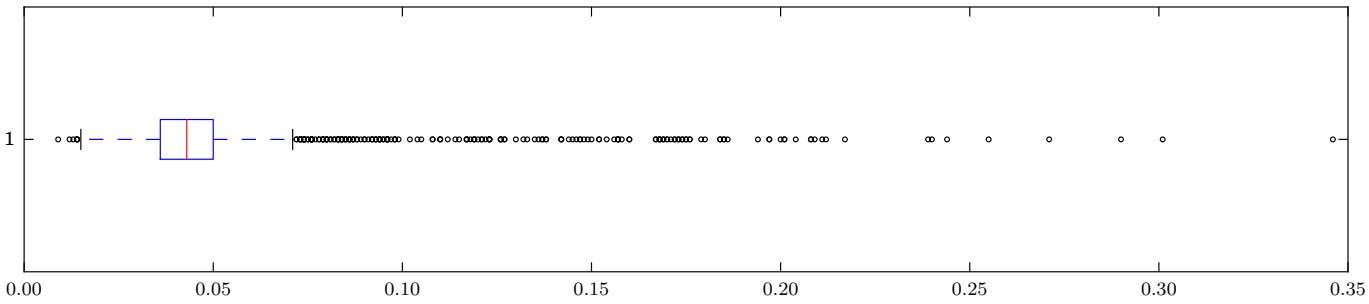

Figure 12: Boxplot of attribute *chlorides*

0.1.5 pH

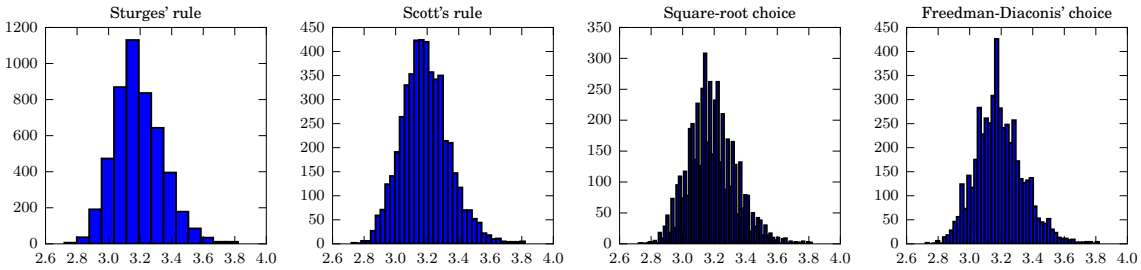

Figure 13: Histograms of attribute pH using different binning methods

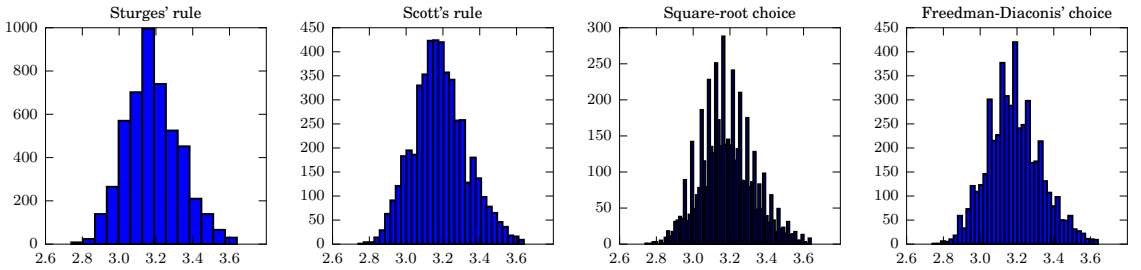

Figure 14: Histograms of attribute pH with outliers further than 3 standard deviations from the mean filtered

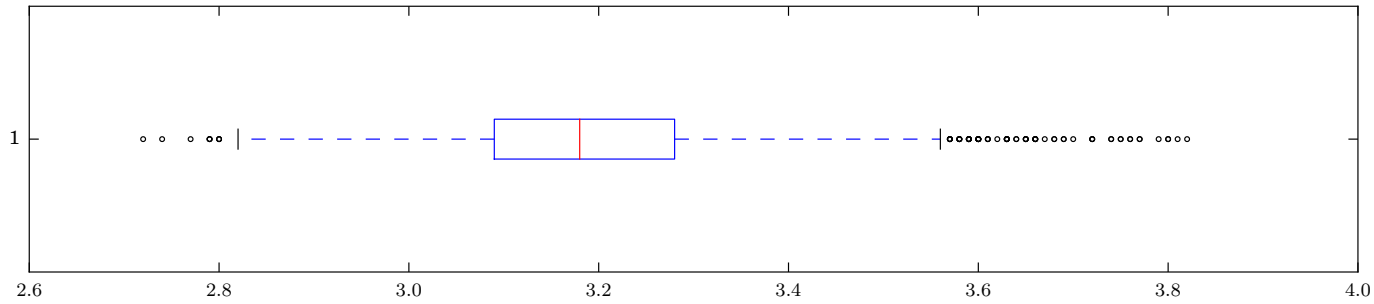

Figure 15: Boxplot of attribute pH

0.1.6 residual sugar

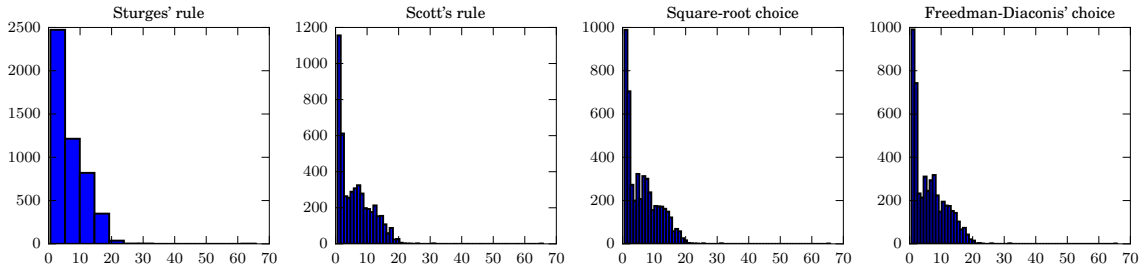

Figure 16: Histograms of attribute *residual sugar* using different binning methods

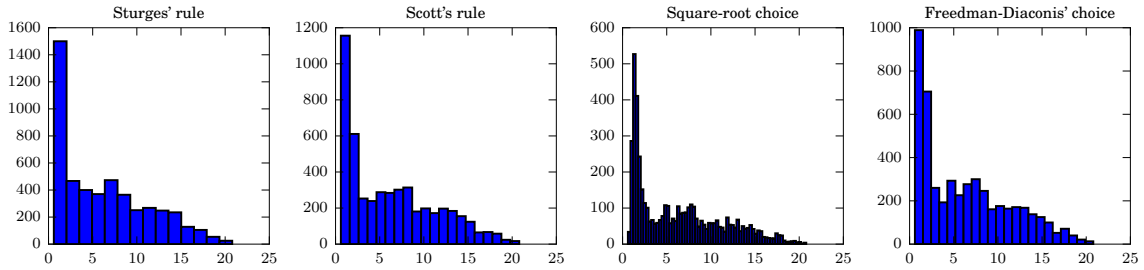

Figure 17: Histograms of attribute *residual sugar* with outliers further than 3 standard deviations from the mean filtered

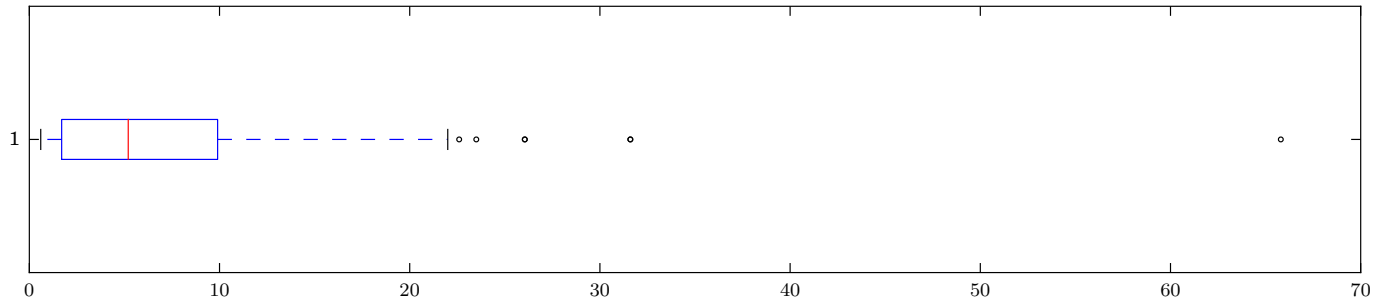

Figure 18: Boxplot of attribute *residual sugar*

0.1.7 quality

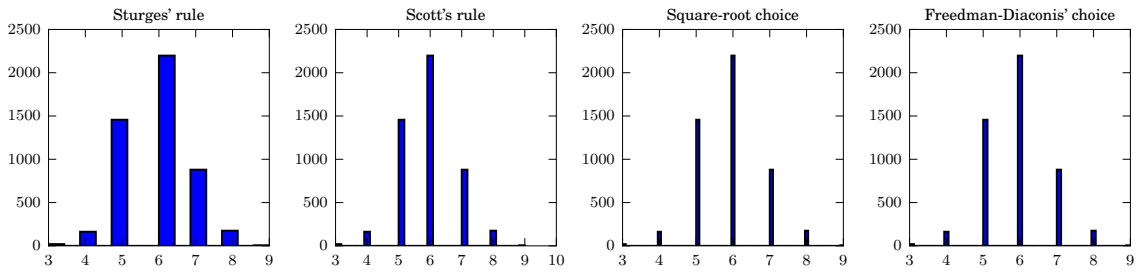

Figure 19: Histograms of attribute *quality* using different binning methods

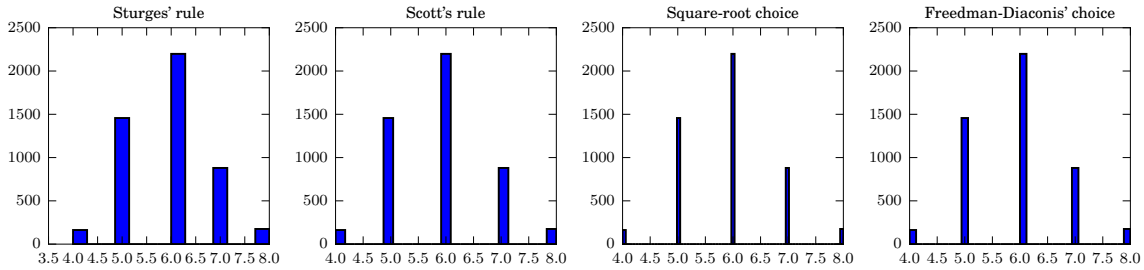

Figure 20: Histograms of attribute *quality* with outliers further than 3 standard deviations from the mean filtered

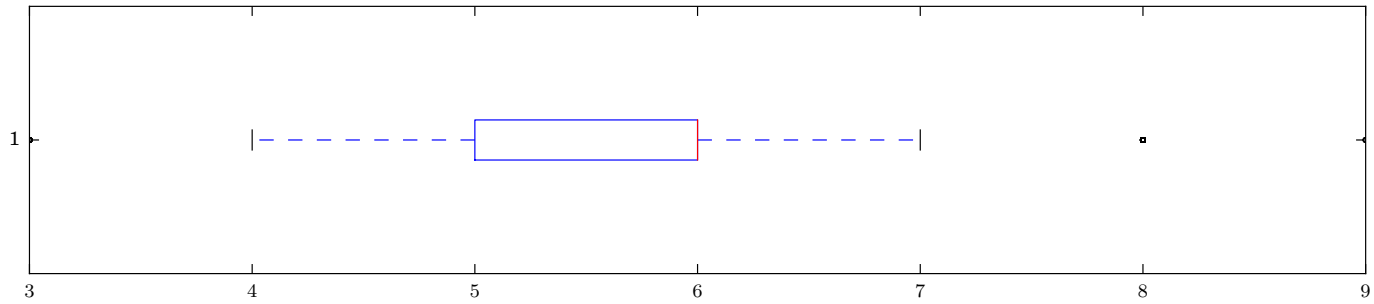

Figure 21: Boxplot of attribute *quality*

0.1.8 free sulfur dioxide

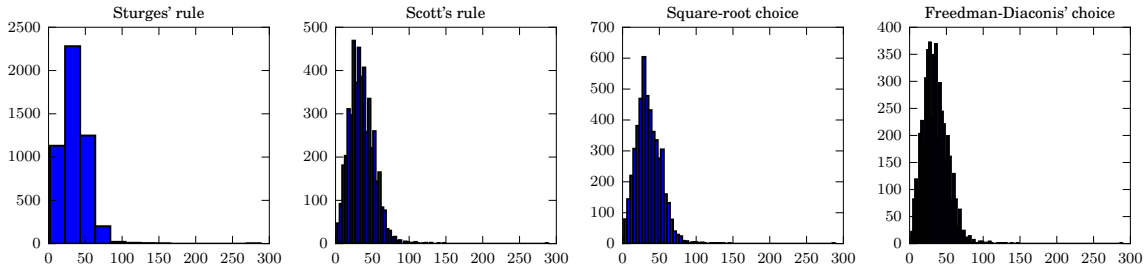

Figure 22: Histograms of attribute *free sulfur dioxide* using different binning methods

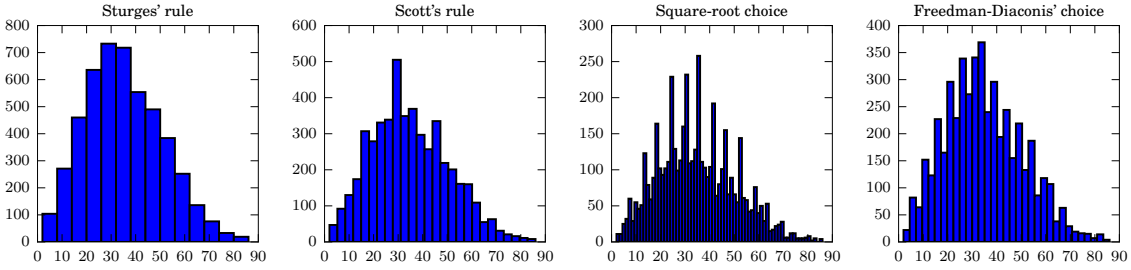

Figure 23: Histograms of attribute *free sulfur dioxide* with outliers further than 3 standard deviations from the mean filtered

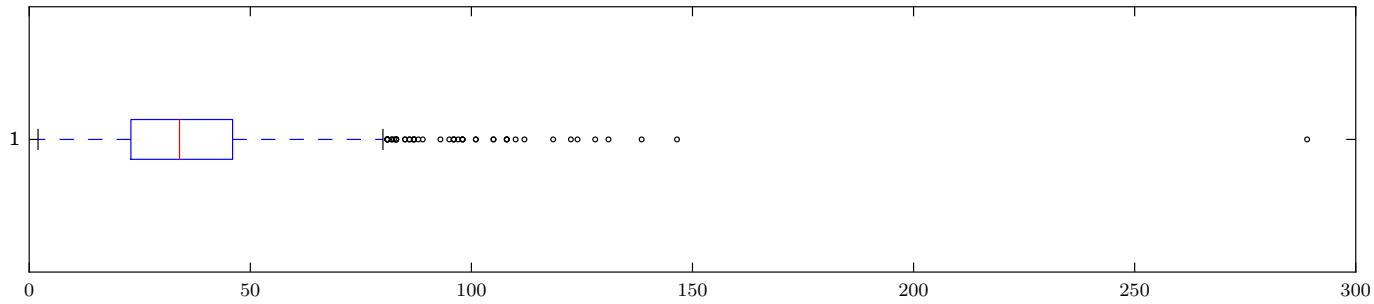

Figure 24: Boxplot of attribute *free sulfur dioxide*

0.1.9 density

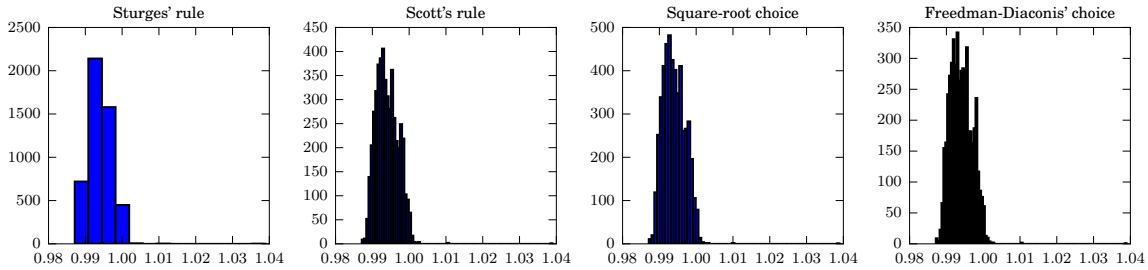

Figure 25: Histograms of attribute *density* using different binning methods

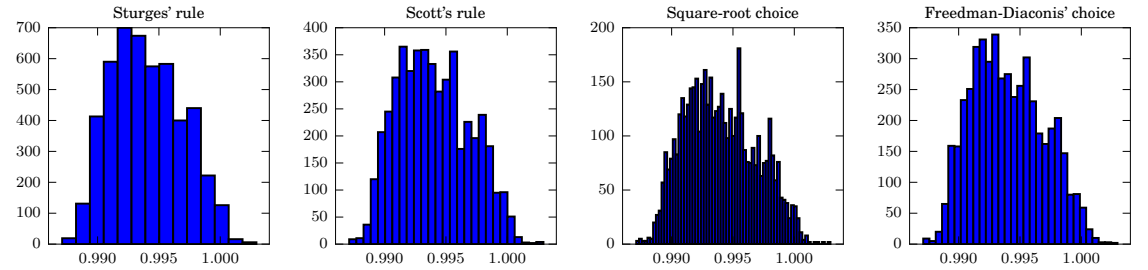

Figure 26: Histograms of attribute *density* with outliers further than 3 standard deviations from the mean filtered

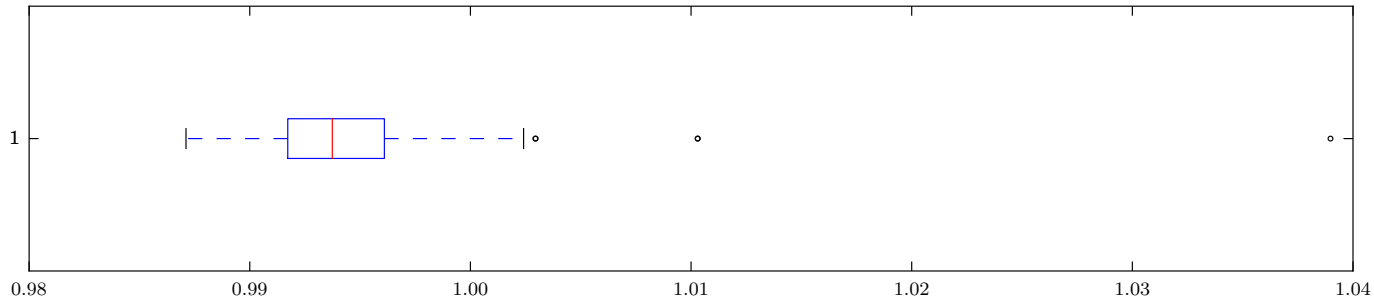

Figure 27: Boxplot of attribute *density*

0.1.10 total sulfur dioxide

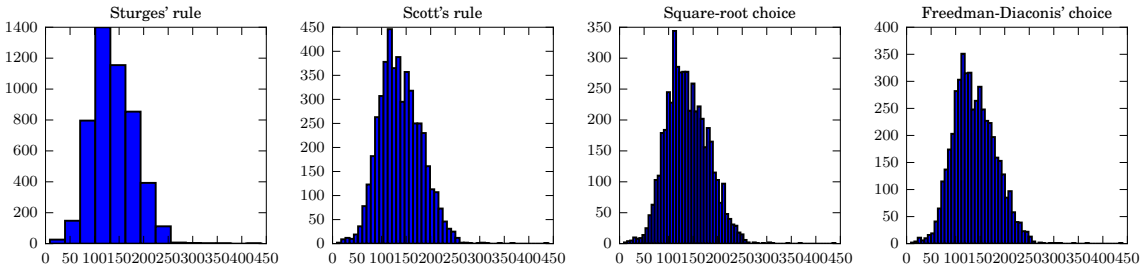

Figure 28: Histograms of attribute *total sulfur dioxide* using different binning methods

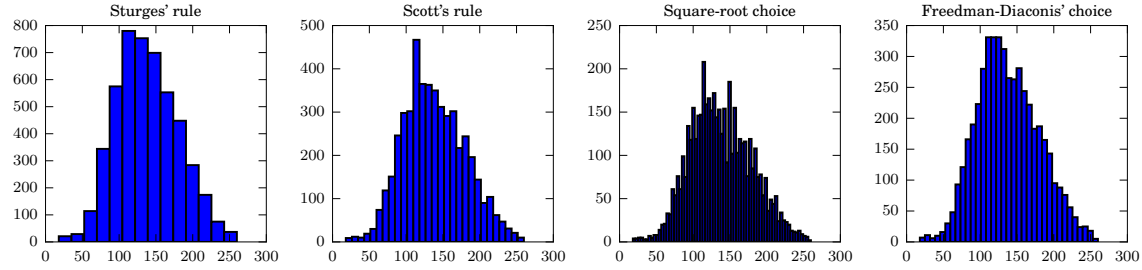

Figure 29: Histograms of attribute *total sulfur dioxide* with outliers further than 3 standard deviations from the mean filtered

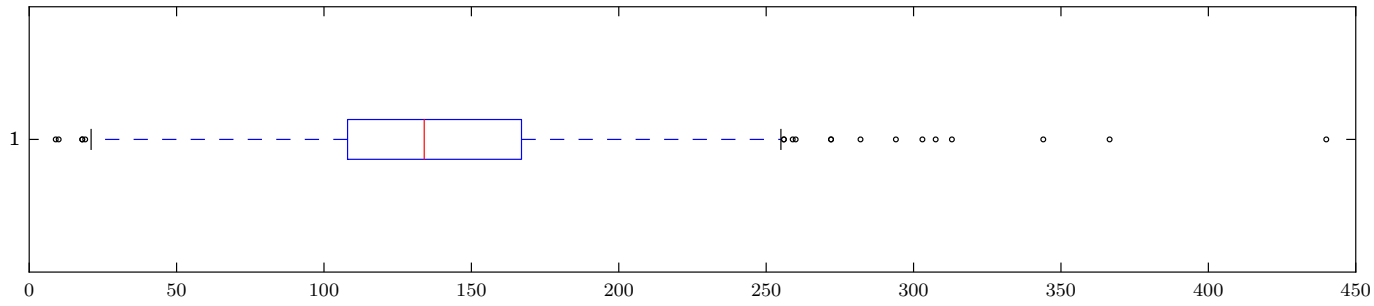

Figure 30: Boxplot of attribute *total sulfur dioxide*

0.1.11 sulphates

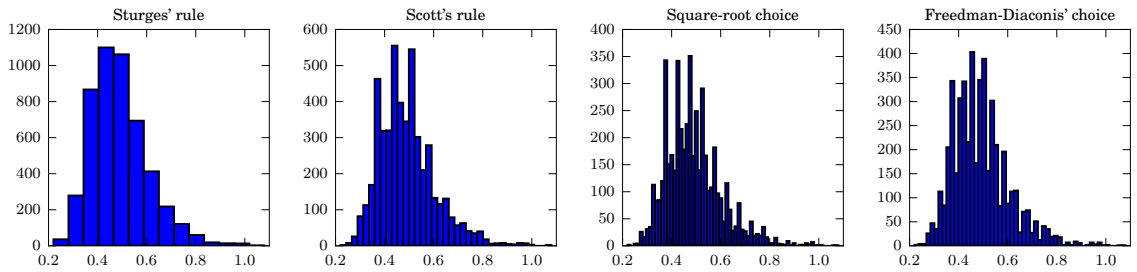

Figure 31: Histograms of attribute *sulphates* using different binning methods

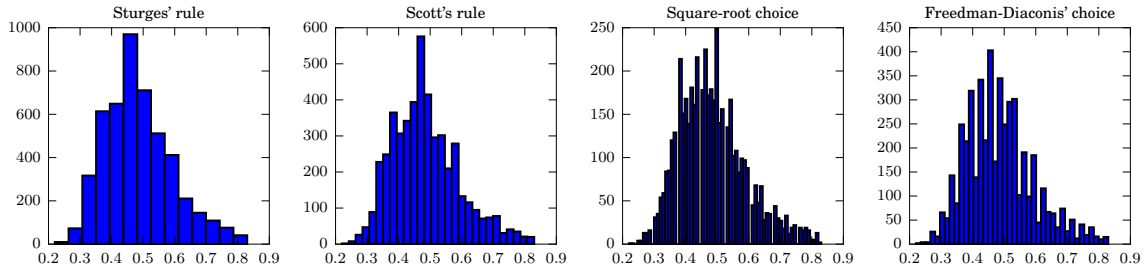

Figure 32: Histograms of attribute *sulphates* with outliers further than 3 standard deviations from the mean filtered

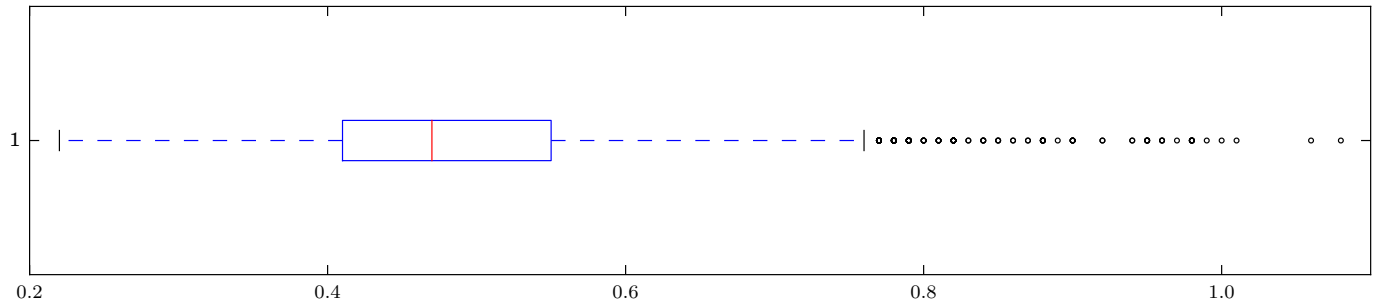

Figure 33: Boxplot of attribute *sulphates*

0.1.12 alcohol

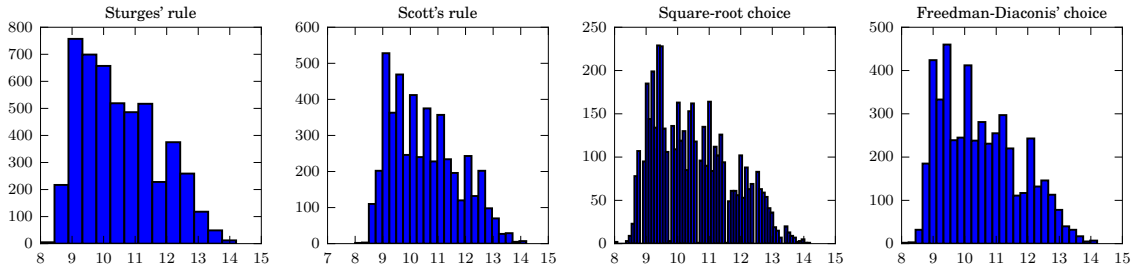

Figure 34: Histograms of attribute *alcohol* using different binning methods

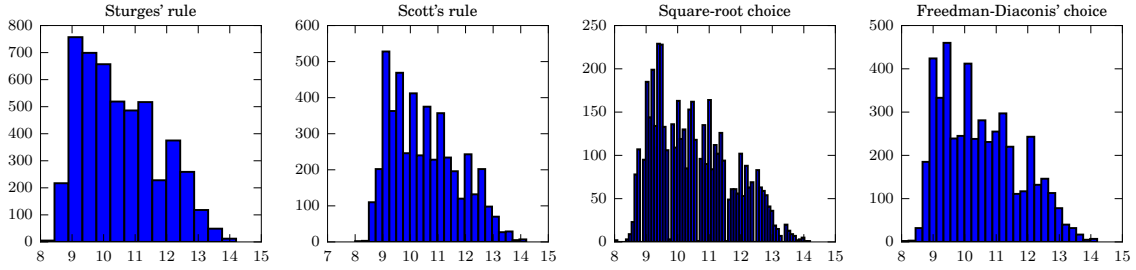

Figure 35: Histograms of attribute *alcohol* with outliers further than 3 standard deviations from the mean filtered

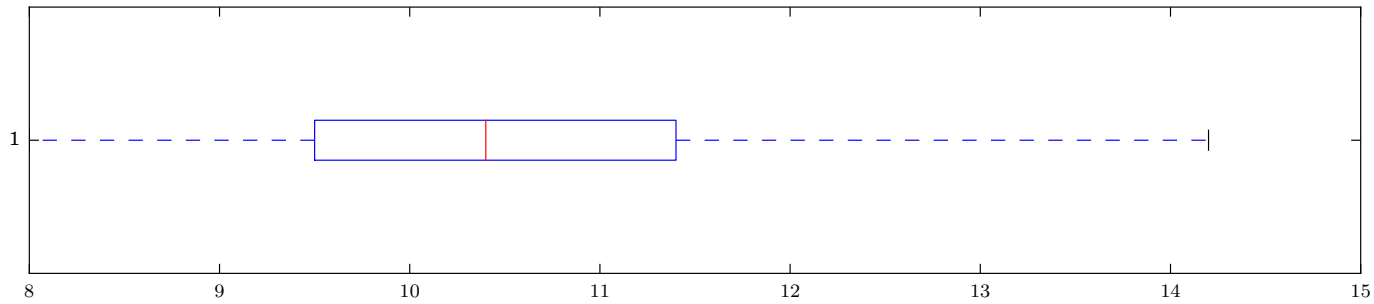

Figure 36: Boxplot of attribute *alcohol*

0.2 Plots for the whole feature set

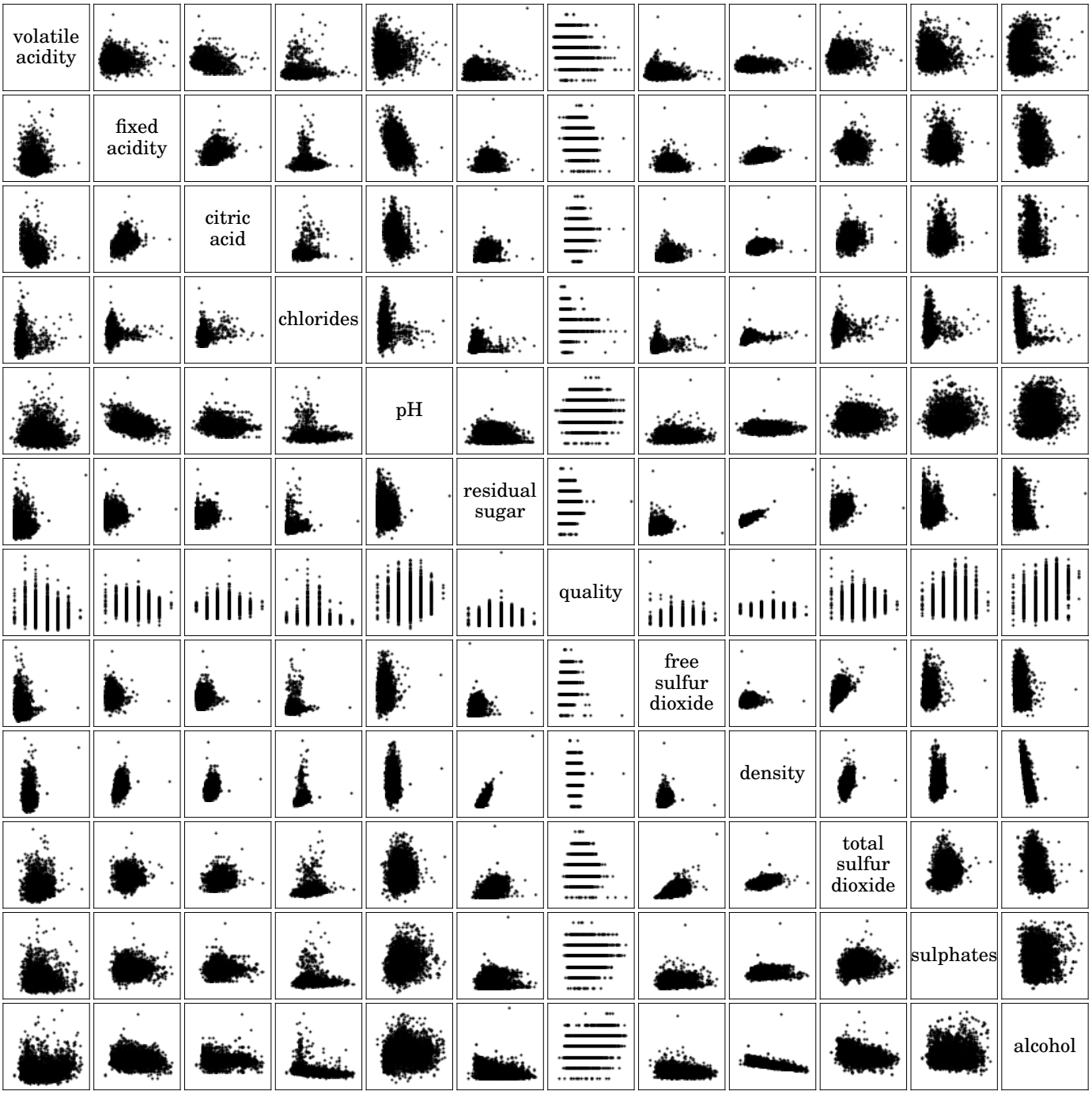

Figure 37: Scatter matrix of the whole feature set, color coded according to the quality value of the point

0.3 Correlation coefficients using different functions

0.3.1 Correlation coefficients using Pearson's correlation coefficient

	volatile acidity	fixed acidity	citric acid	chlorides	pH	residual sugar	quality	free sulfur dioxide	density	total sulfur dioxide	sulphates	alcohol
volatile acidity	**1.0000**	–0.0227	–0.1495	0.0705	–0.0319	0.0643	–0.1947	–0.0970	0.0271	0.0893	–0.0357	0.0677
fixed acidity	–0.0227	**1.0000**	0.2892	0.0231	–0.4259	0.0890	–0.1137	–0.0494	0.2653	0.0911	–0.0171	–0.1209
citric acid	–0.1495	0.2892	**1.0000**	0.1144	–0.1637	0.0942	–0.0092	0.0941	0.1495	0.1211	0.0623	–0.0757
chlorides	0.0705	0.0231	0.1144	**1.0000**	–0.0904	0.0887	–0.2099	0.1014	0.2572	0.1989	0.0168	–0.3602
pH	–0.0319	–0.4259	–0.1637	–0.0904	**1.0000**	–0.1941	0.0994	–0.0006	–0.0936	0.0023	0.1560	0.1214
residual sugar	0.0643	0.0890	0.0942	0.0887	–0.1941	**1.0000**	–0.0976	0.2991	**0.8390**	0.4014	–0.0267	–0.4506
quality	–0.1947	–0.1137	–0.0092	–0.2099	0.0994	–0.0976	**1.0000**	0.0082	–0.3071	–0.1747	0.0537	0.4356
free sulfur dioxide	–0.0970	–0.0494	0.0941	0.1014	–0.0006	0.2991	0.0082	**1.0000**	0.2942	**0.6155**	0.0592	–0.2501
density	0.0271	0.2653	0.1495	0.2572	–0.0936	**0.8390**	–0.3071	0.2942	**1.0000**	**0.5299**	0.0745	**–0.7801**
total sulfur dioxide	0.0893	0.0911	0.1211	0.1989	0.0023	0.4014	–0.1747	**0.6155**	**0.5299**	**1.0000**	0.1346	–0.4489
sulphates	–0.0357	–0.0171	0.0623	0.0168	0.1560	–0.0267	0.0537	0.0592	0.0745	0.1346	**1.0000**	–0.0174
alcohol	0.0677	–0.1209	–0.0757	–0.3602	0.1214	–0.4506	0.4356	–0.2501	**–0.7801**	–0.4489	–0.0174	**1.0000**

0.3.2 Correlation coefficients using Spearman's rho

	volatile acidity	fixed acidity	citric acid	chlorides	pH	residual sugar	quality	free sulfur dioxide	density	total sulfur dioxide	sulphates	alcohol
volatile acidity	**1.0000**	–0.0429	–0.1504	–0.0049	–0.0452	0.1086	–0.1966	–0.0812	0.0101	0.1176	–0.0169	0.0340
fixed acidity	–0.0429	**1.0000**	0.2979	0.0947	–0.4183	0.1067	–0.0845	–0.0245	0.2700	0.1126	–0.0132	–0.1068
citric acid	–0.1504	0.2979	**1.0000**	0.0327	–0.1462	0.0246	0.0183	0.0883	0.0914	0.0932	0.0798	–0.0292
chlorides	–0.0049	0.0947	0.0327	**1.0000**	–0.0540	0.2278	–0.3145	0.1670	**0.5083**	0.3752	0.0939	**–0.5708**
pH	–0.0452	–0.4183	–0.1462	–0.0540	**1.0000**	–0.1800	0.1094	–0.0063	–0.1101	–0.0118	0.1402	0.1489
residual sugar	0.1086	0.1067	0.0246	0.2278	–0.1800	**1.0000**	–0.0821	0.3461	**0.7804**	0.4313	–0.0038	–0.4453
quality	–0.1966	–0.0845	0.0183	–0.3145	0.1094	–0.0821	**1.0000**	0.0237	–0.3484	–0.1967	0.0333	0.4404
free sulfur dioxide	–0.0812	–0.0245	0.0883	0.1670	–0.0063	0.3461	0.0237	**1.0000**	0.3278	**0.6186**	0.0523	–0.2726
density	0.0101	0.2700	0.0914	**0.5083**	–0.1101	**0.7804**	–0.3484	0.3278	**1.0000**	**0.5638**	0.0951	**–0.8219**
total sulfur dioxide	0.1176	0.1126	0.0932	0.3752	–0.0118	0.4313	–0.1967	**0.6186**	**0.5638**	**1.0000**	0.1578	–0.4766
sulphates	–0.0169	–0.0132	0.0798	0.0939	0.1402	–0.0038	0.0333	0.0523	0.0951	0.1578	**1.0000**	–0.0449
alcohol	0.0340	–0.1068	–0.0292	**–0.5708**	0.1489	–0.4453	0.4404	–0.2726	**–0.8219**	–0.4766	–0.0449	**1.0000**

0.3.3 Correlation coefficients using Kendall's tau

	volatile acidity	fixed acidity	citric acid	chlorides	pH	residual sugar	quality	free sulfur dioxide	density	total sulfur dioxide	sulphates	alcohol
volatile acidity	**1.0000**	–0.0296	–0.1040	–0.0035	–0.0304	0.0728	–0.1548	–0.0548	0.0066	0.0813	–0.0116	0.0235
fixed acidity	–0.0296	**1.0000**	0.2086	0.0654	–0.2948	0.0749	–0.0655	–0.0169	0.1855	0.0773	–0.0087	–0.0732
citric acid	–0.1040	0.2086	**1.0000**	0.0223	–0.1013	0.0153	0.0146	0.0608	0.0615	0.0622	0.0545	–0.0200
chlorides	–0.0035	0.0654	0.0223	**1.0000**	–0.0379	0.1553	–0.2449	0.1139	0.3491	0.2571	0.0626	–0.4040
pH	–0.0304	–0.2948	–0.1013	–0.0379	**1.0000**	–0.1256	0.0844	–0.0052	–0.0756	–0.0084	0.0958	0.1026
residual sugar	0.0728	0.0749	0.0153	0.1553	–0.1256	**1.0000**	–0.0631	0.2367	**0.5890**	0.2933	–0.0025	–0.3056
quality	–0.1548	–0.0655	0.0146	–0.2449	0.0844	–0.0631	**1.0000**	0.0172	–0.2666	–0.1512	0.0264	0.3467
free sulfur dioxide	–0.0548	–0.0169	0.0608	0.1139	–0.0052	0.2367	0.0172	**1.0000**	0.2173	0.4447	0.0356	–0.1825
density	0.0066	0.1855	0.0615	0.3491	–0.0756	**0.5890**	–0.2666	0.2173	**1.0000**	0.3884	0.0642	**–0.6351**
total sulfur dioxide	0.0813	0.0773	0.0622	0.2571	–0.0084	0.2933	–0.1512	0.4447	0.3884	**1.0000**	0.1087	–0.3258
sulphates	–0.0116	–0.0087	0.0545	0.0626	0.0958	–0.0025	0.0264	0.0356	0.0642	0.1087	**1.0000**	–0.0264
alcohol	0.0235	–0.0732	–0.0200	–0.4040	0.1026	–0.3056	0.3467	–0.1825	**–0.6351**	–0.3258	–0.0264	**1.0000**