

Kelompok 8 - K01

Anggota:

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1. Deskripsi statistika (Descriptive Statistics) semua kolom pada data yang bersifat numerik

In [15]:

```
import csv
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

data = pd.read_csv('anggur.csv')
df = pd.DataFrame(data)
table = df.style.set_properties(**{'border': '1px solid black'})
display(table)
```

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
0	5.900000	0.445100	0.181300	2.049401	0.070574	16.593818	42.270000	0.998200
1	8.400000	0.576800	0.209900	3.109590	0.101681	22.555519	16.010000	0.996000
2	7.540000	0.591800	0.324800	3.673744	0.072416	9.316866	35.520000	0.999000
3	5.390000	0.420100	0.313100	3.371815	0.072755	18.212300	41.970000	0.994500
4	6.510000	0.567500	0.194000	4.404723	0.066379	9.360591	46.270000	0.992500
5	9.180000	0.333200	0.247600	2.633491	0.082304	12.232170	51.050000	0.996500
6	4.290000	0.499700	0.293200	3.781844	0.079649	10.152389	44.260000	0.996900
7	6.690000	0.406600	0.289600	1.340813	0.083253	11.330200	29.390000	0.999900
8	8.720000	0.439200	0.188600	3.370502	0.082057	18.145810	38.490000	0.994700
9	6.160000	0.392400	0.283000	2.290365	0.048850	15.517359	58.290000	0.996900
10	6.390000	0.575400	0.239600	2.353329	0.092977	8.063703	54.670000	0.998100
11	7.090000	0.575400	0.329900	3.880591	0.052154	8.513014	36.790000	0.996500
12	8.990000	0.450900	0.260000	3.468639	0.073987	21.789580	39.000000	0.996400
13	6.430000	0.557600	0.288000	2.331871	0.105028	7.027136	47.010000	0.993300
14	6.670000	0.546100	0.264500	5.052230	0.091908	22.400427	30.570000	0.997900
15	6.680000	0.507200	0.303300	3.758830	0.110642	11.053747	41.010000	0.996000
16	9.850000	0.735800	0.231600	2.058231	0.070405	15.251925	50.260000	1.000600
17	9.820000	0.435900	0.303400	0.077156	0.068899	16.108885	29.920000	0.998500
18	8.400000	0.521400	0.330400	2.777812	0.103512	12.593024	53.640000	0.995000
19	7.660000	0.481800	0.361800	2.108945	0.083009	17.827693	39.330000	0.994800
20	8.080000	0.482800	0.349200	1.873461	0.121540	13.788166	34.630000	0.993400
21	8.990000	0.535900	0.243200	2.004388	0.061590	10.617592	23.410000	0.996000
22	6.080000	0.490600	0.298900	2.653131	0.094666	11.027299	43.730000	0.998100
23	8.610000	0.434000	0.310400	3.814913	0.092722	13.368899	43.330000	0.997000
24	5.700000	0.532400	0.299500	1.519682	0.103826	22.957007	27.320000	0.998500
25	6.430000	0.638200	0.307700	2.429620	0.092479	15.087429	16.690000	0.994800
26	8.290000	0.614300	0.291200	2.298249	0.094214	11.938134	35.770000	0.998300
27	5.490000	0.540300	0.242700	1.676226	0.083519	8.861216	25.050000	0.995900
28	7.030000	0.446500	0.280400	2.781296	0.099744	14.792867	20.520000	0.998500
29	6.170000	0.538600	0.312300	4.272111	0.070737	12.294579	39.740000	0.993000
30	6.890000	0.628500	0.293100	3.116179	0.098682	3.980429	36.780000	0.994600

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
31	3.840000	0.639100	0.215200	2.571114	0.117740	17.580437	31.180000	0.994600
32	5.070000	0.556000	0.226100	2.061218	0.066204	18.881568	29.590000	0.997600
33	6.360000	0.483600	0.249500	2.546787	0.094338	17.665703	43.060000	0.992800
34	8.310000	0.499700	0.259800	0.782457	0.088850	24.162211	41.540000	0.995800
35	6.990000	0.597200	0.277900	2.439822	0.061370	17.059093	52.010000	0.998300
36	7.200000	0.588600	0.221100	2.306700	0.082253	13.481065	38.270000	0.997500
37	8.030000	0.344200	0.309700	2.977353	0.098141	17.786613	20.060000	0.996100
38	6.140000	0.585900	0.177100	3.448505	0.095455	19.173339	32.940000	0.999000
39	7.540000	0.591100	0.296400	3.245329	0.062791	14.576075	30.160000	0.996900
40	6.230000	0.431300	0.295300	2.368063	0.085652	16.368723	38.240000	0.996600
41	5.130000	0.443500	0.302200	1.982591	0.089598	14.465371	26.320000	0.995500
42	6.730000	0.444300	0.116700	1.872607	0.098495	21.920750	26.110000	0.999600
43	7.890000	0.452000	0.202500	1.718294	0.081148	21.428939	27.330000	0.999200
44	7.610000	0.378300	0.252400	1.884935	0.068868	13.898686	36.730000	0.996700
45	7.190000	0.551300	0.278400	2.376873	0.102447	11.126586	46.290000	0.996800
46	10.070000	0.441400	0.265900	1.279748	0.058569	14.562957	35.510000	0.996400
47	7.700000	0.513000	0.229300	2.943229	0.067315	6.765771	36.120000	0.996100
48	8.370000	0.470200	0.334200	2.391493	0.095443	18.908430	53.880000	0.995700
49	9.890000	0.545500	0.286200	1.665114	0.086660	19.489086	52.960000	0.997100
50	5.650000	0.418900	0.250300	1.859870	0.083037	9.912278	38.580000	0.994500
51	5.950000	0.544500	0.220600	3.338910	0.063999	19.290341	31.490000	0.994400
52	9.290000	0.559000	0.273400	3.404153	0.098335	13.935516	46.790000	0.994300
53	6.240000	0.602800	0.332900	4.888721	0.091569	24.472462	40.030000	0.997800
54	7.240000	0.716800	0.271800	3.067123	0.119092	26.822626	53.400000	0.992100
55	8.480000	0.310800	0.268400	1.824395	0.094007	13.930505	43.030000	0.999500
56	8.270000	0.552000	0.273300	1.778854	0.052325	7.440182	33.220000	0.994800
57	9.310000	0.449100	0.276000	2.889152	0.082105	21.433624	33.410000	0.993600
58	8.990000	0.327500	0.258300	3.305637	0.078227	23.913162	48.660000	0.995900
59	8.480000	0.604200	0.221400	3.907747	0.076863	18.945438	35.820000	0.993900
60	6.270000	0.653200	0.346500	1.625774	0.076022	15.206213	31.580000	0.994700
61	8.150000	0.480800	0.301900	2.600980	0.083295	20.654814	58.010000	0.995100

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
62	7.580000	0.541100	0.375900	1.338407	0.065218	9.348827	28.670000	0.995800
63	5.610000	0.513600	0.294900	2.879875	0.048207	20.524960	26.980000	0.991800
64	8.900000	0.563400	0.258400	1.486602	0.088167	11.475592	44.380000	0.996800
65	8.170000	0.608100	0.222700	3.955274	0.101895	14.059880	35.200000	0.994800
66	7.250000	0.554500	0.253500	1.721984	0.089206	21.507712	43.330000	0.992100
67	6.920000	0.554600	0.212400	3.109134	0.085904	21.346088	36.720000	0.996200
68	5.760000	0.646000	0.374900	2.651129	0.064630	14.269624	41.430000	0.999700
69	7.440000	0.503500	0.269100	2.549085	0.097249	11.808933	39.450000	0.992500
70	7.760000	0.612300	0.309300	0.695727	0.040637	15.701274	34.170000	0.995600
71	6.200000	0.437800	0.318100	2.408897	0.120717	10.567496	47.540000	0.996200
72	8.590000	0.680700	0.324000	1.520449	0.068922	21.063636	37.060000	0.998700
73	5.880000	0.593800	0.397400	1.915000	0.094270	11.651429	41.050000	0.993900
74	4.650000	0.479600	0.265200	2.988721	0.070848	9.951948	44.720000	0.998000
75	8.450000	0.308500	0.260900	5.217429	0.082157	19.383603	33.230000	0.994500
76	6.720000	0.520000	0.278200	4.398206	0.073152	16.790287	39.580000	0.997600
77	7.050000	0.401800	0.307400	3.016636	0.039947	11.980564	50.140000	0.998200
78	6.190000	0.550000	0.278900	2.885393	0.092566	12.308536	39.190000	0.995200
79	5.270000	0.665100	0.256600	2.149166	0.058617	13.919799	44.660000	0.993500
80	8.710000	0.536000	0.234200	1.498965	0.057006	10.482226	38.190000	0.996600
81	6.370000	0.502200	0.231300	2.942975	0.070280	15.880176	44.360000	0.996300
82	9.190000	0.554200	0.283500	2.055552	0.074287	13.993145	34.670000	0.993600
83	8.170000	0.548600	0.220100	4.256206	0.087034	6.798918	40.250000	0.996700
84	6.820000	0.283700	0.179300	4.646385	0.069780	12.918894	49.170000	0.995900
85	5.900000	0.544100	0.275800	4.640421	0.133656	22.138504	53.390000	0.995900
86	6.320000	0.582000	0.328100	1.864503	0.049203	10.354139	38.300000	0.996200
87	5.740000	0.494100	0.303100	1.992733	0.073479	12.042560	39.320000	0.996000
88	9.700000	0.617900	0.269100	1.289081	0.089711	12.994629	39.150000	0.994900
89	7.400000	0.507200	0.290200	3.148398	0.101764	14.461410	47.620000	0.997200
90	8.580000	0.596700	0.187600	1.645164	0.092579	8.094486	21.020000	0.993900
91	5.680000	0.747300	0.235500	1.896227	0.096933	11.075262	52.520000	0.999900
92	7.420000	0.510400	0.353900	1.612430	0.066136	14.040140	27.730000	0.990500

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
93	8.610000	0.325800	0.329200	1.943167	0.091905	18.100487	35.370000	0.997600
94	6.800000	0.486300	0.234400	4.153726	0.106056	17.521526	49.600000	0.997700
95	8.440000	0.347400	0.357700	0.033333	0.089850	16.221238	39.880000	0.995400
96	5.900000	0.581100	0.234100	3.025893	0.127894	16.246370	40.440000	0.993600
97	5.560000	0.650900	0.228800	1.693601	0.078812	10.145213	41.700000	0.996100
98	7.660000	0.589600	0.346800	4.844213	0.073391	5.407590	42.860000	0.994100
99	6.740000	0.552000	0.335400	3.327986	0.045584	7.931085	37.590000	0.995400
100	7.970000	0.455500	0.240600	1.481249	0.071196	16.770908	38.570000	0.994200
101	4.830000	0.677600	0.267500	1.889251	0.090266	17.370372	51.580000	0.998000
102	8.050000	0.595300	0.252900	1.930069	0.097931	10.105265	50.950000	0.995900
103	10.320000	0.548400	0.295200	3.650658	0.107943	23.364176	62.900000	0.998300
104	7.170000	0.540500	0.348400	4.194467	0.084406	23.194447	54.960000	0.995900
105	7.240000	0.531200	0.296600	2.653618	0.068620	10.679980	46.830000	0.992500
106	7.420000	0.565200	0.264300	2.356779	0.053630	15.460999	48.500000	0.996300
107	4.970000	0.458700	0.202700	3.543745	0.076356	20.379117	45.810000	0.998800
108	7.710000	0.672500	0.308900	2.527361	0.059465	22.456350	41.760000	0.995700
109	5.270000	0.535200	0.208900	2.967956	0.076001	16.134894	27.600000	0.993500
110	6.690000	0.580000	0.260600	2.721304	0.052242	12.582566	43.260000	0.995300
111	8.690000	0.476600	0.317900	1.711741	0.072913	17.921474	33.300000	0.993700
112	6.320000	0.557500	0.310600	3.863263	0.067362	17.553053	44.800000	0.997900
113	7.800000	0.291800	0.311900	1.908141	0.100386	23.617158	49.340000	0.993700
114	8.420000	0.408200	0.304900	4.437799	0.056608	18.848047	24.590000	0.994000
115	7.530000	0.516900	0.277300	3.680184	0.046285	17.496622	48.750000	0.995900
116	5.550000	0.387800	0.285100	2.693701	0.095687	14.818686	38.010000	0.998500
117	6.800000	0.763900	0.274600	1.256214	0.110118	17.688429	49.200000	0.994100
118	9.550000	0.353200	0.294100	4.175827	0.095465	4.208686	48.290000	0.995600
119	4.770000	0.554600	0.296800	2.815378	0.077157	16.328779	30.730000	0.995100
120	6.870000	0.685600	0.276700	3.393569	0.062827	18.229211	35.830000	0.995300
121	6.540000	0.568100	0.295700	3.976935	0.075809	6.989276	44.530000	0.991600
122	7.340000	0.489000	0.235800	1.379997	0.072102	9.740510	25.720000	0.993200
123	8.100000	0.464800	0.254700	2.863630	0.055982	5.587775	38.440000	0.994400

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
124	9.130000	0.587300	0.281500	2.123074	0.080264	17.674946	54.150000	0.996600
125	6.880000	0.440000	0.366200	2.819489	0.105759	19.101710	49.360000	0.994900
126	8.170000	0.508100	0.296400	2.957127	0.097090	7.894802	55.810000	0.992900
127	7.800000	0.589100	0.263300	0.836426	0.087063	13.480139	34.480000	0.995300
128	7.770000	0.489200	0.259000	2.271921	0.078858	9.996584	32.790000	0.996600
129	6.520000	0.528800	0.307200	2.589649	0.060414	17.756233	44.820000	0.999100
130	6.000000	0.489600	0.265100	1.247675	0.101805	10.159513	34.310000	0.996700
131	5.880000	0.423000	0.301900	1.764652	0.051259	10.541887	28.090000	0.994000
132	6.290000	0.638900	0.295600	2.624635	0.037137	17.082175	53.170000	0.996000
133	7.590000	0.659300	0.207700	3.186243	0.078750	26.630490	49.910000	0.995400
134	8.110000	0.488300	0.293600	2.353296	0.071536	10.925754	38.110000	0.993100
135	7.590000	0.493400	0.293300	1.801214	0.072910	11.611903	45.080000	0.996100
136	6.540000	0.502200	0.309800	1.495829	0.094503	13.494288	56.270000	0.998800
137	9.370000	0.573900	0.228100	2.142729	0.090785	17.928518	32.410000	0.998600
138	9.020000	0.429500	0.324700	1.700977	0.093284	15.937062	54.220000	0.990600
139	6.780000	0.511100	0.261700	3.095316	0.101813	11.775423	29.320000	0.995700
140	6.210000	0.546300	0.369400	2.752999	0.054634	12.710952	28.680000	0.995100
141	7.360000	0.584200	0.357600	1.849744	0.114981	12.236629	41.830000	0.995500
142	8.720000	0.241900	0.239600	2.728025	0.062930	9.502258	35.220000	0.996200
143	7.600000	0.560300	0.201500	4.830464	0.086192	19.992379	39.100000	0.993300
144	7.870000	0.554600	0.304900	3.252367	0.117478	13.148169	37.580000	0.995400
145	6.950000	0.620800	0.229000	2.754654	0.112577	17.574028	49.560000	0.995500
146	7.750000	0.467400	0.327400	3.217126	0.108268	11.898973	35.760000	0.999600
147	9.050000	0.468200	0.296500	3.764248	0.079567	15.533967	27.500000	0.993400
148	6.910000	0.640300	0.197300	0.978649	0.050830	20.351469	38.920000	0.996200
149	7.370000	0.363700	0.309100	2.073881	0.058615	22.407884	64.030000	0.992400
150	7.500000	0.682900	0.276900	1.882905	0.073666	19.832226	28.570000	0.998700
151	7.540000	0.775600	0.290600	1.854316	0.066317	10.476673	41.590000	0.995200
152	5.510000	0.567700	0.346200	4.614278	0.065647	7.681923	27.280000	0.996400
153	4.950000	0.601400	0.263500	3.010283	0.075283	14.864701	24.510000	0.995300
154	5.980000	0.371000	0.307900	3.615800	0.067210	17.498584	33.810000	0.993200

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
155	7.400000	0.450500	0.240100	2.798932	0.069678	23.568005	48.410000	0.996500
156	7.860000	0.625800	0.241300	5.252864	0.081850	14.583898	53.740000	0.996600
157	6.560000	0.556200	0.259100	0.489961	0.060184	18.995832	41.000000	0.994100
158	8.850000	0.501900	0.239000	2.015615	0.094363	16.423317	38.460000	0.996200
159	7.030000	0.543300	0.298400	2.059379	0.098929	8.916836	45.160000	0.995700
160	7.220000	0.570700	0.203800	2.151206	0.070843	18.237188	34.020000	0.999200
161	6.970000	0.490700	0.311500	3.414502	0.080197	14.357203	38.830000	0.997800
162	7.360000	0.517100	0.231900	2.590204	0.110367	19.342211	47.160000	0.997600
163	8.050000	0.516400	0.288900	3.150534	0.096020	8.156088	24.100000	0.996500
164	8.000000	0.414800	0.210600	3.542308	0.112336	19.103184	34.180000	0.996200
165	6.120000	0.552400	0.293900	2.725408	0.095419	14.398007	38.190000	0.994900
166	9.030000	0.700400	0.324200	3.228528	0.100628	12.455864	44.560000	0.994100
167	5.890000	0.693200	0.270500	2.059756	0.068684	22.876754	23.820000	0.998000
168	7.300000	0.372400	0.347400	1.855122	0.079407	19.122659	21.840000	0.993700
169	6.870000	0.577100	0.263000	1.613799	0.064734	19.023511	19.330000	0.995800
170	5.940000	0.587600	0.290600	2.584408	0.081678	14.324538	31.920000	0.993500
171	7.110000	0.478900	0.223700	1.545859	0.090872	9.197212	47.260000	0.995400
172	6.310000	0.423600	0.291900	1.430049	0.084701	8.575916	44.510000	0.995000
173	7.290000	0.387900	0.241600	3.151409	0.050053	13.365690	48.870000	0.997200
174	7.680000	0.475500	0.234000	1.569588	0.064204	8.045865	38.310000	0.993600
175	8.970000	0.555000	0.349000	3.067429	0.056440	12.635766	38.370000	0.990800
176	7.570000	0.504200	0.206500	2.177844	0.086244	14.778826	38.630000	0.996700
177	6.470000	0.458900	0.264300	1.921315	0.072149	13.250508	35.200000	0.998000
178	6.730000	0.395100	0.305600	3.408626	0.085395	15.988551	65.350000	0.994800
179	7.370000	0.555100	0.281700	3.492311	0.038560	3.535257	43.850000	0.996100
180	7.310000	0.626700	0.177600	2.714198	0.081976	18.960606	31.400000	0.995500
181	8.950000	0.427300	0.300200	3.910030	0.059586	14.403193	37.870000	0.995300
182	8.870000	0.564800	0.201100	0.818446	0.094267	17.862542	49.080000	0.997200
183	6.770000	0.332100	0.247800	3.580838	0.095431	13.153330	20.700000	0.997000
184	6.540000	0.454300	0.257800	1.696147	0.091114	14.287246	37.350000	0.997400
185	4.130000	0.593000	0.124000	2.269140	0.098840	9.442566	51.120000	0.996000

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
186	6.540000	0.408200	0.264700	2.858551	0.096205	16.202684	46.050000	0.996300
187	6.030000	0.459600	0.303300	1.806363	0.069654	11.429691	35.460000	0.996100
188	6.770000	0.661800	0.261500	2.457358	0.051095	16.264223	48.660000	0.996700
189	7.670000	0.446700	0.279200	2.073257	0.094290	19.305388	38.940000	0.995700
190	7.410000	0.434600	0.383100	2.272311	0.086437	15.815632	30.200000	0.993300
191	7.160000	0.577600	0.326300	4.604499	0.034462	24.810183	37.990000	0.996300
192	7.440000	0.715500	0.273000	0.643338	0.045711	17.105634	53.240000	0.996600
193	7.050000	0.496000	0.399400	2.285287	0.054118	14.742894	44.510000	0.996400
194	7.440000	0.596900	0.238200	2.892828	0.078422	16.009937	39.770000	0.998300
195	3.320000	0.654600	0.296000	1.368346	0.052008	15.869891	24.870000	0.997300
196	6.880000	0.552600	0.191200	2.331750	0.093102	18.190369	36.530000	0.997700
197	7.070000	0.493000	0.289900	2.802877	0.069802	12.066375	47.860000	0.993700
198	6.790000	0.432400	0.264400	2.859185	0.110925	16.742845	49.040000	0.997300
199	6.940000	0.377500	0.273000	3.323009	0.088534	10.371476	23.350000	0.995700
200	8.040000	0.631200	0.288500	3.596901	0.077391	15.725972	29.400000	0.994100
201	6.480000	0.538100	0.284000	2.169430	0.088437	18.305296	37.440000	0.998100
202	9.840000	0.653300	0.216400	2.587568	0.061335	19.402104	36.300000	0.993100
203	8.030000	0.618900	0.250800	1.080679	0.108920	13.160393	46.300000	0.992800
204	7.190000	0.458300	0.270300	2.447496	0.101009	21.038251	24.380000	0.995400
205	6.950000	0.401300	0.198500	1.048927	0.084931	13.926947	32.900000	1.001400
206	7.100000	0.561300	0.310100	2.510874	0.118665	9.018163	48.280000	0.996300
207	6.100000	0.456700	0.364100	3.323422	0.050693	15.594329	49.190000	0.997900
208	7.090000	0.557700	0.285200	2.913223	0.096190	18.665175	25.470000	0.996300
209	7.530000	0.446900	0.243600	2.591216	0.104083	11.506950	46.080000	0.994300
210	7.900000	0.433900	0.154900	3.307013	0.089933	8.180381	25.830000	0.997700
211	7.900000	0.505900	0.194000	3.571200	0.076888	15.005841	46.060000	0.993700
212	6.870000	0.613400	0.287000	1.671386	0.038802	14.483967	46.940000	0.997000
213	5.500000	0.550700	0.333100	3.686114	0.101704	11.064815	41.700000	0.991700
214	6.400000	0.637800	0.259000	1.743578	0.071467	21.668104	30.240000	0.993700
215	9.130000	0.396600	0.195600	2.054474	0.078573	19.086854	20.140000	0.999300
216	8.280000	0.414300	0.226400	3.225751	0.099728	20.034449	54.340000	0.999300

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
217	7.640000	0.511100	0.241400	2.677594	0.099781	8.559121	25.310000	0.994100
218	6.290000	0.736600	0.173400	2.476844	0.056886	13.583195	33.300000	0.997500
219	7.200000	0.587400	0.254500	2.672731	0.060250	12.583980	37.310000	0.997900
220	5.690000	0.413300	0.314600	3.813343	0.065845	13.122114	40.320000	0.997100
221	6.540000	0.512400	0.185900	2.568017	0.093780	20.109885	45.320000	0.995900
222	6.910000	0.542100	0.242000	3.245472	0.101590	12.162474	44.290000	0.992100
223	6.770000	0.463100	0.168800	3.220071	0.090048	11.791541	42.120000	0.999300
224	8.350000	0.581300	0.229000	4.587699	0.071188	20.160229	37.950000	0.994600
225	5.500000	0.504400	0.262600	3.883316	0.077126	23.993125	30.910000	0.997900
226	6.160000	0.490100	0.321100	3.204485	0.107725	21.518567	49.930000	0.998200
227	5.550000	0.646000	0.292800	3.219541	0.057524	10.489217	43.840000	0.995300
228	5.720000	0.349000	0.210800	2.668934	0.095596	4.814618	47.110000	0.996600
229	7.350000	0.423800	0.274700	2.337756	0.077859	11.136404	37.810000	0.996300
230	5.280000	0.438300	0.253300	2.487531	0.089793	14.352694	47.270000	0.994200
231	8.100000	0.435200	0.269400	2.524400	0.080501	16.611594	15.560000	0.995900
232	6.900000	0.447100	0.260000	2.050776	0.100630	12.473785	50.780000	0.996800
233	7.280000	0.568800	0.285700	2.086367	0.090614	20.729729	38.000000	0.998900
234	7.590000	0.629700	0.279100	2.436504	0.081409	17.881591	35.430000	0.999100
235	6.680000	0.611600	0.313300	2.175740	0.125296	15.061148	34.660000	0.993700
236	8.440000	0.418000	0.275800	2.306384	0.105017	7.932147	33.610000	0.998100
237	6.970000	0.509300	0.354500	2.333273	0.085432	20.795427	40.170000	0.991900
238	7.910000	0.565200	0.296000	3.405853	0.095510	14.779640	42.210000	0.995500
239	6.960000	0.544000	0.343900	3.292343	0.082343	6.125071	56.070000	0.993600
240	7.550000	0.650600	0.306000	3.524638	0.066175	21.137165	40.360000	0.997900
241	7.540000	0.452500	0.236400	3.745065	0.045537	24.475633	28.370000	0.997000
242	7.500000	0.535600	0.332100	1.779531	0.121293	13.879850	62.610000	0.992800
243	6.030000	0.480700	0.329200	2.528871	0.071214	9.898939	39.580000	0.994400
244	7.720000	0.545100	0.126400	2.801338	0.091782	20.567663	38.420000	0.996300
245	6.820000	0.412100	0.242600	2.942236	0.105296	22.156132	34.640000	0.995800
246	7.960000	0.427100	0.342100	3.012723	0.071219	18.543319	26.000000	0.995300
247	4.620000	0.447000	0.322700	3.920225	0.074444	4.658317	52.230000	0.995400

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
248	5.440000	0.463600	0.197000	1.951069	0.090383	11.793893	28.070000	0.992900
249	7.640000	0.674800	0.312900	2.730783	0.090563	10.473531	50.080000	0.998900
250	9.440000	0.637500	0.356400	1.283085	0.080664	17.826847	37.140000	0.998200
251	8.200000	0.498700	0.300300	2.917018	0.058884	22.360629	45.810000	0.997600
252	6.380000	0.537300	0.196200	0.907624	0.105782	15.056604	36.950000	0.996000
253	5.170000	0.360600	0.230800	2.860498	0.095255	14.226055	43.230000	0.996700
254	8.090000	0.502100	0.290000	3.740839	0.083638	7.604270	39.900000	0.998800
255	7.100000	0.536000	0.259200	3.121866	0.096096	8.346521	40.340000	0.994900
256	7.910000	0.634600	0.333900	1.436201	0.015122	15.021793	52.530000	0.995700
257	7.340000	0.552700	0.306600	1.725147	0.081269	22.162594	40.140000	0.992000
258	7.240000	0.563300	0.368200	3.117026	0.071543	12.536931	29.070000	0.996300
259	10.750000	0.549800	0.321000	2.387627	0.040796	12.094681	24.040000	0.996100
260	7.190000	0.546900	0.297600	0.321690	0.090897	9.542316	34.310000	0.995000
261	7.010000	0.380300	0.254300	3.916948	0.060320	8.634147	46.440000	0.997100
262	7.050000	0.478300	0.340200	2.685618	0.108324	19.775430	46.040000	0.996700
263	6.500000	0.663500	0.270300	1.070454	0.077165	13.734846	47.970000	0.998700
264	8.390000	0.602400	0.218700	2.734405	0.093332	19.106053	44.120000	0.993900
265	6.780000	0.569400	0.272400	4.714497	0.068427	5.794071	43.870000	0.994900
266	7.960000	0.526700	0.265400	2.353452	0.096449	13.206486	32.500000	0.997600
267	7.540000	0.585900	0.220300	2.338441	0.108344	22.520643	45.700000	0.995700
268	8.660000	0.425500	0.311400	1.858303	0.048519	9.189975	54.980000	0.995900
269	7.700000	0.362000	0.263000	3.147018	0.092361	9.875659	38.740000	1.000600
270	5.740000	0.481800	0.289800	2.751357	0.047046	14.365937	46.590000	0.993500
271	5.610000	0.573800	0.231000	3.311843	0.077708	14.956677	34.260000	0.995800
272	8.890000	0.530800	0.261800	1.774248	0.085191	16.440992	50.500000	0.994500
273	6.470000	0.621400	0.308700	3.228908	0.058157	14.405475	46.670000	0.998000
274	5.620000	0.555100	0.257700	1.321994	0.073381	15.288532	41.310000	0.994800
275	6.400000	0.524500	0.251700	2.996469	0.109936	15.039768	30.580000	0.996700
276	8.720000	0.652700	0.379200	1.708120	0.097907	10.407987	43.520000	0.997500
277	5.500000	0.633200	0.285800	2.538395	0.100688	12.773793	56.570000	0.997500
278	6.160000	0.510200	0.306700	0.941347	0.112607	8.292476	41.280000	0.996500

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
279	6.400000	0.409700	0.307300	2.597935	0.073687	15.935383	62.930000	0.995900
280	5.700000	0.429300	0.274800	2.480223	0.100035	10.569654	27.260000	0.994400
281	5.780000	0.503900	0.296400	0.971537	0.067949	17.695156	32.560000	0.996000
282	5.380000	0.483300	0.221300	4.231206	0.104965	17.617525	33.080000	0.996400
283	6.650000	0.685800	0.342400	3.122348	0.057433	4.476958	40.170000	0.997000
284	6.770000	0.352000	0.332300	1.410333	0.063395	19.173215	49.330000	0.995700
285	6.380000	0.513600	0.279500	1.492487	0.114962	18.398615	34.720000	0.999600
286	5.220000	0.413400	0.270300	2.250998	0.092178	15.538498	40.210000	0.995700
287	8.700000	0.531700	0.208000	1.932399	0.086584	4.034759	45.770000	0.998300
288	5.610000	0.558200	0.321500	2.407096	0.076394	5.624226	41.430000	1.001100
289	7.530000	0.479500	0.257200	0.332192	0.072381	18.974705	40.770000	0.999600
290	5.910000	0.573000	0.300500	4.192350	0.078507	12.429479	39.360000	0.997500
291	8.000000	0.500100	0.198000	1.782581	0.078230	16.457016	54.370000	0.995400
292	8.350000	0.502100	0.301600	3.712087	0.093644	0.860177	32.160000	0.998700
293	6.150000	0.478200	0.261200	2.331977	0.114027	17.390053	55.540000	0.993900
294	4.890000	0.585100	0.270600	4.947813	0.063201	11.317318	34.180000	0.994300
295	8.030000	0.533900	0.199100	3.358946	0.083588	11.164186	46.720000	0.996800
296	9.450000	0.677300	0.304000	3.562408	0.096228	19.876338	45.720000	0.996600
297	7.700000	0.647000	0.239400	3.695747	0.074475	13.186138	40.030000	0.996400
298	7.390000	0.575400	0.267600	2.583496	0.096455	16.771801	40.580000	0.997900
299	8.180000	0.304100	0.310200	2.650714	0.052458	10.724338	44.610000	0.995100
300	8.120000	0.371600	0.265700	2.374550	0.126022	24.729420	38.030000	0.998800
301	6.210000	0.618600	0.369300	2.861546	0.086781	10.943214	33.800000	0.997400
302	6.410000	0.472400	0.225100	2.575772	0.079114	18.947294	51.340000	0.995000
303	7.930000	0.543500	0.282000	2.862102	0.065735	12.358221	36.990000	0.998500
304	7.030000	0.457000	0.290700	1.706335	0.074698	15.741114	40.620000	0.998100
305	8.780000	0.571800	0.219100	2.083406	0.094812	13.995443	38.040000	0.996700
306	6.350000	0.615800	0.274400	3.054366	0.127802	13.701364	42.900000	0.993700
307	8.100000	0.399000	0.260300	2.520993	0.054030	13.440347	47.360000	0.993100
308	7.610000	0.438600	0.281300	2.984646	0.078045	10.460882	32.970000	0.996100
309	7.050000	0.353600	0.292700	3.170971	0.057553	16.939567	17.120000	0.993300

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
310	8.610000	0.543300	0.339900	3.387991	0.055791	16.114290	61.920000	0.999100
311	8.020000	0.353500	0.284400	2.993949	0.081798	14.678097	28.250000	1.000300
312	5.990000	0.483400	0.297400	2.267729	0.069983	21.585557	42.510000	0.994500
313	7.970000	0.572000	0.345000	1.634773	0.086684	19.146090	30.640000	0.999500
314	8.850000	0.725800	0.190800	3.657857	0.093882	11.482919	39.540000	0.996600
315	7.040000	0.556800	0.256900	1.807325	0.054986	15.619703	21.790000	0.995900
316	6.900000	0.645300	0.271900	2.500117	0.069376	20.255629	60.250000	0.998700
317	6.400000	0.545900	0.192200	4.117719	0.074471	14.361947	38.000000	0.997700
318	7.180000	0.550900	0.273800	1.707017	0.036614	15.077609	38.670000	0.995100
319	8.020000	0.498900	0.152200	2.227537	0.074847	12.989072	48.200000	0.997100
320	6.220000	0.481700	0.305300	2.618493	0.054498	12.612939	33.030000	0.997700
321	5.580000	0.637400	0.196100	0.713491	0.075561	19.342314	22.920000	1.000800
322	6.750000	0.557500	0.207400	1.431024	0.079070	16.098404	53.470000	0.997200
323	5.540000	0.553600	0.296200	3.751365	0.042471	18.161486	19.540000	0.996800
324	7.830000	0.459200	0.186600	2.952096	0.057729	15.804114	42.340000	0.997800
325	6.690000	0.485500	0.372700	3.325522	0.087892	12.676287	25.230000	0.994800
326	5.090000	0.726700	0.275800	2.755808	0.097796	9.712628	43.910000	0.997500
327	6.780000	0.513200	0.265100	0.547161	0.117915	13.278282	46.040000	0.994000
328	6.970000	0.652600	0.330200	1.481452	0.087016	17.786590	38.370000	1.000800
329	7.740000	0.468000	0.266000	0.273802	0.066872	17.193724	34.370000	0.996500
330	7.030000	0.600200	0.282000	3.141722	0.061606	6.990187	32.170000	0.995900
331	9.440000	0.549000	0.262200	5.210260	0.054500	24.021371	39.760000	0.999800
332	6.580000	0.479600	0.244900	0.932625	0.100549	11.802985	35.780000	0.994500
333	7.130000	0.584900	0.288600	3.571139	0.052788	14.547620	30.540000	0.994700
334	7.080000	0.365700	0.296300	3.589476	0.064472	16.059114	37.090000	0.995600
335	6.860000	0.577500	0.206300	2.686730	0.077443	23.337538	35.630000	0.995100
336	7.370000	0.598700	0.225900	1.129488	0.105506	10.811204	67.710000	0.999300
337	7.850000	0.547300	0.237000	1.633314	0.092210	10.935254	36.560000	0.993900
338	8.810000	0.651100	0.268500	0.479984	0.077258	10.065951	34.870000	0.996900
339	5.320000	0.513200	0.287300	2.374437	0.092664	16.119121	46.890000	0.994200
340	6.590000	0.505100	0.377800	2.717518	0.118461	17.801230	59.050000	0.993100

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
341	6.660000	0.555500	0.283800	3.322049	0.073276	15.863152	31.710000	0.991600
342	8.330000	0.606800	0.261300	2.295817	0.102866	24.239452	38.380000	0.998200
343	6.770000	0.577000	0.234300	1.652215	0.092306	13.306446	33.060000	0.994000
344	4.930000	0.497300	0.319300	1.809884	0.104917	16.061237	52.220000	0.994800
345	7.310000	0.420500	0.269400	2.368372	0.082935	6.100477	47.310000	0.996700
346	7.160000	0.586300	0.287100	2.801390	0.066211	3.129885	46.530000	0.997500
347	7.420000	0.441000	0.270000	3.890970	0.059108	17.604930	31.730000	0.994200
348	5.950000	0.438200	0.297500	4.546487	0.076111	17.617986	41.150000	0.997100
349	9.260000	0.454500	0.293900	2.492055	0.059769	9.218303	51.070000	0.999300
350	6.810000	0.525800	0.288700	1.422155	0.051341	14.677630	55.930000	0.996500
351	6.970000	0.440400	0.270200	3.728424	0.126851	18.017173	37.180000	0.994700
352	6.120000	0.406400	0.274700	5.056970	0.061416	13.450264	45.690000	0.993500
353	6.080000	0.454100	0.289100	1.746250	0.070303	10.901440	50.320000	0.996300
354	5.730000	0.501700	0.173800	2.002545	0.082611	14.634209	42.860000	0.996000
355	6.730000	0.565400	0.268300	2.379659	0.116063	24.969144	51.330000	0.997800
356	6.050000	0.526700	0.319000	2.522186	0.093313	19.045924	20.650000	0.997000
357	9.670000	0.412000	0.246000	1.823585	0.107858	12.803415	46.270000	0.994900
358	4.930000	0.542900	0.165500	1.113297	0.083432	19.475222	40.740000	0.993100
359	5.850000	0.552300	0.200700	3.112337	0.080643	16.352163	48.190000	0.993200
360	6.720000	0.474500	0.273800	2.364824	0.084251	15.383015	61.780000	0.996200
361	8.010000	0.440400	0.234000	3.629084	0.104579	16.685344	47.770000	0.995900
362	6.700000	0.440300	0.276700	3.044330	0.062162	16.709280	23.960000	0.996100
363	8.010000	0.466800	0.269100	3.520117	0.068200	8.430143	30.010000	0.994800
364	6.020000	0.741400	0.246500	2.563000	0.098637	16.298541	47.290000	0.997300
365	7.270000	0.431100	0.224300	3.201429	0.108010	13.255621	47.780000	0.997000
366	9.290000	0.546600	0.279800	1.772646	0.050941	14.759836	57.390000	0.999100
367	6.040000	0.448600	0.273400	3.002550	0.070304	10.347409	49.150000	0.996500
368	7.700000	0.469400	0.263800	3.511410	0.089951	16.948359	30.670000	0.996100
369	7.450000	0.449400	0.313600	3.828019	0.092097	16.003159	62.700000	0.996900
370	4.500000	0.600100	0.280100	2.206389	0.103785	14.855992	36.790000	0.995300
371	6.490000	0.557900	0.240200	3.100355	0.108980	16.333043	42.910000	0.997800

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
372	8.560000	0.507100	0.252100	3.806732	0.071741	16.776166	33.350000	0.996600
373	7.360000	0.570300	0.266900	0.944377	0.102229	19.613194	47.440000	0.996800
374	5.750000	0.594300	0.276200	2.143576	0.062630	7.787847	55.490000	0.998000
375	8.030000	0.434900	0.336800	3.085092	0.101195	23.385419	54.570000	0.999300
376	6.630000	0.574700	0.354400	2.217520	0.076467	15.334663	40.650000	0.996400
377	7.630000	0.448200	0.246600	1.846335	0.088969	13.092219	40.010000	0.995400
378	7.650000	0.603800	0.219000	2.942740	0.095750	19.467292	47.760000	0.997000
379	5.860000	0.594000	0.242900	2.035573	0.097735	14.702458	37.690000	0.994800
380	8.150000	0.560400	0.291000	2.580966	0.087562	23.306655	50.360000	0.995100
381	5.990000	0.499000	0.311600	0.958892	0.086583	16.034302	53.690000	0.999400
382	5.630000	0.467400	0.249600	2.040956	0.054856	19.894155	43.930000	0.995700
383	6.140000	0.493600	0.224300	2.791488	0.089053	15.194088	34.790000	0.993900
384	6.780000	0.596900	0.289100	2.411083	0.067099	13.333775	39.640000	0.995300
385	7.330000	0.451800	0.301200	2.466602	0.070182	18.483152	53.930000	0.994700
386	6.270000	0.525000	0.321700	2.828929	0.088173	22.505801	69.960000	0.995300
387	8.090000	0.345200	0.238100	3.605823	0.111787	21.087938	48.200000	0.992700
388	7.500000	0.546000	0.286400	2.267590	0.099798	18.284122	34.260000	0.995600
389	6.370000	0.416400	0.188400	2.488689	0.078592	19.246693	33.170000	0.994800
390	8.270000	0.388200	0.264700	2.586152	0.076243	20.144902	40.610000	0.998500
391	8.590000	0.571900	0.305900	2.033443	0.065721	20.172002	49.470000	0.998000
392	7.080000	0.541000	0.344200	1.725369	0.081118	20.638984	27.240000	0.994900
393	6.940000	0.475700	0.285100	3.355592	0.033566	5.178630	41.560000	0.993000
394	5.070000	0.489800	0.257900	1.348947	0.077536	11.600268	46.570000	0.994700
395	6.710000	0.747100	0.199700	3.105590	0.067120	18.936677	48.120000	0.997800
396	6.850000	0.500600	0.281400	2.300991	0.076647	18.664002	41.020000	0.995700
397	7.490000	0.499900	0.301600	2.170902	0.049785	5.024607	25.780000	0.993500
398	7.000000	0.585200	0.320700	2.835357	0.071706	13.727142	55.190000	0.996000
399	7.490000	0.528700	0.282200	2.986452	0.109915	7.035618	54.500000	0.998100
400	9.040000	0.618700	0.222200	1.472818	0.083818	8.617828	41.890000	0.995300
401	6.560000	0.547700	0.297700	2.475026	0.057632	15.272540	35.980000	0.994900
402	6.610000	0.596100	0.354500	2.067896	0.070894	11.824803	38.420000	0.994700

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
403	5.630000	0.564300	0.256900	1.768991	0.082611	12.549119	37.250000	0.995400
404	7.190000	0.584500	0.229900	0.418830	0.034283	12.830522	42.160000	0.996400
405	8.370000	0.515700	0.253500	3.359448	0.127204	16.220053	44.210000	0.998600
406	5.100000	0.542300	0.269300	3.398874	0.085185	19.108549	27.310000	0.996500
407	6.400000	0.492900	0.243800	1.343205	0.085138	10.253950	24.740000	0.997600
408	7.240000	0.580400	0.305300	2.401517	0.095616	14.130071	37.600000	0.996500
409	8.220000	0.385400	0.291500	1.283694	0.091234	16.465796	41.590000	0.994100
410	7.660000	0.592600	0.253300	2.151383	0.108757	13.501391	26.530000	0.998700
411	7.590000	0.619800	0.269000	1.868766	0.114018	18.676883	43.090000	0.994200
412	6.930000	0.594200	0.193000	3.856810	0.063679	15.204789	50.870000	0.994800
413	7.780000	0.509600	0.286100	1.135521	0.041170	20.989255	35.210000	0.997400
414	8.420000	0.570500	0.200300	0.718011	0.046080	9.664399	49.830000	0.996900
415	5.150000	0.442300	0.256100	2.152543	0.124049	27.462525	31.550000	0.993900
416	8.070000	0.603700	0.246900	2.213052	0.058457	11.975991	44.690000	0.993400
417	7.080000	0.410100	0.293300	4.467985	0.110102	22.008179	29.130000	0.997900
418	6.560000	0.579400	0.247800	1.742975	0.058667	20.705134	38.030000	0.998000
419	4.270000	0.573300	0.267700	3.977833	0.105938	23.437888	27.740000	0.996200
420	5.540000	0.560700	0.344800	3.007246	0.105734	18.979668	39.330000	0.994000
421	9.240000	0.475300	0.191500	4.155290	0.084673	11.498482	45.580000	0.996000
422	6.370000	0.596000	0.275700	2.780193	0.067259	0.194679	53.470000	0.998600
423	5.900000	0.336300	0.313200	0.889891	0.103006	11.283639	32.210000	0.996600
424	6.650000	0.597700	0.238600	1.575708	0.068950	20.397266	35.830000	0.994700
425	6.310000	0.539100	0.271000	3.048395	0.111237	16.179124	22.280000	0.997600
426	7.350000	0.625100	0.201900	1.617053	0.068299	9.871926	45.850000	0.999900
427	9.020000	0.540000	0.189600	4.893570	0.107741	8.918559	31.050000	1.000300
428	6.500000	0.703800	0.306100	0.673484	0.066152	9.172940	31.250000	0.997100
429	7.390000	0.425800	0.253600	1.873160	0.065157	12.612165	38.710000	0.995900
430	5.820000	0.580900	0.204400	2.972711	0.094087	14.241464	52.150000	0.993000
431	9.020000	0.431400	0.246300	2.522131	0.080395	22.652647	30.810000	0.994500
432	7.430000	0.507400	0.300200	2.030135	0.092827	16.429142	51.500000	0.998600
433	5.900000	0.594200	0.297600	3.950006	0.135790	12.048423	47.400000	0.997600

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
434	8.290000	0.582500	0.322400	2.577471	0.061565	16.891051	40.440000	0.996400
435	8.640000	0.728000	0.244800	3.578521	0.073012	11.019081	48.990000	0.994300
436	7.390000	0.484900	0.238600	2.081945	0.082742	22.505652	39.640000	0.997500
437	5.230000	0.648600	0.286500	3.543146	0.058957	7.474838	28.660000	0.997200
438	9.340000	0.494600	0.320000	2.734339	0.046923	17.943349	40.110000	0.997000
439	7.570000	0.449900	0.251300	0.880717	0.061604	8.250626	38.540000	0.994500
440	8.600000	0.357700	0.317900	1.288970	0.094800	12.891696	28.470000	0.994600
441	6.540000	0.536300	0.253300	3.629842	0.065844	18.221496	50.340000	0.993400
442	6.720000	0.467900	0.371900	2.502872	0.065997	17.224703	32.170000	0.991600
443	7.330000	0.604800	0.184000	3.645732	0.089715	13.938764	24.080000	0.994900
444	8.540000	0.467200	0.346700	3.228497	0.059827	15.489407	31.010000	0.996400
445	7.370000	0.472300	0.195100	1.381916	0.098364	7.246241	43.880000	0.995100
446	5.690000	0.555500	0.331200	1.310306	0.118620	7.468223	51.210000	0.998200
447	7.510000	0.692100	0.274300	2.398164	0.085701	17.727426	42.670000	0.993400
448	9.160000	0.411100	0.247300	2.669691	0.088921	23.905225	41.620000	0.998600
449	7.280000	0.621800	0.224600	1.804364	0.065790	19.161136	62.780000	0.997700
450	7.360000	0.607400	0.223600	3.011043	0.085690	16.264801	31.050000	0.993500
451	5.680000	0.497900	0.304100	2.285744	0.089651	19.994420	34.520000	1.001200
452	5.520000	0.587500	0.293000	1.743231	0.054650	15.713892	37.250000	0.995500
453	6.430000	0.491600	0.260600	2.755036	0.060829	19.524005	28.580000	0.994000
454	6.810000	0.757100	0.268700	1.856956	0.063845	16.997211	33.870000	0.994100
455	7.320000	0.508800	0.226400	1.049261	0.084238	15.605630	57.820000	0.995000
456	7.400000	0.528000	0.263400	4.072201	0.069464	7.114219	38.600000	0.995300
457	9.120000	0.487400	0.314300	0.532292	0.083868	16.846122	43.470000	0.994800
458	7.270000	0.350700	0.224600	0.842434	0.070229	16.798468	29.860000	0.996600
459	8.480000	0.493700	0.296100	3.329353	0.101949	18.844894	38.290000	0.998500
460	7.150000	0.543200	0.246900	2.763447	0.076405	14.373871	51.930000	0.994700
461	8.940000	0.670100	0.193600	1.932566	0.059741	16.641476	34.510000	0.996500
462	4.960000	0.569200	0.323100	4.440783	0.112617	12.465382	58.450000	0.998200
463	6.480000	0.501100	0.201300	2.105632	0.121379	22.854476	44.040000	0.995000
464	8.380000	0.526000	0.246800	2.387558	0.095429	12.453220	54.510000	0.994600

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
465	6.990000	0.552700	0.323500	2.515557	0.089269	12.155192	49.780000	0.996300
466	8.320000	0.482100	0.230600	3.112418	0.079487	15.239886	47.770000	0.989600
467	7.660000	0.588200	0.317100	3.190521	0.088894	6.636175	45.050000	0.995900
468	8.340000	0.682500	0.247600	3.862358	0.058562	10.614603	44.030000	1.000100
469	7.940000	0.483700	0.265300	2.032446	0.056956	6.944377	52.740000	0.995100
470	8.010000	0.640800	0.364200	2.454132	0.091683	23.272248	33.350000	0.999300
471	8.990000	0.607600	0.326800	2.200401	0.056264	17.048068	44.670000	0.996800
472	8.380000	0.573700	0.274300	1.171112	0.116410	12.312957	26.540000	0.995500
473	8.390000	0.531200	0.237300	2.170765	0.064299	10.120089	56.310000	0.996500
474	7.220000	0.553800	0.271300	2.832739	0.090951	25.390728	48.150000	0.996900
475	6.500000	0.498300	0.352500	2.614594	0.055221	6.903835	45.340000	0.994700
476	6.410000	0.703700	0.378600	3.928078	0.079626	15.075027	34.680000	0.993100
477	8.100000	0.448200	0.239000	2.698687	0.088356	21.620045	39.950000	0.995500
478	4.270000	0.633500	0.342200	1.509397	0.071422	11.865964	44.680000	0.994600
479	5.630000	0.675000	0.191100	1.984446	0.067377	10.036401	17.620000	0.997200
480	6.040000	0.487700	0.299400	1.683591	0.074606	8.415551	45.090000	0.997400
481	6.900000	0.636600	0.288700	1.899205	0.106108	19.172927	36.120000	0.995100
482	4.040000	0.534400	0.322100	2.411620	0.100236	11.442534	53.690000	0.997000
483	8.710000	0.526200	0.228400	3.262356	0.102123	10.210555	47.780000	0.996800
484	7.920000	0.512500	0.277300	3.363942	0.100776	6.260714	46.730000	0.991500
485	9.580000	0.358600	0.176900	1.586992	0.110396	11.708287	51.860000	0.997900
486	8.470000	0.574800	0.238500	2.920436	0.096237	18.971670	48.870000	0.993300
487	8.440000	0.664400	0.269100	2.431717	0.034370	18.089045	63.010000	0.995500
488	9.900000	0.449500	0.279700	2.148776	0.092860	14.744247	45.470000	0.999200
489	6.510000	0.604700	0.409600	1.832077	0.089017	12.107144	54.450000	0.997700
490	5.400000	0.511500	0.244500	1.764321	0.075573	11.405507	56.360000	0.993300
491	6.920000	0.410700	0.271000	1.968170	0.050548	7.556696	39.770000	0.996100
492	6.210000	0.619800	0.212400	3.543511	0.066386	16.809951	50.340000	0.996100
493	6.890000	0.688600	0.175700	3.440458	0.073336	15.540607	46.580000	0.996500
494	5.940000	0.440600	0.314900	3.329801	0.097498	14.527711	37.930000	0.993300
495	7.880000	0.541600	0.315300	0.225288	0.094400	16.501555	50.210000	1.000400

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
496	7.820000	0.376000	0.201200	3.743606	0.056809	18.885695	47.210000	0.996900
497	7.170000	0.515800	0.185500	2.803720	0.092192	17.949297	66.990000	0.996300
498	7.570000	0.568600	0.238200	3.365912	0.041608	5.066432	48.370000	0.997900
499	7.030000	0.695300	0.353400	2.328736	0.071467	13.300705	49.990000	0.995600
500	8.100000	0.675800	0.195600	2.684752	0.079678	16.506123	53.750000	0.997200
501	7.280000	0.684200	0.304100	3.834531	0.094940	14.675257	45.250000	0.994500
502	6.880000	0.467300	0.276600	3.513471	0.074843	11.967985	42.310000	0.994700
503	8.320000	0.495500	0.254900	1.572885	0.091232	13.856693	41.270000	0.997100
504	8.710000	0.353600	0.239800	1.705161	0.085907	23.880561	25.590000	0.996000
505	8.800000	0.448500	0.282200	2.948879	0.089751	21.651234	36.730000	0.995900
506	6.010000	0.374800	0.254500	2.697899	0.093253	15.401903	57.350000	0.996700
507	6.560000	0.556600	0.250000	1.610837	0.074350	13.029474	47.470000	0.993700
508	5.160000	0.450300	0.259600	2.441914	0.097623	17.593541	38.450000	0.990800
509	6.910000	0.409900	0.325600	1.818528	0.111087	19.686043	53.400000	0.995500
510	7.700000	0.484500	0.280600	3.083875	0.076810	16.764896	55.480000	0.993300
511	7.040000	0.401500	0.273400	4.774703	0.034752	9.679204	42.530000	0.996700
512	9.520000	0.550900	0.339100	1.592333	0.093156	15.264855	64.660000	0.998200
513	6.710000	0.548400	0.256600	2.943053	0.080442	15.803927	42.800000	0.995600
514	5.890000	0.488400	0.341600	2.920881	0.089640	9.524993	37.960000	0.993200
515	7.880000	0.446900	0.236200	2.299343	0.064069	15.755780	43.320000	0.995700
516	7.380000	0.386100	0.296600	2.123260	0.070747	18.095698	43.210000	0.994300
517	7.860000	0.575500	0.253800	2.154876	0.081135	17.793042	45.680000	0.998300
518	7.560000	0.542900	0.266600	1.036157	0.076505	21.690791	40.780000	0.996000
519	7.490000	0.566400	0.237800	0.524701	0.078908	8.299930	50.690000	0.998400
520	4.650000	0.489400	0.255200	1.637873	0.070143	16.251877	28.920000	0.994400
521	6.330000	0.498200	0.235000	1.896364	0.077388	12.521928	42.090000	0.996000
522	6.490000	0.664200	0.290100	3.246488	0.093675	19.313465	38.680000	0.994500
523	6.780000	0.459900	0.228800	1.398804	0.090753	20.102329	45.000000	0.997000
524	6.660000	0.488700	0.296800	1.976396	0.054720	8.314577	20.190000	0.995400
525	7.700000	0.594400	0.387400	3.572511	0.084273	13.208185	44.670000	0.994600
526	7.920000	0.550300	0.192200	3.295768	0.065420	10.130896	41.310000	0.993200

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
527	5.840000	0.315300	0.151400	2.978203	0.087472	14.516243	24.160000	0.997700
528	8.020000	0.351200	0.220600	3.604378	0.103839	14.730291	43.970000	0.997200
529	7.900000	0.453900	0.307200	5.154947	0.096423	21.530395	40.120000	0.994900
530	7.760000	0.611000	0.234400	2.399773	0.066834	17.473150	54.200000	0.994500
531	5.500000	0.587200	0.298900	3.110282	0.081859	20.270764	42.230000	0.997000
532	7.730000	0.572000	0.317500	2.370983	0.087678	19.796378	45.680000	0.998500
533	7.300000	0.582800	0.257400	2.316913	0.089107	9.726578	51.450000	0.988800
534	8.350000	0.423100	0.314200	1.601682	0.062887	15.256976	46.650000	0.998300
535	9.340000	0.580100	0.156500	4.191708	0.090585	19.756961	35.880000	0.996600
536	9.110000	0.427900	0.311700	2.693052	0.086385	21.940515	48.430000	0.997000
537	7.340000	0.614700	0.310000	4.033969	0.060880	18.759154	41.580000	0.995100
538	7.200000	0.468900	0.265000	2.883643	0.087228	6.428336	35.850000	0.994000
539	7.960000	0.548200	0.320200	1.634377	0.071079	17.226258	43.030000	0.996600
540	5.860000	0.332600	0.342000	2.517868	0.062046	14.677744	26.660000	0.992700
541	5.460000	0.385100	0.366600	3.147999	0.071998	18.528922	34.560000	0.998600
542	6.630000	0.629100	0.367100	2.718142	0.060989	11.488680	26.730000	0.997000
543	8.660000	0.589200	0.272800	0.683713	0.065634	15.445715	39.640000	0.994000
544	6.800000	0.398200	0.262900	2.517016	0.109616	13.423727	26.850000	0.997200
545	9.000000	0.648600	0.266100	2.112445	0.054088	21.383961	43.420000	0.993000
546	3.850000	0.410900	0.136300	2.086347	0.095610	18.078517	50.350000	0.997200
547	5.300000	0.522000	0.304900	1.130890	0.089340	13.756951	48.340000	0.997600
548	7.050000	0.472000	0.387500	4.388867	0.110463	11.890099	26.970000	0.996100
549	8.270000	0.427700	0.298300	3.483473	0.120026	12.879710	26.120000	0.997200
550	7.120000	0.636800	0.198900	1.672915	0.077099	23.386548	33.860000	0.994000
551	7.090000	0.688500	0.220300	2.276695	0.086333	14.018778	39.050000	0.991000
552	7.050000	0.537800	0.223100	3.791837	0.081299	25.133883	24.950000	0.997400
553	5.080000	0.672600	0.352900	0.874678	0.057943	15.907010	33.280000	0.998000
554	8.590000	0.491900	0.295100	4.076438	0.071251	9.238537	33.330000	0.998500
555	6.380000	0.530800	0.301900	2.863068	0.135368	20.655287	35.690000	0.995700
556	8.510000	0.533100	0.287700	2.975129	0.088473	4.741238	18.610000	0.994000
557	7.120000	0.404300	0.214400	2.339515	0.048876	15.525853	25.430000	0.991100

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
558	8.480000	0.569900	0.222800	2.940855	0.092654	26.665773	34.600000	1.002600
559	7.610000	0.591000	0.304000	4.457967	0.101080	23.442949	31.840000	0.997400
560	7.070000	0.502700	0.274300	2.610178	0.094168	22.129964	38.200000	0.996800
561	7.470000	0.350800	0.177100	1.813277	0.050804	19.803506	35.260000	0.994700
562	5.430000	0.556800	0.309300	1.977106	0.085296	21.040547	41.050000	0.996400
563	7.210000	0.368500	0.340800	3.544315	0.047370	10.850083	24.460000	0.996400
564	9.260000	0.438900	0.270300	2.778174	0.075094	19.029848	37.810000	0.995200
565	8.770000	0.533100	0.254200	2.736284	0.024259	16.915020	24.170000	0.996700
566	6.020000	0.443000	0.338300	1.951046	0.043182	21.854586	45.480000	0.996000
567	7.810000	0.545400	0.260200	3.913055	0.086648	23.319121	49.730000	0.999200
568	7.500000	0.497400	0.239300	2.630563	0.102025	12.744904	31.340000	0.992700
569	8.180000	0.357000	0.193100	1.693136	0.077684	7.751049	38.810000	0.995200
570	7.310000	0.536800	0.245400	0.750176	0.093668	15.218507	44.510000	0.996200
571	6.920000	0.578700	0.363400	1.275478	0.117683	22.535907	36.530000	0.996100
572	8.800000	0.621200	0.328200	2.907593	0.059719	7.852781	41.050000	0.990500
573	7.460000	0.483300	0.276000	1.619272	0.092645	13.889279	31.840000	0.995600
574	8.710000	0.513900	0.269700	0.469041	0.105055	5.237295	55.570000	0.997100
575	8.370000	0.370500	0.319500	1.659144	0.083634	11.667287	39.020000	0.990500
576	6.810000	0.716500	0.275100	2.352264	0.088069	16.854415	36.960000	0.998600
577	7.000000	0.670500	0.206800	3.092183	0.089906	14.815048	47.510000	0.997400
578	9.520000	0.516800	0.277200	0.032555	0.071198	10.796374	45.850000	1.000500
579	7.430000	0.507500	0.278800	2.449133	0.105240	22.446659	23.640000	0.994200
580	6.290000	0.227000	0.270600	3.400036	0.054449	12.914806	50.790000	0.994200
581	5.760000	0.623500	0.282900	1.632272	0.071933	5.470994	37.740000	0.993600
582	8.370000	0.576300	0.235400	1.923040	0.082679	24.732639	21.790000	0.995300
583	7.390000	0.601300	0.277800	2.700872	0.098819	20.342958	37.400000	0.995300
584	6.250000	0.479500	0.189800	1.507686	0.057874	16.562740	30.050000	0.991900
585	8.010000	0.473100	0.224000	1.585377	0.098679	10.176614	44.260000	0.994000
586	7.390000	0.396500	0.257800	2.383800	0.077572	9.698634	48.180000	0.997600
587	5.210000	0.597800	0.300100	2.676972	0.100223	15.627448	40.040000	0.994400
588	7.910000	0.645200	0.255100	3.074861	0.123317	15.755803	33.950000	0.999200

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
589	8.800000	0.632400	0.292000	2.516209	0.098967	7.817836	30.320000	0.993000
590	10.270000	0.538700	0.321100	2.502687	0.086697	10.010887	44.210000	0.997300
591	7.240000	0.487300	0.391000	2.749387	0.087016	17.424235	38.560000	0.994300
592	7.480000	0.414800	0.255300	1.626011	0.092877	8.698018	26.700000	0.996500
593	9.130000	0.449800	0.237800	0.402441	0.092156	20.515609	47.460000	0.996100
594	7.400000	0.566800	0.271900	1.598267	0.063066	13.069397	32.230000	0.997100
595	7.530000	0.491500	0.279900	2.013372	0.084955	20.704249	45.800000	0.991900
596	6.440000	0.684100	0.297300	1.681570	0.091178	12.143112	34.700000	0.997300
597	5.530000	0.635200	0.310600	1.361971	0.061027	18.377924	32.940000	0.996200
598	8.300000	0.459800	0.255900	3.562592	0.077844	16.224624	41.710000	0.995900
599	5.670000	0.398400	0.306300	1.668960	0.052220	23.458225	60.530000	0.998700
600	8.570000	0.465200	0.274100	2.132581	0.027209	11.745579	44.350000	0.999100
601	6.250000	0.626500	0.331400	3.075273	0.076004	25.397866	32.270000	0.999100
602	7.520000	0.467600	0.256100	2.939351	0.073546	22.226485	48.130000	0.993200
603	6.750000	0.574600	0.277000	1.771848	0.110525	11.659732	37.210000	0.998000
604	8.610000	0.463400	0.283500	1.611470	0.051439	12.093995	54.730000	0.995200
605	7.560000	0.554300	0.326600	2.432894	0.091905	16.810052	25.020000	0.993600
606	9.550000	0.572800	0.269800	1.807159	0.083762	18.815716	56.700000	0.995700
607	5.900000	0.618600	0.218200	2.369098	0.101381	10.146468	46.870000	0.993400
608	7.700000	0.663300	0.185200	1.638350	0.071496	8.878123	30.900000	0.995500
609	7.260000	0.651000	0.321700	2.915804	0.092107	6.324509	28.330000	0.997500
610	7.540000	0.467000	0.302000	1.086872	0.060239	22.646677	49.630000	0.995100
611	9.120000	0.505300	0.353100	2.286481	0.088986	14.898947	35.170000	0.996700
612	7.900000	0.402600	0.274600	2.791431	0.082855	6.172613	28.340000	0.998700
613	5.820000	0.496400	0.274300	2.792820	0.070151	13.601527	41.810000	0.996700
614	7.840000	0.522400	0.279000	4.917832	0.102844	19.090754	45.300000	0.999700
615	6.700000	0.479600	0.243200	2.270639	0.082710	17.013547	45.110000	0.996800
616	6.630000	0.469600	0.234800	2.644146	0.094058	24.467325	28.370000	0.993500
617	8.460000	0.623200	0.291900	2.406933	0.111196	16.013879	33.770000	0.994800
618	6.480000	0.610700	0.329000	4.405202	0.106353	13.508882	41.150000	0.995900
619	6.740000	0.559900	0.300200	3.507354	0.101508	16.458953	28.500000	0.996500

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
620	7.240000	0.392200	0.246000	4.431466	0.075922	22.625999	37.850000	0.998000
621	8.340000	0.540100	0.291200	1.924588	0.086988	18.295224	39.940000	0.994000
622	7.900000	0.481600	0.278800	2.665390	0.091087	14.369773	40.080000	0.995500
623	6.920000	0.651600	0.241800	2.551240	0.097064	9.741307	20.450000	0.996700
624	6.870000	0.339800	0.208900	1.348436	0.091582	14.255835	35.270000	0.996700
625	5.810000	0.464100	0.228500	2.843913	0.068993	8.469028	32.690000	0.999700
626	6.290000	0.461300	0.329800	1.511597	0.075215	17.098206	33.110000	0.992500
627	6.410000	0.473300	0.282700	3.553936	0.076100	17.050983	54.320000	0.997200
628	7.020000	0.615800	0.239500	2.290906	0.072499	10.044097	44.660000	0.996600
629	9.580000	0.284800	0.273800	0.979232	0.095382	11.024409	34.810000	0.996600
630	6.390000	0.499200	0.300500	1.940263	0.044424	19.165080	53.540000	0.999200
631	6.850000	0.605100	0.243000	2.547011	0.067757	14.787366	54.550000	0.994800
632	4.740000	0.618000	0.231700	4.246120	0.073846	17.722372	38.340000	0.993200
633	7.920000	0.465100	0.181200	3.367554	0.105217	12.032091	32.290000	0.993000
634	5.310000	0.452000	0.324400	2.592654	0.060341	10.996413	45.440000	0.994900
635	6.110000	0.554600	0.299400	3.376131	0.090421	13.515439	25.520000	0.996600
636	8.450000	0.535100	0.303500	2.671809	0.082373	9.110153	41.580000	0.996100
637	4.670000	0.526900	0.298100	1.610148	0.066828	12.117281	36.010000	0.999300
638	7.320000	0.139900	0.168600	2.913033	0.121514	19.747501	22.610000	0.993500
639	8.160000	0.407300	0.275500	3.360312	0.094255	11.816143	53.540000	0.996100
640	9.030000	0.433700	0.292500	5.550755	0.070037	22.859120	29.470000	0.994200
641	6.100000	0.584300	0.273500	2.796552	0.103617	19.736182	16.560000	0.994400
642	6.450000	0.375900	0.152400	2.018157	0.080826	19.442689	37.270000	0.997000
643	9.370000	0.415300	0.263800	3.430787	0.056311	16.719396	24.740000	0.997900
644	7.170000	0.504600	0.257100	3.189847	0.020794	11.443419	56.470000	0.995900
645	6.320000	0.391200	0.321900	4.081266	0.093043	9.535009	33.520000	0.994500
646	6.340000	0.584300	0.264800	3.250367	0.088286	9.299273	61.220000	0.993700
647	6.030000	0.480900	0.244000	0.790532	0.062411	16.019246	20.970000	0.995400
648	6.670000	0.703300	0.244000	2.439175	0.050285	27.006307	61.970000	0.995600
649	8.510000	0.457000	0.306100	3.788574	0.065085	17.375161	37.640000	0.997600
650	8.270000	0.462400	0.303600	4.209792	0.069679	22.509908	35.600000	0.993400

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
651	5.790000	0.600400	0.259300	1.668666	0.089200	14.251147	38.090000	0.999700
652	7.460000	0.454500	0.250100	2.283976	0.085557	12.107841	48.020000	1.001700
653	6.720000	0.671200	0.154900	3.155169	0.071781	18.989824	30.700000	0.996400
654	8.140000	0.568300	0.167900	2.091090	0.045128	12.536302	48.030000	0.996400
655	7.010000	0.489600	0.228200	2.242730	0.055348	13.546102	33.020000	0.996500
656	7.650000	0.503900	0.262800	3.410169	0.111912	15.486568	33.120000	0.997200
657	7.010000	0.805100	0.230500	3.514131	0.071109	9.628179	37.030000	0.994300
658	4.580000	0.568900	0.194300	3.642119	0.104810	16.277239	46.830000	0.996300
659	7.260000	0.535000	0.268200	3.004779	0.098145	14.305796	30.420000	0.995700
660	5.670000	0.506700	0.268900	1.490663	0.046894	8.484673	58.920000	0.995200
661	8.100000	0.623700	0.335500	2.362829	0.095489	15.219500	34.150000	0.998000
662	6.380000	0.368200	0.252100	1.514715	0.059123	18.569611	61.780000	0.994400
663	6.470000	0.501900	0.258300	1.991966	0.061288	10.958901	30.620000	0.997900
664	7.190000	0.236600	0.234100	3.075225	0.095914	26.562534	63.390000	0.996800
665	7.890000	0.466700	0.400200	2.665885	0.069237	8.659286	50.440000	0.998100
666	7.000000	0.604800	0.302200	4.710038	0.049080	10.646691	56.500000	0.995800
667	9.170000	0.658200	0.228600	2.763574	0.056821	17.930341	26.320000	0.995200
668	9.180000	0.580600	0.171500	2.909072	0.071926	15.308228	31.070000	0.995900
669	9.260000	0.584000	0.205600	2.472415	0.093349	10.175488	30.190000	0.998000
670	6.920000	0.348400	0.224000	3.271282	0.050183	18.553606	39.450000	0.998900
671	5.420000	0.452200	0.201900	4.166319	0.080690	9.190047	47.060000	0.997700
672	8.660000	0.667400	0.264100	2.669705	0.112746	18.782634	50.070000	0.991800
673	6.700000	0.467600	0.219200	4.024133	0.053482	21.132148	44.960000	0.998200
674	7.250000	0.506400	0.189700	2.401769	0.069409	18.255147	46.160000	0.996100
675	7.950000	0.439400	0.301900	3.576793	0.070337	15.965573	54.320000	0.996100
676	5.270000	0.426600	0.192900	2.421324	0.060866	11.723052	40.040000	0.991200
677	9.150000	0.473000	0.142300	2.396894	0.096245	10.310730	35.690000	0.994600
678	8.250000	0.453900	0.316900	0.477710	0.077763	18.771251	46.430000	0.997400
679	7.620000	0.615800	0.359500	0.699111	0.078203	18.851158	45.060000	0.993800
680	8.270000	0.541500	0.272000	2.378847	0.109493	12.109113	26.130000	0.990900
681	7.870000	0.621900	0.304300	3.253489	0.085482	16.001978	41.670000	0.995800

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
682	7.340000	0.381300	0.303600	2.457194	0.078527	25.245320	65.410000	0.993900
683	6.830000	0.642500	0.387800	1.656201	0.078605	13.016767	40.610000	0.997000
684	6.310000	0.522100	0.220500	1.540272	0.064326	17.154013	50.500000	0.997900
685	7.540000	0.703900	0.247300	3.252814	0.104183	16.903046	38.070000	0.996300
686	7.630000	0.514700	0.248000	1.477969	0.070907	18.372869	56.510000	0.995500
687	8.500000	0.370700	0.272700	3.335412	0.080494	23.742542	46.240000	0.994800
688	7.440000	0.648400	0.259600	3.196452	0.038998	21.260241	34.140000	0.996200
689	6.180000	0.506400	0.265900	3.997749	0.092795	10.786850	49.920000	0.994500
690	5.310000	0.304800	0.277100	4.961295	0.108416	16.119128	58.750000	0.996300
691	7.050000	0.534500	0.368900	2.248868	0.104933	4.037143	46.260000	0.998100
692	7.170000	0.543100	0.283700	2.385705	0.059124	13.212022	40.980000	0.995600
693	7.080000	0.627600	0.311500	3.945497	0.091970	5.425156	47.120000	0.996400
694	5.360000	0.161300	0.303400	2.454241	0.081033	8.189863	43.040000	0.997000
695	8.490000	0.634900	0.287800	0.938134	0.067603	16.589370	48.930000	0.994900
696	8.490000	0.472500	0.256700	1.732181	0.090490	26.015442	36.820000	0.996100
697	6.210000	0.712600	0.310200	2.887223	0.093322	17.387407	30.440000	0.994600
698	8.170000	0.348200	0.182500	1.287082	0.088963	23.837463	51.040000	0.994300
699	8.340000	0.574500	0.347000	4.518714	0.089888	3.971303	62.440000	0.997300
700	7.250000	0.561200	0.303400	3.800921	0.078131	9.107715	44.570000	0.993700
701	6.060000	0.477800	0.275000	1.569348	0.113013	10.994919	40.490000	0.995900
702	9.140000	0.442600	0.269400	1.648687	0.063100	11.347105	69.220000	0.995400
703	7.660000	0.482600	0.281000	2.636584	0.087917	19.922086	51.340000	0.994400
704	6.900000	0.485300	0.310700	2.075746	0.053158	9.720308	50.370000	0.996700
705	8.130000	0.394700	0.293100	2.397279	0.077952	10.306586	43.270000	0.993000
706	9.150000	0.619300	0.338300	3.180642	0.085088	11.494081	35.010000	0.993800
707	6.600000	0.410800	0.355700	2.304583	0.083479	3.769986	36.360000	0.994200
708	8.030000	0.622300	0.324700	3.927282	0.093668	12.765414	38.050000	0.993500
709	9.530000	0.341100	0.195400	3.366844	0.064067	16.999021	26.030000	0.994800
710	5.860000	0.502300	0.243900	3.522122	0.063724	13.688588	37.800000	0.996100
711	6.540000	0.503800	0.318900	1.346491	0.054602	15.087597	41.510000	0.995900
712	6.480000	0.518400	0.376500	1.067399	0.063343	15.904984	37.200000	0.996300
713	7.010000	0.615600	0.240700	2.481455	0.066260	12.417633	43.130000	0.995300

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
714	6.950000	0.499800	0.300000	4.290856	0.062968	12.838656	39.230000	0.996000
715	7.560000	0.474200	0.331400	3.715761	0.052483	13.793039	41.630000	0.998600
716	6.220000	0.500100	0.275300	3.244838	0.086475	15.533399	33.790000	0.992200
717	6.450000	0.618100	0.209100	3.746530	0.074434	12.348200	36.830000	0.996500
718	7.560000	0.399400	0.367800	1.391358	0.082985	8.906394	39.960000	0.995500
719	7.390000	0.417900	0.226600	1.059427	0.072058	16.627930	32.600000	0.995200
720	8.250000	0.324300	0.233000	3.800336	0.123117	6.884858	39.080000	0.994300
721	7.690000	0.722700	0.283400	1.892577	0.040440	11.417795	33.830000	0.992000
722	8.130000	0.404000	0.272800	1.698449	0.068067	12.604748	50.860000	0.996000
723	5.830000	0.331500	0.224100	3.108795	0.049580	10.182130	37.560000	0.993500
724	6.740000	0.439100	0.353800	2.252385	0.094012	10.825935	45.120000	0.997400
725	9.420000	0.458800	0.296000	2.378102	0.067305	17.783968	34.360000	0.994300
726	7.670000	0.666500	0.315300	2.841716	0.085333	23.660753	37.880000	0.994700
727	8.100000	0.473500	0.267800	2.674732	0.055163	7.104140	39.070000	0.995200
728	7.530000	0.549200	0.269700	0.873318	0.080590	12.838010	27.470000	0.997100
729	7.710000	0.340900	0.336100	2.031057	0.076903	15.398018	23.480000	0.997400
730	6.920000	0.540800	0.244000	3.224457	0.069046	15.481802	26.450000	0.997300
731	11.490000	0.355100	0.252200	1.813393	0.140758	6.690187	46.860000	0.994800
732	6.720000	0.488600	0.293300	2.178067	0.085630	15.476538	45.150000	0.997300
733	7.150000	0.444000	0.315200	2.209656	0.042424	15.003624	37.160000	0.993100
734	4.290000	0.525800	0.315400	0.051774	0.123532	17.524267	22.840000	0.997200
735	8.530000	0.583400	0.222900	2.601599	0.076550	9.143237	47.390000	0.996700
736	6.540000	0.386400	0.215800	1.888975	0.057303	14.725983	34.080000	0.997000
737	7.130000	0.406400	0.227600	3.085753	0.065638	10.613574	42.490000	0.994400
738	6.570000	0.539400	0.314200	2.759586	0.098799	16.406356	43.190000	0.995600
739	7.030000	0.588700	0.314100	1.705230	0.101501	23.380804	52.170000	0.998500
740	6.860000	0.661700	0.286000	2.967175	0.089542	19.034099	40.230000	0.992900
741	7.150000	0.472800	0.284800	2.014520	0.065289	12.638364	3.150000	0.996400
742	7.140000	0.370900	0.187400	1.812561	0.093786	16.286293	46.250000	0.995100
743	7.010000	0.538700	0.286000	1.038608	0.085383	15.918397	31.410000	0.995700
744	7.000000	0.440500	0.191300	2.938769	0.083526	8.406187	24.690000	0.996600
745	8.770000	0.427600	0.311300	2.348548	0.081649	25.711230	30.510000	0.993800

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
746	8.260000	0.660800	0.254200	1.984546	0.074999	17.914255	17.240000	0.997100
747	8.260000	0.581900	0.282100	0.934246	0.083020	19.923817	47.340000	0.993800
748	6.320000	0.447200	0.259300	3.599399	0.069487	11.033585	28.550000	0.995500
749	8.710000	0.518100	0.266000	2.217587	0.093199	8.821929	47.880000	0.992700
750	8.560000	0.511400	0.214300	2.840486	0.084729	12.408210	38.720000	0.996000
751	6.540000	0.536500	0.261600	2.805451	0.118787	15.492226	38.250000	0.993300
752	9.030000	0.479400	0.266800	1.127095	0.056124	14.125520	46.110000	0.996700
753	6.380000	0.330000	0.280300	3.187462	0.104971	9.823703	11.550000	0.999900
754	4.990000	0.422400	0.297200	2.245073	0.061948	18.739225	46.560000	0.995200
755	8.520000	0.466800	0.294000	2.297462	0.068447	12.040119	41.870000	0.994100
756	7.060000	0.522800	0.283500	0.559269	0.077987	22.077063	50.220000	0.995300
757	8.370000	0.411800	0.237400	3.726722	0.111232	14.032160	35.640000	0.996500
758	6.290000	0.538600	0.205000	2.602900	0.062491	13.208725	43.670000	0.993600
759	5.690000	0.481900	0.219900	2.284169	0.100896	14.126086	31.990000	0.995600
760	8.680000	0.444100	0.229100	1.805364	0.099866	14.477151	46.220000	0.999800
761	5.510000	0.393000	0.312300	2.441574	0.104414	16.449901	47.720000	0.997200
762	5.330000	0.564600	0.323800	3.138357	0.067678	9.218957	13.380000	0.994000
763	4.890000	0.562400	0.230200	2.417958	0.096680	24.300817	43.300000	0.996300
764	3.850000	0.600000	0.212000	2.971528	0.080535	18.845765	30.240000	0.995300
765	5.950000	0.574900	0.188900	1.405984	0.089656	21.667569	37.910000	0.994800
766	4.600000	0.582400	0.238800	0.667676	0.071594	8.932974	37.520000	0.994100
767	7.160000	0.558200	0.290800	1.720481	0.041242	17.034221	42.060000	0.999700
768	4.520000	0.344200	0.215600	2.140528	0.084022	19.722760	44.600000	0.991200
769	5.890000	0.492100	0.329300	1.461355	0.095884	22.412591	37.310000	0.997800
770	10.000000	0.376800	0.288300	2.427476	0.098506	6.274727	33.980000	0.995000
771	7.610000	0.656900	0.323300	2.231246	0.087392	10.540613	33.500000	0.998800
772	7.260000	0.518600	0.230200	0.614450	0.072903	13.259735	25.520000	0.993400
773	5.260000	0.647000	0.305600	3.238930	0.065050	16.793730	21.230000	0.997100
774	6.910000	0.417000	0.214500	2.273316	0.096456	9.339170	52.520000	0.998100
775	7.260000	0.510800	0.304600	1.345891	0.098177	21.128683	25.700000	0.996200
776	5.270000	0.546300	0.342000	0.980405	0.079222	9.965322	55.950000	0.996600
777	7.350000	0.486900	0.341300	4.779148	0.085182	5.221557	28.970000	0.994300

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
778	8.630000	0.538800	0.243400	2.008329	0.083752	15.768823	46.740000	0.994700
779	6.780000	0.668200	0.225900	0.368860	0.070130	12.751898	51.810000	0.995200
780	6.960000	0.416800	0.261700	1.042649	0.097717	15.304969	35.930000	0.996500
781	4.750000	0.256200	0.348600	2.579862	0.109300	14.286470	39.160000	0.993200
782	5.520000	0.680100	0.201900	1.760221	0.046667	21.975692	42.040000	0.992100
783	8.470000	0.440800	0.194300	2.253080	0.090539	18.333062	41.670000	0.994200
784	6.410000	0.632200	0.167700	2.455524	0.088327	14.493953	32.470000	0.997000
785	6.080000	0.585200	0.274700	2.466111	0.076762	8.264830	24.220000	0.994600
786	6.370000	0.498300	0.185000	2.460776	0.060434	12.728697	42.570000	0.994800
787	7.130000	0.558000	0.329500	2.321915	0.114919	12.666833	43.960000	0.996700
788	5.810000	0.405900	0.352000	4.114191	0.076457	7.368530	33.180000	0.996000
789	7.350000	0.528600	0.263200	2.141635	0.114864	18.907038	52.010000	0.996400
790	5.570000	0.579400	0.389700	3.606484	0.097655	8.060052	34.450000	0.996900
791	8.130000	0.442600	0.281700	2.707169	0.081181	8.034599	47.680000	0.995200
792	5.930000	0.482000	0.244800	3.454339	0.076571	11.260136	47.420000	0.993600
793	8.780000	0.551300	0.243900	3.058892	0.083729	9.248708	23.500000	0.992900
794	7.190000	0.652300	0.341600	3.638010	0.090606	13.000107	48.170000	0.992700
795	6.190000	0.519700	0.309600	5.040514	0.083653	7.834054	16.150000	0.997300
796	8.290000	0.476900	0.168500	2.417294	0.071875	13.149448	42.550000	0.992700
797	5.550000	0.505400	0.176000	2.944621	0.101995	13.578242	32.190000	0.997400
798	6.540000	0.636000	0.196500	4.396404	0.113281	16.869439	41.110000	0.994900
799	7.200000	0.455800	0.240400	2.737581	0.079573	16.315148	51.910000	0.996800
800	7.050000	0.490000	0.205100	0.143425	0.083155	13.879605	45.620000	0.997000
801	4.790000	0.456800	0.231800	2.051009	0.095028	16.694199	45.710000	0.995700
802	6.100000	0.499600	0.228900	2.141093	0.073225	13.642362	49.840000	0.996800
803	7.400000	0.541400	0.214000	2.633194	0.038095	21.827655	35.200000	0.996600
804	5.620000	0.623400	0.376000	1.855758	0.083092	11.313131	45.380000	0.998100
805	8.720000	0.307500	0.341000	4.817370	0.101558	12.165923	41.350000	0.993200
806	7.790000	0.575500	0.359000	4.683720	0.054077	15.003683	35.230000	0.996300
807	6.580000	0.430800	0.353900	0.871029	0.036785	11.184678	43.220000	0.995000
808	6.940000	0.579300	0.266500	1.575169	0.091921	21.425877	32.400000	0.994800
809	9.430000	0.644000	0.275500	3.558088	0.059902	18.126670	45.880000	0.994900

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
810	8.320000	0.619600	0.223600	1.685665	0.051926	18.465306	26.470000	0.998500
811	7.660000	0.535800	0.277400	2.088441	0.056371	17.641200	53.680000	0.993200
812	5.500000	0.603400	0.220000	1.711787	0.086598	18.597194	36.370000	0.995700
813	9.160000	0.425700	0.189900	3.908548	0.106118	11.470618	44.540000	0.994700
814	8.460000	0.513200	0.231600	2.427957	0.052649	17.503092	35.620000	0.997700
815	7.020000	0.671900	0.313600	3.755251	0.084211	9.615158	32.370000	0.994000
816	6.540000	0.441100	0.274800	1.921504	0.085916	10.288285	39.060000	0.995400
817	6.970000	0.539700	0.300100	3.297490	0.084197	16.885546	55.540000	0.997900
818	5.760000	0.483100	0.270900	2.236313	0.092609	14.760594	40.300000	0.997900
819	6.640000	0.500500	0.224100	2.692494	0.079509	16.266827	31.630000	0.995700
820	8.120000	0.560600	0.296000	2.071143	0.051389	12.134839	22.270000	0.996000
821	5.030000	0.493000	0.274700	2.240341	0.084733	11.284579	40.640000	0.997200
822	6.820000	0.519700	0.335800	2.408717	0.100882	13.210217	41.160000	0.995800
823	7.340000	0.469500	0.337700	2.750198	0.074788	15.301361	31.640000	0.994400
824	7.320000	0.337500	0.255200	3.283551	0.063465	13.303150	45.780000	0.993100
825	5.790000	0.539300	0.276100	1.547646	0.096140	19.144086	42.010000	0.996400
826	5.780000	0.563900	0.225200	1.178345	0.069304	13.402746	40.690000	0.993700
827	8.510000	0.658200	0.227000	3.761131	0.074881	6.998482	43.190000	0.996500
828	5.730000	0.506800	0.241200	4.540317	0.096677	17.148038	27.930000	0.993900
829	8.410000	0.380500	0.294600	3.461840	0.091490	20.816347	42.390000	0.996400
830	6.620000	0.444600	0.244000	3.808688	0.127438	17.295205	39.680000	0.994800
831	8.500000	0.574000	0.347300	2.128261	0.072130	19.258178	51.140000	0.994500
832	6.690000	0.511500	0.293700	3.115975	0.102728	10.791040	34.190000	1.000100
833	5.800000	0.547900	0.256600	2.933867	0.062624	16.662602	46.530000	0.995400
834	8.230000	0.484700	0.320800	2.674849	0.122374	17.901044	39.870000	0.998600
835	7.180000	0.707000	0.233300	1.650494	0.109137	14.749619	49.570000	0.992400
836	8.940000	0.692800	0.237800	0.880504	0.095420	8.768102	64.800000	0.994500
837	8.270000	0.426800	0.337400	3.743433	0.053237	15.554340	43.080000	0.998400
838	6.920000	0.610900	0.204700	3.281319	0.090862	21.853054	34.320000	0.994900
839	6.660000	0.550400	0.262500	1.841241	0.066234	12.525118	41.770000	0.997300
840	7.230000	0.521400	0.251000	2.853186	0.094753	25.685934	45.000000	0.992600
841	7.430000	0.434000	0.233300	2.043696	0.083452	14.096509	34.810000	0.995800

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
842	6.140000	0.682200	0.319300	3.430412	0.076615	16.839648	37.540000	0.994900
843	8.210000	0.636500	0.313100	3.030260	0.119186	9.930434	36.440000	0.997000
844	6.720000	0.374300	0.303900	4.050209	0.063466	4.161788	54.770000	0.994000
845	6.690000	0.658300	0.271200	2.630257	0.069786	19.549324	40.610000	0.994100
846	6.550000	0.516200	0.302100	2.418566	0.094836	18.035112	44.690000	0.997000
847	7.480000	0.460200	0.169900	2.542533	0.068523	0.621628	29.480000	0.995900
848	6.370000	0.422300	0.249800	5.299524	0.069256	13.859464	27.230000	0.998200
849	7.360000	0.614500	0.271900	3.189505	0.098812	12.945394	27.360000	0.993600
850	10.520000	0.560000	0.240500	2.612460	0.098521	19.434018	42.240000	0.997000
851	7.140000	0.432600	0.279300	3.405343	0.119203	18.506277	32.000000	0.995400
852	6.680000	0.438900	0.389100	2.266644	0.092654	10.175690	31.260000	0.992800
853	5.200000	0.481200	0.275600	2.858255	0.101881	19.866437	45.900000	0.996000
854	7.260000	0.468700	0.290600	3.517561	0.081037	14.809605	49.780000	0.994300
855	5.870000	0.572800	0.280100	0.084744	0.075630	15.516868	33.390000	0.995300
856	6.750000	0.557900	0.210100	1.179122	0.083882	17.284618	4.300000	0.992200
857	7.380000	0.456400	0.195600	1.257045	0.069370	19.305136	26.310000	0.993300
858	5.120000	0.354200	0.189000	2.162711	0.103324	6.204310	22.770000	0.997900
859	7.390000	0.386600	0.284100	2.150979	0.064264	10.462135	55.730000	0.997200
860	7.570000	0.607000	0.168000	2.956515	0.096132	8.151091	36.930000	0.994400
861	5.640000	0.420500	0.302100	3.172100	0.121633	17.750735	28.860000	0.996900
862	6.730000	0.531100	0.259900	3.974417	0.078706	26.258211	57.040000	0.993600
863	5.000000	0.343700	0.292600	2.182708	0.105887	9.454027	26.570000	0.993600
864	9.090000	0.559700	0.203700	2.107934	0.087737	10.840177	41.590000	0.995000
865	7.600000	0.712000	0.347600	2.027330	0.082008	18.614695	31.650000	0.995400
866	6.980000	0.387200	0.267000	1.606678	0.097124	20.811327	25.170000	0.993300
867	7.000000	0.575000	0.175300	2.700704	0.093761	17.619966	29.920000	0.995300
868	8.560000	0.547200	0.331700	1.281147	0.090505	16.573881	51.600000	0.997600
869	7.090000	0.611800	0.206300	3.654889	0.080873	7.737452	38.010000	0.998000
870	7.600000	0.506900	0.208900	2.767059	0.066636	13.348013	48.350000	0.994200
871	9.020000	0.547300	0.210100	3.319483	0.113762	14.614720	33.870000	0.995100
872	6.780000	0.538200	0.254500	4.121036	0.086166	23.702797	32.690000	0.993300
873	5.890000	0.577300	0.299400	0.233061	0.097238	14.419007	35.800000	0.995500

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
874	6.210000	0.436100	0.297900	2.366832	0.123037	14.448443	50.390000	0.991700
875	8.910000	0.539200	0.396100	1.902316	0.100423	13.916348	33.930000	0.996900
876	7.310000	0.601000	0.236800	2.963277	0.059565	9.645783	30.600000	0.996500
877	6.600000	0.636800	0.247200	3.342539	0.058246	25.137338	26.210000	0.996100
878	8.370000	0.569600	0.201800	2.931578	0.120703	10.833679	34.430000	0.997100
879	8.400000	0.406800	0.215200	2.636707	0.047020	10.334014	25.600000	0.993400
880	6.630000	0.364600	0.326000	2.332184	0.065847	16.652910	61.140000	0.997900
881	6.030000	0.560900	0.244800	3.428201	0.093935	10.517433	42.670000	0.996900
882	5.320000	0.418800	0.292600	2.529244	0.086369	17.067644	25.000000	0.995100
883	5.050000	0.604400	0.271600	4.197865	0.050996	22.106480	45.480000	0.998200
884	6.880000	0.491200	0.217500	1.992063	0.082524	9.005354	33.340000	0.996600
885	6.130000	0.621200	0.228800	4.328316	0.120562	13.203573	40.260000	0.996200
886	9.430000	0.732600	0.176200	1.318651	0.062652	12.499217	28.180000	0.995800
887	7.270000	0.513800	0.259900	2.774008	0.049003	16.419533	37.840000	0.996600
888	4.870000	0.508400	0.274000	2.580433	0.067147	18.922192	42.950000	0.997500
889	8.900000	0.621300	0.254800	1.797848	0.082547	9.922113	37.010000	0.991700
890	7.390000	0.626400	0.319700	1.146180	0.071958	15.206614	49.000000	0.993300
891	8.050000	0.690200	0.203800	3.431332	0.100616	12.207220	50.300000	0.996000
892	8.020000	0.539700	0.272300	2.500977	0.103496	16.611708	55.250000	0.995900
893	7.560000	0.456700	0.219800	3.456049	0.107549	10.105304	26.200000	0.993900
894	7.830000	0.520800	0.289000	4.285018	0.099213	14.351294	42.360000	0.996900
895	7.490000	0.457600	0.225200	3.177156	0.075400	18.603452	55.580000	0.992200
896	5.870000	0.544000	0.310600	3.463404	0.069330	14.745392	34.650000	0.997700
897	7.640000	0.433200	0.301900	2.121476	0.081218	18.548919	51.780000	0.997500
898	8.430000	0.610200	0.286600	3.929559	0.100827	14.088444	41.680000	0.994700
899	6.950000	0.589700	0.282900	4.032273	0.062743	19.194551	31.120000	0.995700
900	7.860000	0.533900	0.284300	3.071923	0.086569	9.512765	34.740000	0.994800
901	7.700000	0.522600	0.286700	2.282767	0.100765	10.291205	42.300000	0.995300
902	9.380000	0.500400	0.296600	2.554318	0.102941	23.354697	34.400000	0.997300
903	6.900000	0.651200	0.252300	2.655998	0.092765	15.338956	51.150000	0.997100
904	6.850000	0.638700	0.214000	2.967810	0.058485	23.153927	46.990000	0.996000
905	7.060000	0.534600	0.267800	2.494400	0.075429	21.916867	36.140000	0.992200

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
906	7.080000	0.434300	0.295700	2.213615	0.078361	16.424650	26.550000	0.999400
907	4.470000	0.402300	0.295600	2.333438	0.042390	9.625888	40.930000	0.996800
908	6.430000	0.548800	0.356500	2.505906	0.062252	18.306443	58.660000	0.995300
909	7.560000	0.456200	0.245000	3.728418	0.108536	11.726223	50.890000	0.999000
910	7.190000	0.567600	0.199500	1.572206	0.071143	11.989268	50.080000	0.994000
911	6.240000	0.481300	0.242800	0.565134	0.050374	10.356452	47.850000	0.994100
912	6.400000	0.597400	0.248900	0.984294	0.089809	13.667859	57.700000	0.999200
913	6.770000	0.540700	0.229800	2.727809	0.103714	14.122287	42.610000	0.996600
914	6.240000	0.619800	0.218000	2.780911	0.044871	11.690848	59.260000	0.996100
915	6.580000	0.296600	0.263200	3.674779	0.076429	7.619625	42.200000	0.996800
916	6.550000	0.497300	0.266500	4.986085	0.062472	14.380975	37.040000	0.997100
917	8.270000	0.741700	0.218100	2.339661	0.063838	8.221410	55.400000	0.995000
918	8.420000	0.269700	0.212800	3.562697	0.060499	17.592904	40.850000	0.993200
919	8.320000	0.604300	0.288500	1.922683	0.084845	11.275250	43.570000	0.998500
920	7.710000	0.561800	0.293600	3.605921	0.078202	5.868719	42.970000	0.996500
921	6.350000	0.648600	0.229100	2.787742	0.107804	8.719619	46.940000	0.997700
922	8.350000	0.502600	0.261400	1.308224	0.059074	15.071925	40.960000	0.994200
923	6.820000	0.639000	0.294800	2.829843	0.110146	16.889048	28.570000	0.996700
924	7.230000	0.641700	0.276500	3.026070	0.080588	16.433716	47.370000	0.992100
925	8.810000	0.539700	0.348100	2.890473	0.082177	8.952379	42.990000	0.994400
926	7.300000	0.403600	0.202900	2.228363	0.063688	19.588178	36.830000	0.995700
927	7.500000	0.611300	0.192200	3.978759	0.088529	20.315296	31.950000	0.995800
928	5.500000	0.422700	0.306100	3.645357	0.107705	19.281701	46.900000	0.998600
929	7.780000	0.506300	0.287500	3.194012	0.062311	19.006649	30.770000	0.993100
930	6.020000	0.614700	0.242600	1.809217	0.102564	15.653707	34.110000	0.995800
931	8.410000	0.629200	0.324400	2.112792	0.066243	18.162404	20.510000	0.996500
932	6.980000	0.485200	0.237800	3.327540	0.070834	22.087907	37.030000	0.998000
933	4.520000	0.582700	0.295600	4.211661	0.085261	15.792963	49.380000	0.992400
934	6.770000	0.365700	0.261000	3.538038	0.079245	13.869544	40.100000	0.997100
935	6.930000	0.472800	0.231200	2.324676	0.077956	11.476553	29.490000	0.997000
936	7.780000	0.666900	0.248800	2.665562	0.079717	8.444001	56.660000	0.991500
937	8.000000	0.654300	0.328600	3.743053	0.120542	23.743550	45.320000	0.998100

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
938	6.810000	0.586900	0.250700	1.209345	0.083166	16.646036	32.630000	0.999300
939	8.420000	0.505800	0.345400	1.103593	0.058209	23.591235	43.210000	0.994900
940	3.400000	0.604700	0.277800	3.557770	0.055599	19.152721	37.430000	0.999400
941	6.340000	0.517700	0.257300	2.644805	0.074152	18.506711	21.500000	0.996400
942	5.870000	0.536800	0.219800	1.567353	0.117937	23.577884	45.210000	0.991800
943	5.690000	0.528800	0.303800	2.318382	0.131425	15.269638	33.930000	0.995400
944	8.350000	0.442400	0.280300	2.157444	0.099023	12.867690	57.080000	0.997300
945	8.200000	0.592600	0.266100	3.011839	0.055541	9.492019	52.500000	0.996600
946	6.270000	0.413000	0.275000	2.383029	0.061497	10.942841	30.110000	0.998300
947	8.610000	0.597600	0.263900	2.943515	0.056260	9.061419	25.440000	0.995800
948	7.320000	0.423900	0.210200	4.092020	0.061759	13.865532	35.900000	0.992500
949	6.690000	0.447800	0.302700	2.700005	0.032111	7.379003	48.010000	0.998500
950	6.370000	0.235900	0.362900	2.402116	0.091339	6.845316	46.610000	0.995300
951	6.270000	0.504400	0.354900	1.995151	0.067638	5.282403	56.620000	1.000400
952	7.770000	0.538900	0.275300	2.032225	0.117262	11.671822	41.460000	0.996200
953	7.980000	0.602700	0.257300	2.399841	0.088244	13.783847	25.600000	0.997200
954	7.490000	0.651100	0.274200	3.528331	0.094532	5.190389	36.620000	0.993700
955	4.740000	0.371000	0.238900	3.295972	0.043902	12.115080	27.350000	0.991100
956	7.560000	0.618500	0.284100	1.027764	0.069973	22.520927	50.330000	0.996300
957	7.880000	0.473600	0.288700	4.380263	0.055661	21.633450	45.210000	0.996300
958	6.400000	0.512800	0.209900	1.956285	0.047141	15.742084	34.120000	0.995600
959	7.250000	0.509500	0.253600	1.959211	0.091610	12.536313	38.980000	0.996100
960	4.960000	0.475000	0.313700	2.333528	0.081283	9.912025	53.630000	0.997000
961	5.720000	0.431000	0.315000	4.562063	0.049045	14.242861	53.580000	0.996100
962	6.810000	0.547900	0.207100	3.143195	0.106204	14.545048	37.980000	0.998800
963	6.830000	0.601100	0.324800	2.733658	0.092337	19.442707	35.730000	0.996500
964	7.620000	0.394000	0.255700	1.920219	0.067187	17.539618	49.940000	0.998600
965	5.780000	0.518100	0.268700	2.682477	0.091128	15.547348	33.550000	0.998100
966	6.790000	0.457100	0.261900	4.781683	0.083208	14.730120	31.070000	0.999200
967	6.610000	0.629600	0.164300	3.374327	0.067759	10.573086	42.390000	0.996500
968	7.830000	0.569400	0.291100	2.059140	0.065430	3.032139	38.740000	0.998800
969	8.910000	0.670900	0.189600	2.158283	0.094141	18.252261	35.410000	0.996000

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density
970	9.270000	0.365100	0.311500	3.106928	0.086469	11.669736	57.130000	0.995300
971	5.320000	0.623400	0.204900	3.464646	0.049960	19.539754	38.760000	0.993900
972	7.140000	0.536300	0.323000	1.353004	0.095288	13.401784	37.550000	0.994200
973	5.860000	0.447500	0.281600	2.891145	0.054808	14.083808	36.670000	0.992300
974	7.120000	0.568900	0.300400	3.223282	0.069241	11.173994	41.320000	1.000000
975	7.710000	0.676600	0.234100	3.761100	0.096857	21.323648	37.250000	0.997200
976	7.300000	0.680500	0.179600	1.295616	0.076838	15.556836	40.320000	0.999500
977	7.140000	0.602200	0.221000	4.807087	0.097896	9.113502	23.310000	0.995000
978	8.980000	0.420800	0.286000	2.094590	0.118253	12.408760	28.420000	0.993400
979	8.070000	0.551000	0.292800	2.061908	0.065521	7.381859	55.200000	0.996200
980	6.870000	0.554200	0.227000	2.000103	0.092309	14.875501	50.570000	0.995400
981	7.230000	0.644200	0.336300	3.087647	0.097487	8.049284	51.570000	0.998200
982	8.250000	0.503500	0.269000	1.573458	0.105009	7.389244	38.750000	0.995600
983	7.930000	0.521600	0.188000	4.236982	0.082689	25.136243	27.860000	0.995400
984	6.690000	0.454600	0.283500	2.040450	0.062079	25.548322	49.650000	1.000700
985	5.070000	0.586800	0.231400	2.625822	0.049331	14.815682	48.780000	0.992400
986	5.780000	0.498500	0.311100	1.380053	0.094759	20.925225	31.850000	0.995400
987	7.380000	0.538600	0.281200	1.978113	0.100404	12.319154	67.710000	0.997400
988	5.060000	0.473000	0.277500	0.486570	0.099824	11.963872	45.870000	0.995000
989	7.020000	0.524700	0.255600	2.471292	0.093246	17.789910	48.290000	0.995000
990	6.660000	0.412000	0.326200	2.396858	0.059187	18.633629	28.230000	0.998600
991	8.400000	0.536100	0.224600	0.738687	0.099077	14.465708	60.780000	1.000300
992	5.620000	0.459700	0.286800	2.314833	0.041796	21.445849	41.540000	0.998000
993	4.880000	0.589900	0.272100	3.004077	0.095569	22.288864	45.740000	0.994700
994	6.700000	0.704700	0.218300	3.854567	0.058841	19.886092	39.040000	0.999500
995	7.960000	0.604600	0.266200	1.592048	0.057555	14.892445	44.610000	0.997500
996	8.480000	0.408000	0.222700	0.681955	0.051627	23.548965	25.830000	0.997200
997	6.110000	0.484100	0.372000	2.377267	0.042806	21.624585	48.750000	0.992800
998	7.760000	0.359000	0.320800	4.294486	0.098276	12.746186	44.530000	0.995200
999	5.070000	0.551100	0.100200	2.170100	0.050000	16.000001	31.370000	0.999200

In [16]: df.dtypes

```
Out[16]: fixed acidity      float64
          volatile acidity   float64
          citric acid        float64
          residual sugar     float64
          chlorides          float64
          free sulfur dioxide float64
          total sulfur dioxide float64
          density            float64
          pH                 float64
          sulphates          float64
          alcohol             float64
          quality             int64
          dtype: object
```

```
In [17]: df.isnull().sum()
```

```
Out[17]: fixed acidity      0
          volatile acidity   0
          citric acid        0
          residual sugar     0
          chlorides          0
          free sulfur dioxide 0
          total sulfur dioxide 0
          density            0
          pH                 0
          sulphates          0
          alcohol             0
          quality             0
          dtype: int64
```

```
In [18]: import pandas as pd
import numpy as np
import statistics

df = pd.read_csv('anggur.csv')

# Fungsi untuk menghitung rata-rata kandungan anggur
mean = df.mean()

# Fungsi untuk menghitung median kandungan anggur
median = df.median()

# Fungsi untuk menghitung modus kandungan anggur
modus = df.mode().iloc[0]

# Fungsi untuk menghitung standar deviasi kandungan anggur
std = df.std()

# Fungsi untuk menghitung variansi kandungan anggur
varians = df.var()

# Fungsi untuk menghitung range kandungan anggur
range = df.max() - df.min()

# Fungsi untuk menghitung nilai minimum kandungan anggur
nilaiMin = df.min()

# Fungsi untuk menghitung nilai maksimum kandungan anggur
nilaiMax = df.max()
```

```

# Fungsi untuk menghitung kuartil 1 kandungan anggur
kuartil1 = df.quantile(0.25)

# Fungsi untuk menghitung kuartil 2 (median) kandungan anggur
kuartil2 = df.quantile(0.50)

# Fungsi untuk menghitung kuartil 3 kandungan anggur
kuartil3 = df.quantile(0.75)

# Fungsi untuk menghitung IQR kandungan anggur
iqr = df.quantile(0.75) - df.quantile(0.25)

# Fungsi untuk menghitung nilai skewness kandungan anggur
skewness = df.skew()

# Fungsi untuk menghitung kurtosis kandungan anggur
kurtosis = df.kurt()

# Menampilkan tabel hasil perhitungan dari masing-masing atribut
columns = pd.DataFrame({'Mean': mean, 'Median': median, 'Modus': modus, 'Standar Deviasi': std, 'Variansi': var, 'Range': range})
table = columns.style.set_properties(**{'border': '1px solid black'})
table = columns.transpose()
display(table)

```

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide
Mean	7.152530	0.520839	0.270517	2.567104	0.081195	14.907679	40.290150
Median	7.150000	0.524850	0.272200	2.519430	0.082167	14.860346	40.190000
Modus	6.540000	0.554600	0.301900	0.032555	0.015122	0.194679	35.200000
Standar Deviasi	1.201598	0.095848	0.049098	0.987915	0.020111	4.888100	9.965767
Variansi	1.443837	0.009187	0.002411	0.975977	0.000404	23.893519	99.316519
Range	8.170000	0.665200	0.292900	5.518200	0.125635	27.267847	66.810000
Nilai Minimum	3.320000	0.139900	0.116700	0.032555	0.015122	0.194679	3.150000
Nilai Maksimum	11.490000	0.805100	0.409600	5.550755	0.140758	27.462525	69.960000
Kuartil 1	6.377500	0.456100	0.237800	1.896330	0.066574	11.426717	33.785000
Kuartil 2	7.150000	0.524850	0.272200	2.519430	0.082167	14.860346	40.190000
Kuartil 3	8.000000	0.585375	0.302325	3.220873	0.095312	18.313098	47.022500
IQR	1.622500	0.129275	0.064525	1.324544	0.028738	6.886381	13.237500
Skewness	-0.028879	-0.197699	-0.045576	0.132638	-0.051319	0.007130	-0.024060
Kurtosis	-0.019292	0.161853	-0.104679	-0.042980	-0.246508	-0.364964	0.063950

2. Visualisasi plot distribusi, dalam bentuk histogram dan boxplot untuk setiap kolom numerik

2.1 Boxplot dan Histogram Fixed Acidity

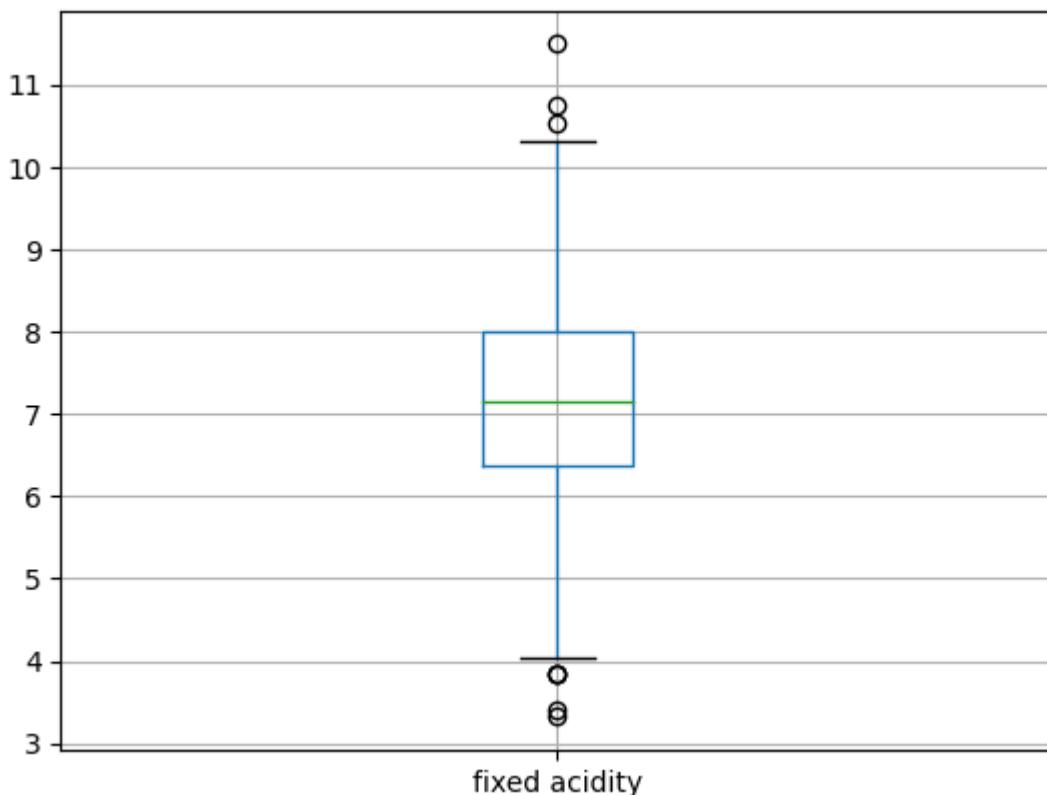
In [19]:

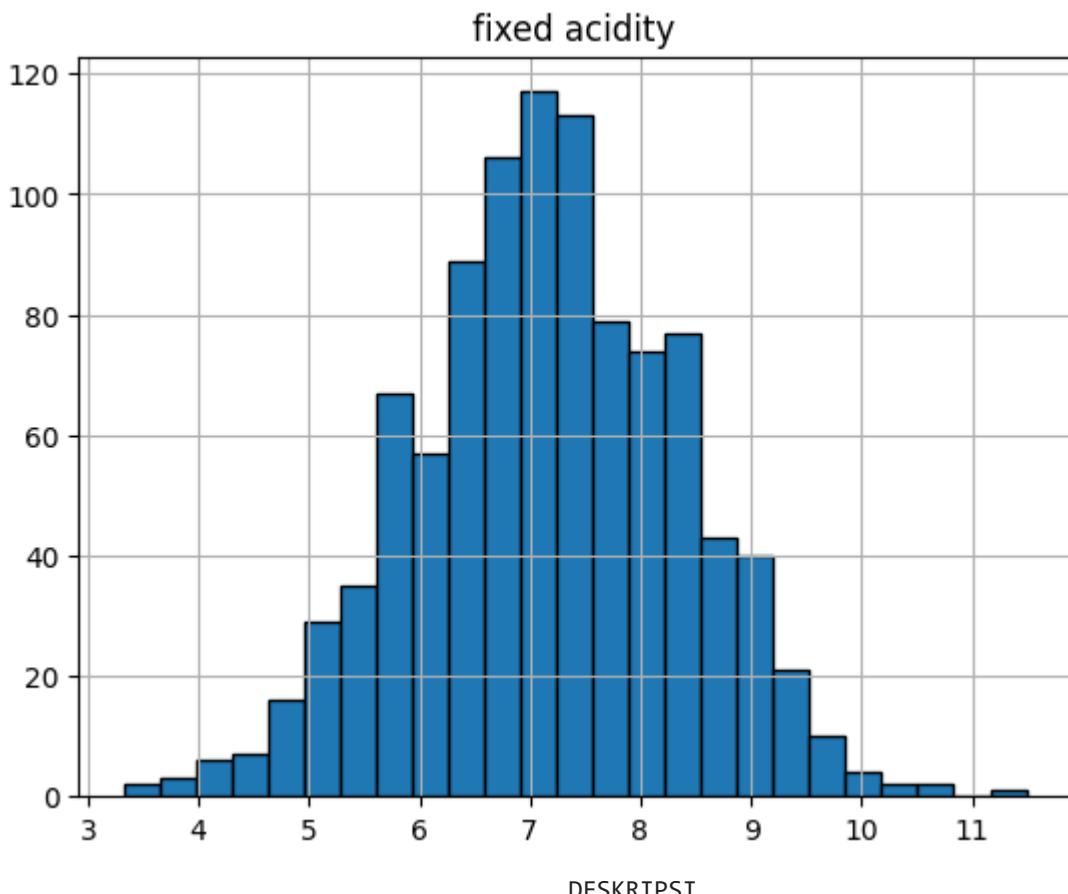
```
import csv
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('anggur.csv')
print(df.boxplot(column = [df.columns[0]]))
print(df.hist(column = [df.columns[0]], bins=25, edgecolor = "black"))
plt.show()

print("\n DESKRIPSI
Berdasarkan analisis Boxplot dan Histogram Fixed Acidity didapatkan beberapa informasi:
A. BoxPlot"
Median berada di sekitar nilai 7
Nilai maksimum lebih dari 10
Nilai minimum kurang dari 4
Ada beberapa nilai outlier atau penciran karena berada di luar garis whisker
print("Q1 = 6.377500, Q2 = Median = 7.150000, Q3 = 8.000000")
print("B. Histogram"
Histogram memiliki negative skew karena memiliki kecenderungan ke kanan.\r\n
```

```
Axes(0.125,0.11;0.775x0.77)
[[<Axes: title={'center': 'fixed acidity'}>]]
```





Berdasarkan analisis Boxplot dan Histogram Fixed Acidity didapatkan beberapa info rmasi sebagai berikut.

A. BoxPlot

Median berada disekitar nilai 7

Nilai maksimum lebih dari 10

Nilai minimum kurang dari 4

Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers
 $Q1 = 6.377500$, $Q2 = \text{Median} = 7.150000$, $Q3 = 8.000000$

B. Histogram

Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.

2.2 Boxplot dan Histogram Volatile Acidity

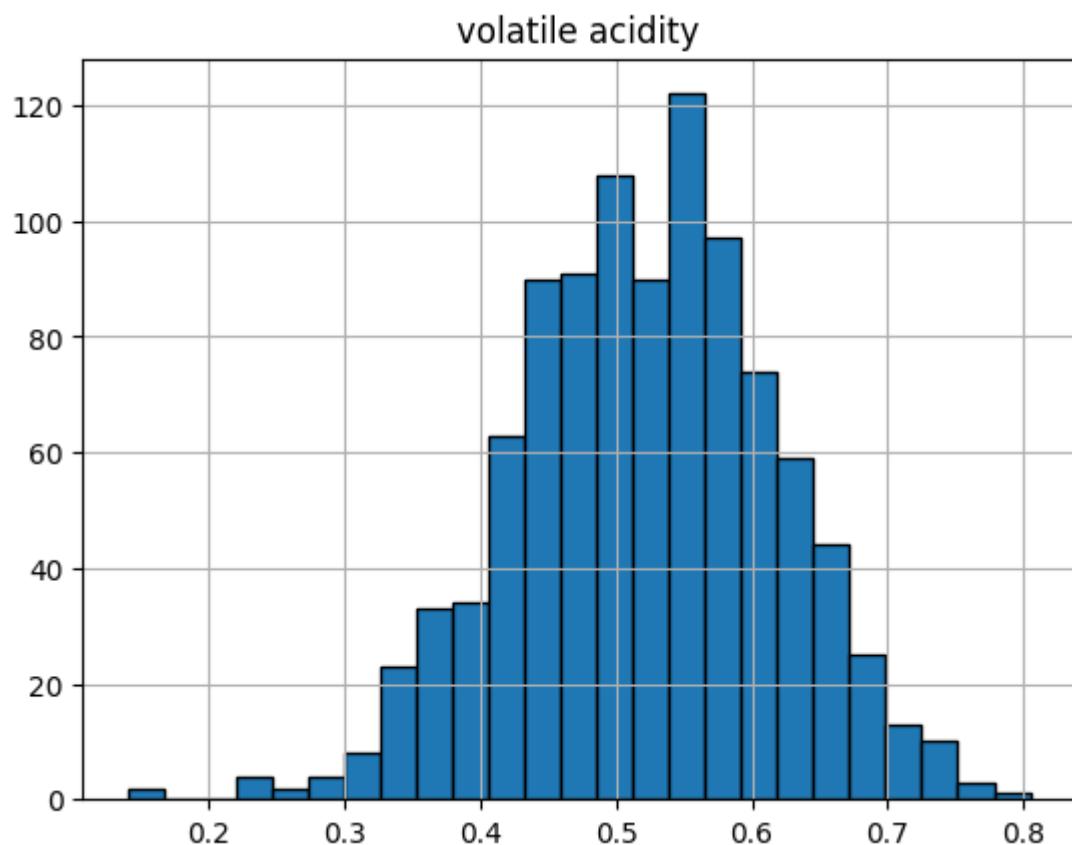
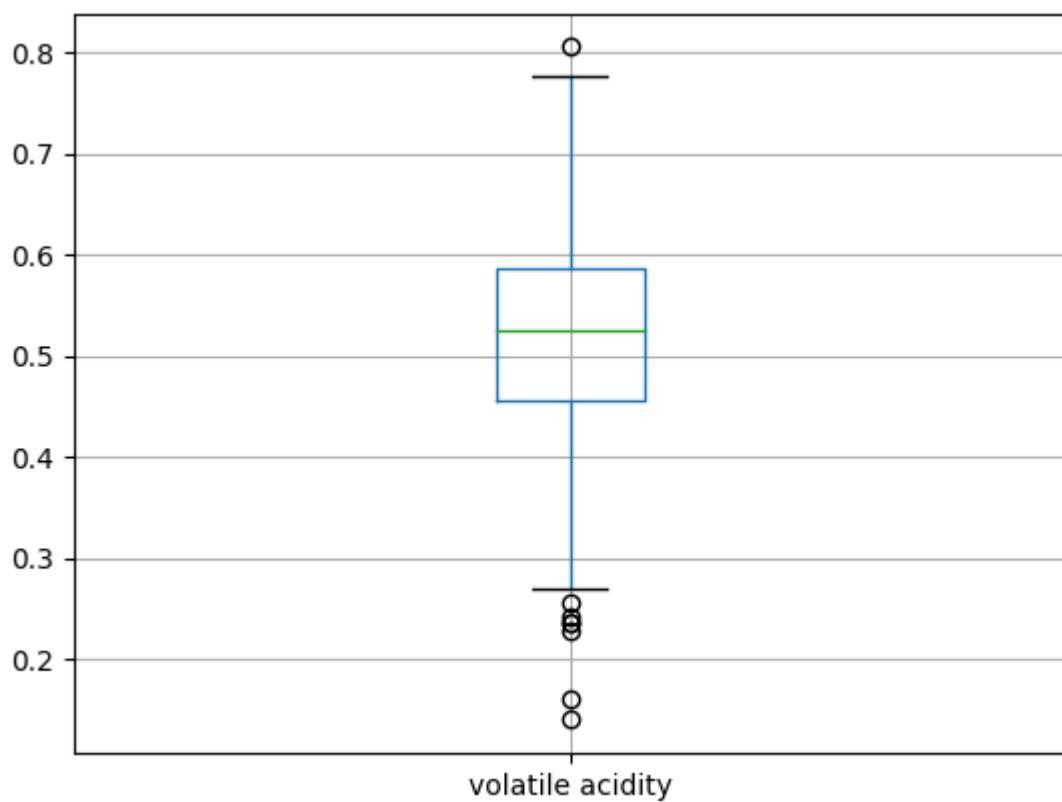
```
In [20]: import csv
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

df = pd.read_csv('anggur.csv')
print(df.boxplot(column = [df.columns[1]]))
print(df.hist(column = [df.columns[1]], bins=25, edgecolor = "black"))
plt.show()

print("\n                                         DESKRIPSI")
print("Berdasarkan analisis Boxplot dan Histogram Volatile Acidity didapatkan be")
print("A. BoxPlot")
print("Median berada disekitar nilai 0.52")
print("Nilai maksimum lebih dari 0.8")
print("Nilai minimum kurang dari 0.3")
print("Ada beberapa nilai outlier atau pencilan karena berada di luar garis whis")
print("Q1 = 0.456100, Q2 = Median = 0.524850, Q3 = 0.585375")
```

```
print("B. Histogram")
print("Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.\n")
```

```
Axes(0.125,0.11;0.775x0.77)
[[<Axes: title={'center': 'volatile acidity'}>]]
```



DESKRIPSI

Berdasarkan analisis Boxplot dan Histogram Volatile Acidity didapatkan beberapa informasi sebagai berikut.

A. BoxPlot

Median berada disekitar nilai 0.52

Nilai maksimum lebih dari 0.8

Nilai minimum kurang dari 0.3

Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers

$Q1 = 0.456100$, $Q2 = \text{Median} = 0.524850$, $Q3 = 0.585375$

B. Histogram

Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.

2.3 Boxplot dan Histogram Citric Acid

In [21]:

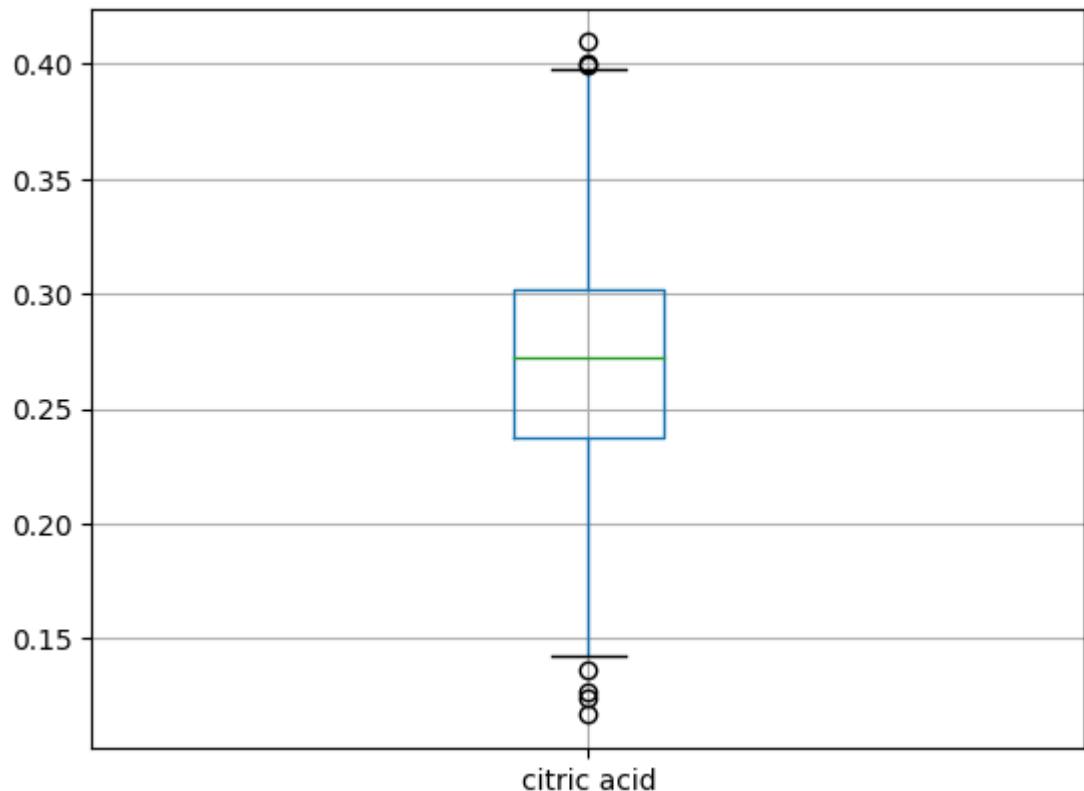
```
import csv
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('anggur.csv')
print(df.boxplot(column = [df.columns[2]]))
print(df.hist(column = [df.columns[2]], bins=25, edgecolor = "black"))
plt.show()

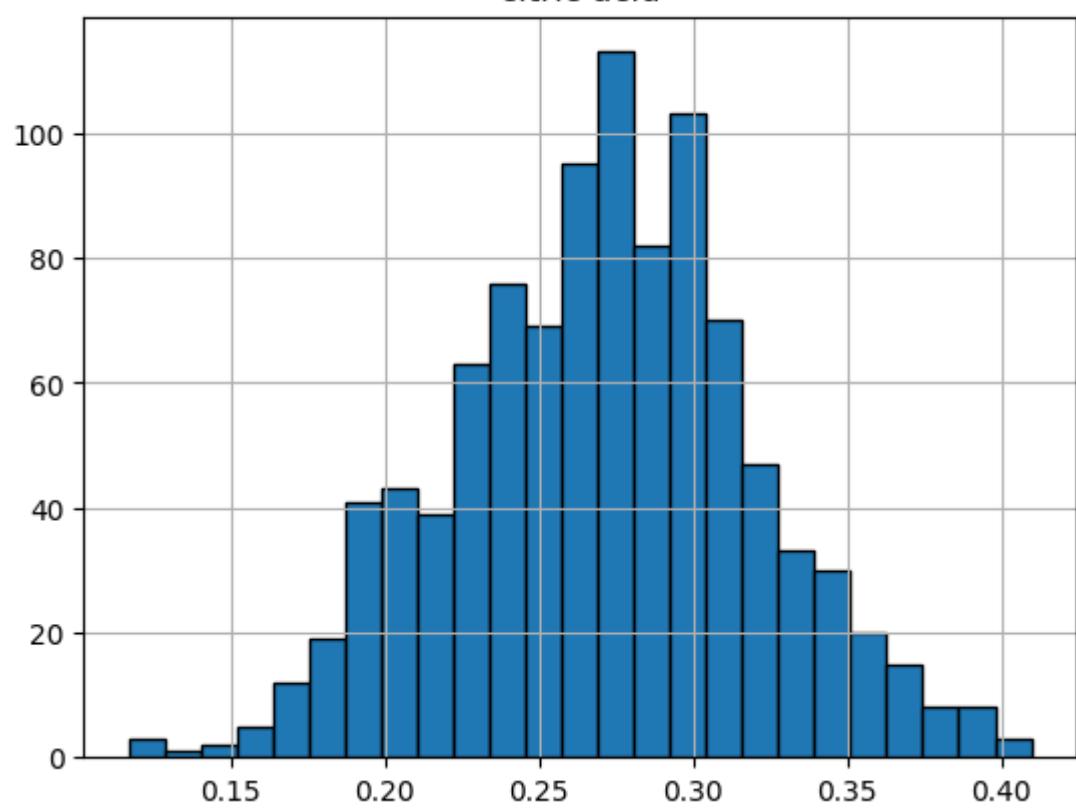
print("\n                                         DESKRIPSI")
print("Berdasarkan analisis Boxplot dan Histogram Citric Acid didapatkan beberapa")
print("A. BoxPlot")
print("Median berada disekitar nilai 0.27")
print("Nilai maksimum lebih dari 0.4")
print("Nilai minimum kurang dari 0.15")
print("Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers")
print("Q1 = 0.237800, Q2 = Median = 0.272200, Q3 = 0.302325")
print("B. Histogram")
print("Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.\r\nAxe
```

Axes(0.125,0.11;0.775x0.77)

[[<Axes: title={'center': 'citric acid'}>]]



citric acid



DESKRIPSI

Berdasarkan analisis Boxplot dan Histogram Citric Acid didapatkan beberapa informasi sebagai berikut.

A. BoxPlot

Median berada disekitar nilai 0.27

Nilai maksimum lebih dari 0.4

Nilai minimum kurang dari 0.15

Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers

$Q1 = 0.237800$, $Q2 = \text{Median} = 0.272200$, $Q3 = 0.302325$

B. Histogram

Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.

2.4 Boxplot dan Histogram Residual Sugar

In [22]:

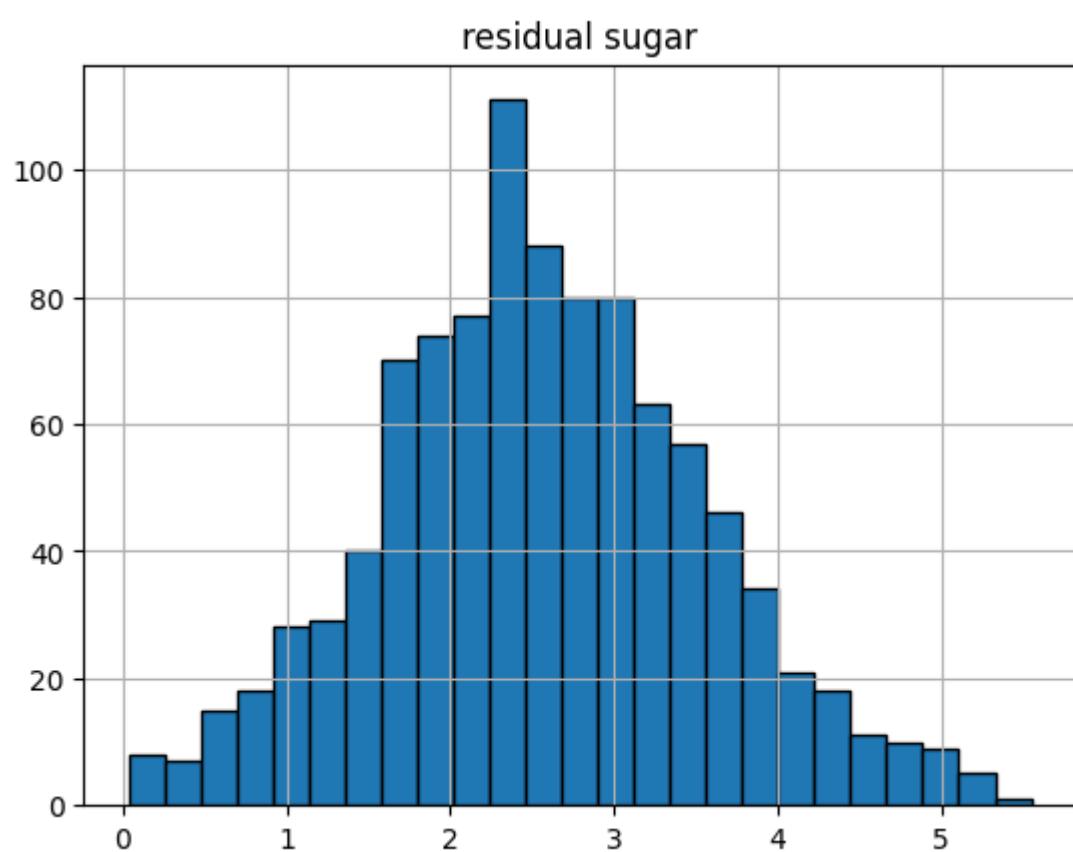
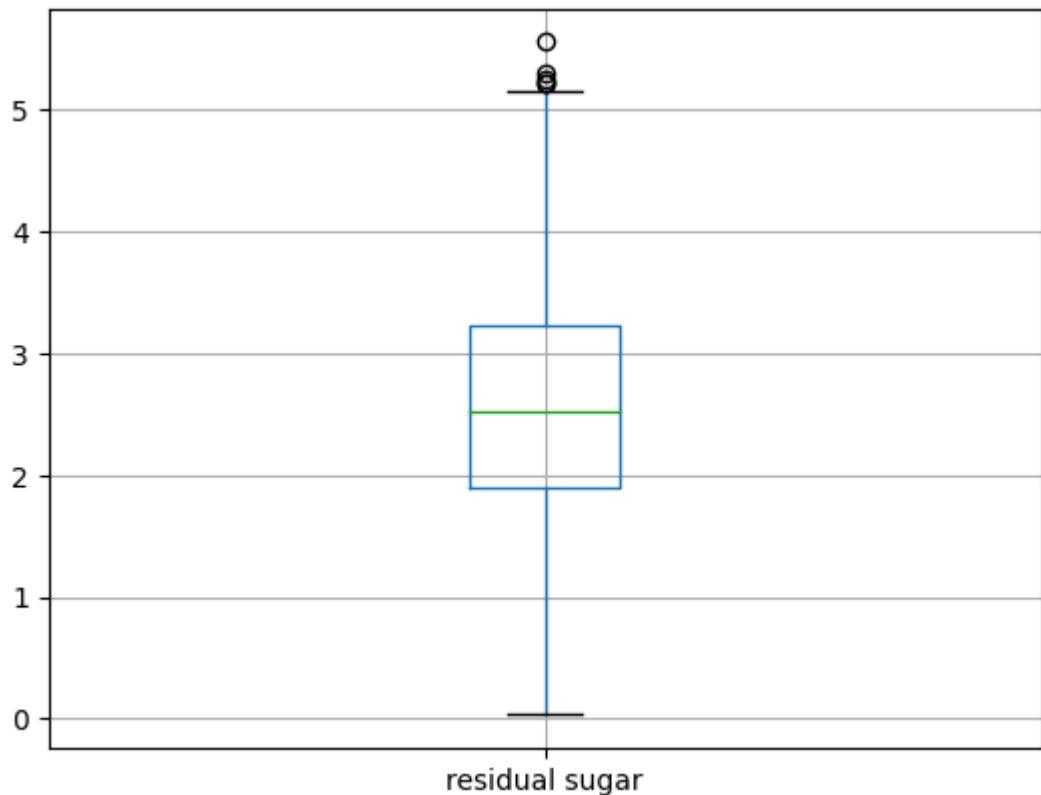
```
import csv
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('anggur.csv')
print(df.boxplot(column = [df.columns[3]]))
print(df.hist(column = [df.columns[3]], bins=25, edgecolor = "black"))
plt.show()

print("\n                                DESKRIPSI
print("Berdasarkan analisis Boxplot dan Histogram Residual Sugar didapatkan beberapa informasi sebagai berikut.")
print("A. BoxPlot")
print("Median berada disekitar nilai 2.5")
print("Nilai maksimum lebih dari 5")
print("Nilai minimum kurang dari 1")
print("Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers")
print("Q1 = 1.896330, Q2 = Median = 2.519430, Q3 = 3.220873")
print("B. Histogram")
print("Histogram memiliki positive skew karena memiliki kecendrungan ke kiri.\n")
```

Axes(0.125,0.11;0.775x0.77)

[[<Axes: title={'center': 'residual sugar'}>]]



DESKRIPSI

Berdasarkan analisis Boxplot dan Histogram Residual Sugar didapatkan beberapa informasi sebagai berikut.

A. BoxPlot

Median berada disekitar nilai 2.5

Nilai maksimum lebih dari 5

Nilai minimum kurang dari 1

Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers

$Q1 = 1.896330$, $Q2 = \text{Median} = 2.519430$, $Q3 = 3.220873$

B. Histogram

Histogram memiliki positive skew karena memiliki kecendrungan ke kiri.

2.5 Boxplot dan Histogram Chlorides

In [23]:

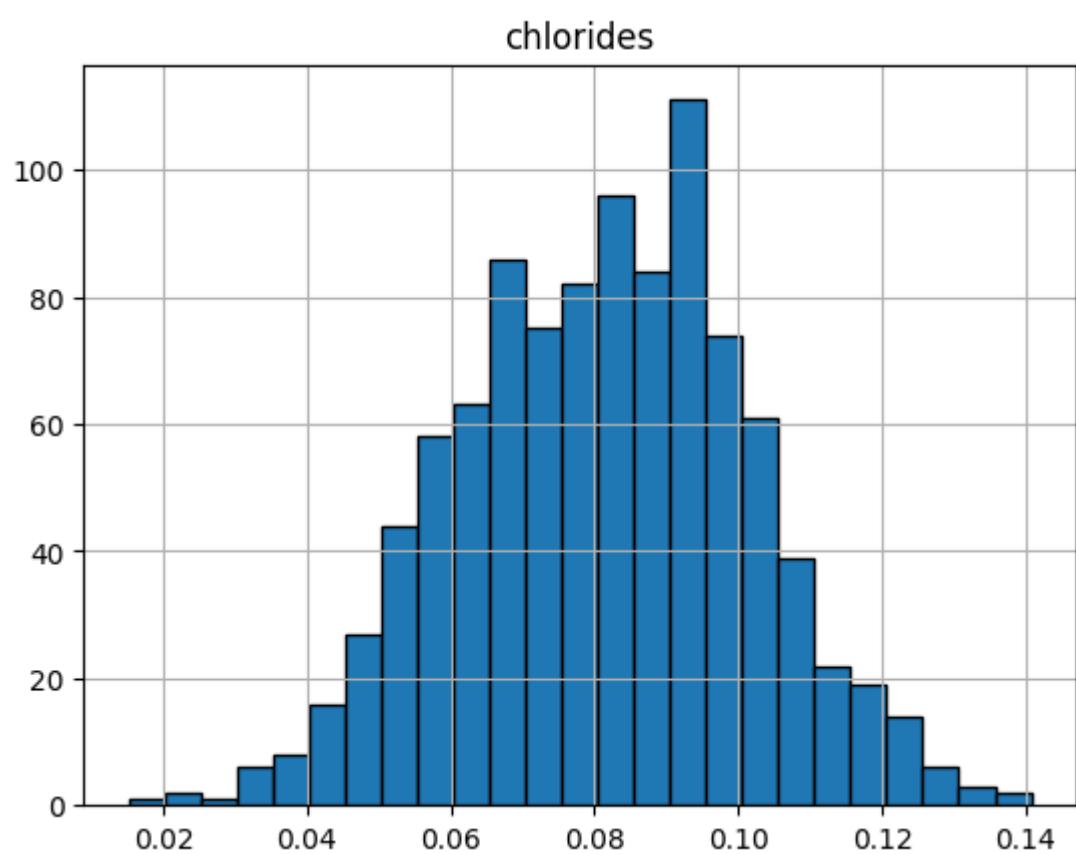
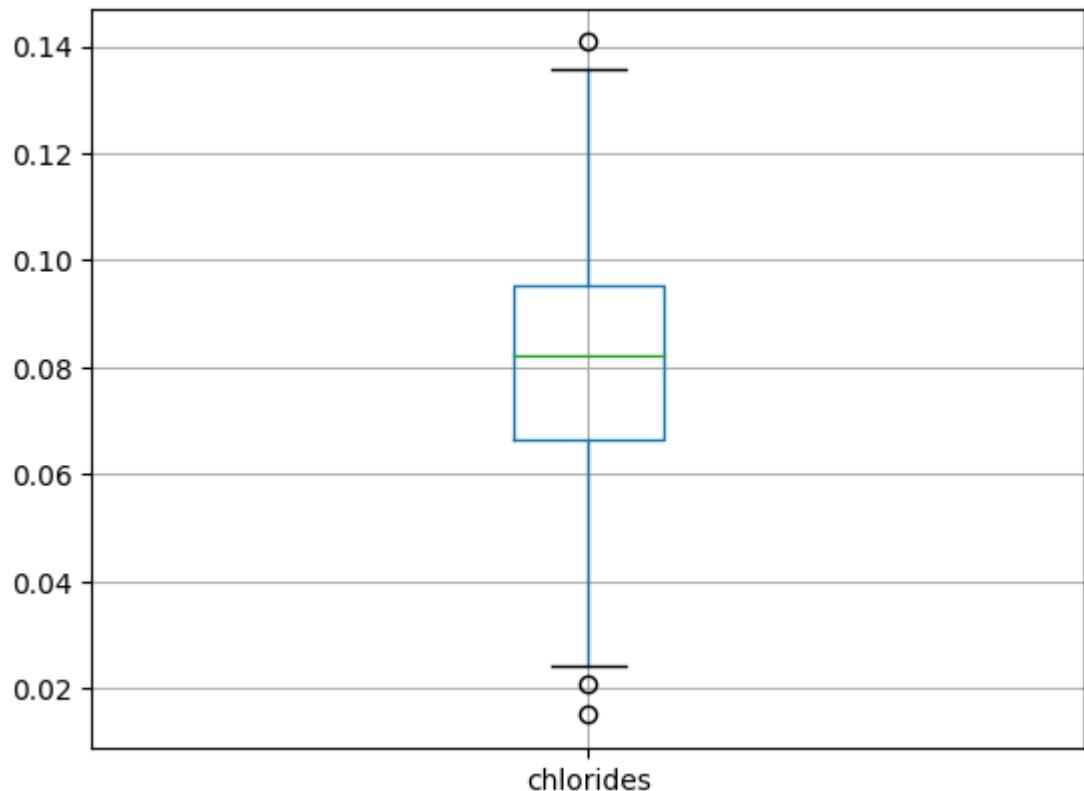
```
import csv
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('anggur.csv')
print(df.boxplot(column = [df.columns[4]]))
print(df.hist(column = [df.columns[4]], bins=25, edgecolor = "black"))
plt.show()

print("\n                DESKRIPSI")
print("Berdasarkan analisis Boxplot dan Histogram Chlorides didapatkan beberapa")
print("A. BoxPlot")
print("Median berada disekitar nilai 0.08")
print("Nilai maksimum lebih dari 0.14")
print("Nilai minimum kurang dari 0.02")
print("Ada beberapa nilai outlier atau pencilan karena berada di luar garis whis")
print("print("Q1 = 0.066574, Q2 = Median = 0.082167, Q3 = 0.095312")")
print("B. Histogram")
print("Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.\r\nAxe
```

$Axes(0.125, 0.11; 0.775 \times 0.77)$

$[[<Axes: title=\{'center'\}: 'chlorides'\}>]]$



DESKRIPSI

Berdasarkan analisis Boxplot dan Histogram Chlorides didapatkan beberapa informasi sebagai berikut.

A. BoxPlot

Median berada disekitar nilai 0.08
Nilai maksimum lebih dari 0.14
Nilai minimum kurang dari 0.02
Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers
 $Q1 = 0.066574$, $Q2 = \text{Median} = 0.082167$, $Q3 = 0.095312$

B. Histogram

Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.

2.6 Boxplot dan Histogram Free Sulfur Dioxide

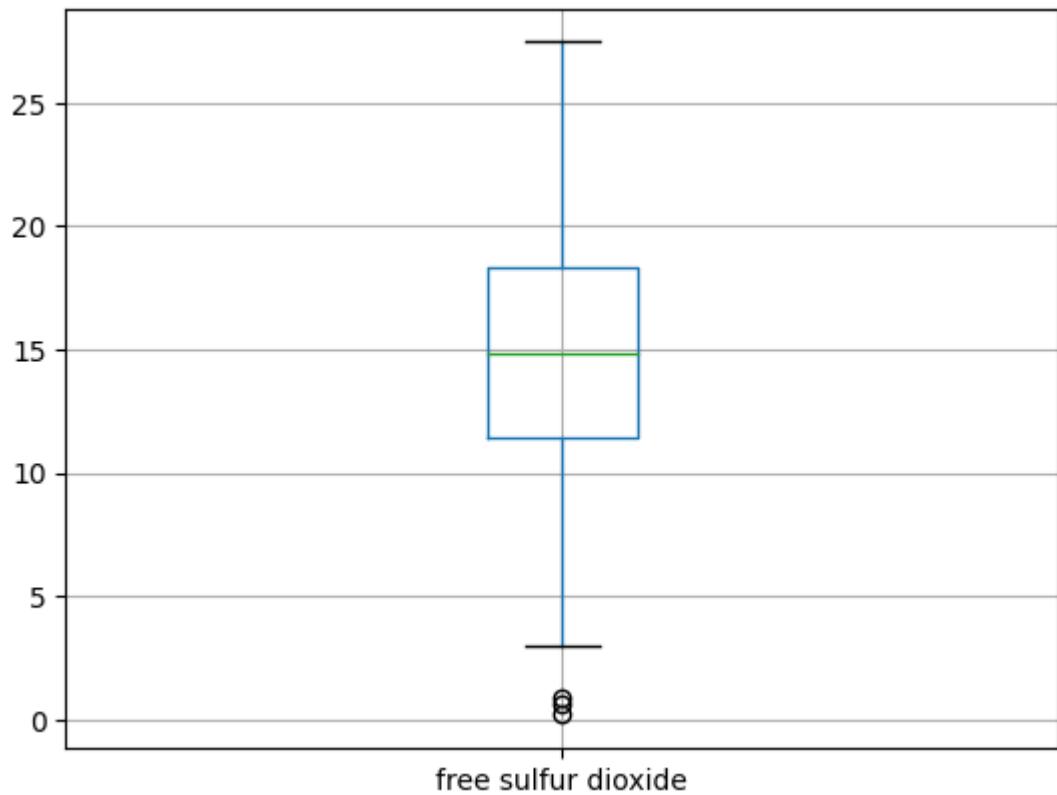
In [24]:

```
import csv
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

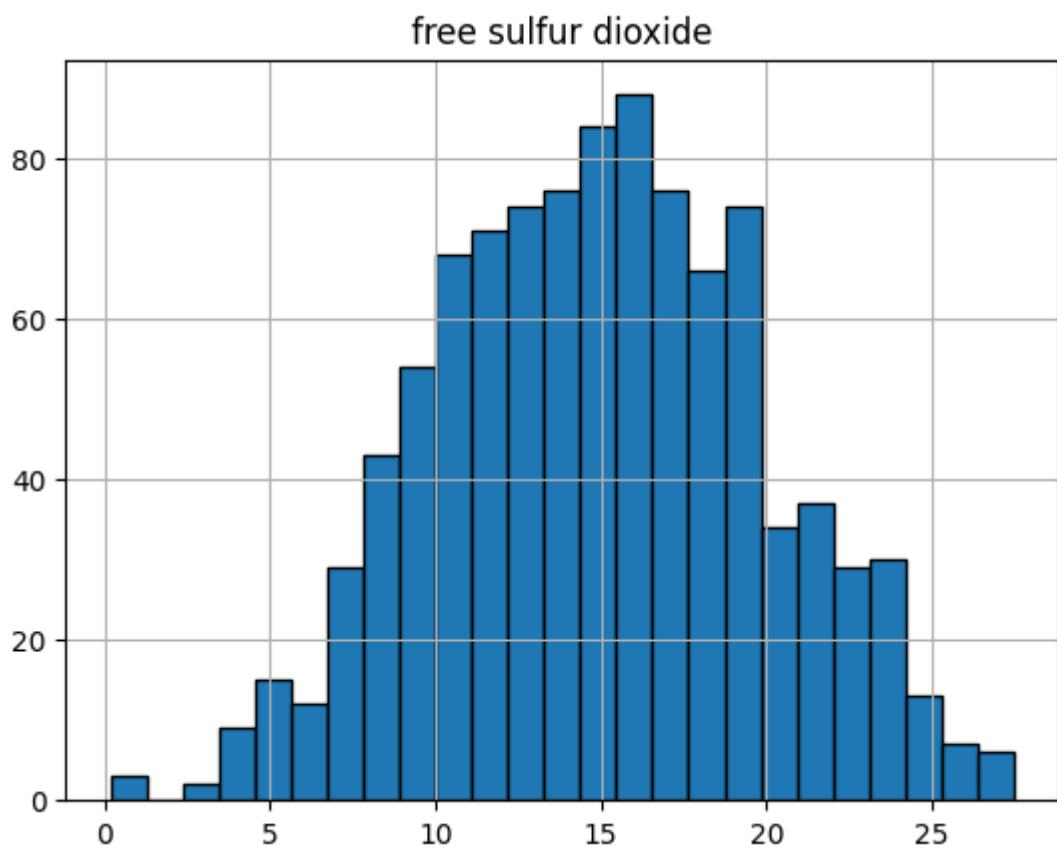
df = pd.read_csv('anggur.csv')
print(df.boxplot(column = [df.columns[5]]))
print(df.hist(column = [df.columns[5]], bins=25, edgecolor = "black"))
plt.show()

print("\n                                DESKRIPSI")
print("Berdasarkan analisis Boxplot dan Histogram Free Sulfur Dioxide didapatkan")
print("A. BoxPlot")
print("Median berada disekitar nilai 15")
print("Nilai maksimum lebih dari 25")
print("Nilai minimum kurang dari 5")
print("Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers")
print("Q1 = 11.426717, Q2 = Median = 14.860346, Q3 = 18.313098")
print("B. Histogram")
print("Histogram memiliki positive skew karena memiliki kecendrungan ke kiri.\n")
```

```
Axes(0.125,0.11;0.775x0.77)
[[<Axes: title={'center': 'free sulfur dioxide'}>]]
```



free sulfur dioxide



DESKRIPSI

Berdasarkan analisis Boxplot dan Histogram Free Sulfur Dioxide didapatkan beberapa informasi sebagai berikut.

A. BoxPlot

Median berada disekitar nilai 15

Nilai maksimum lebih dari 25

Nilai minimum kurang dari 5

Ada beberapa nilai outlier atau pencikan karena berada di luar garis whiskers

$Q1 = 11.426717$, $Q2 = \text{Median} = 14.860346$, $Q3 = 18.313098$

B. Histogram

Histogram memiliki positive skew karena memiliki kecenderungan ke kiri.

2.7 Boxplot dan Histogram Total Sulfur Dioxide

In [25]:

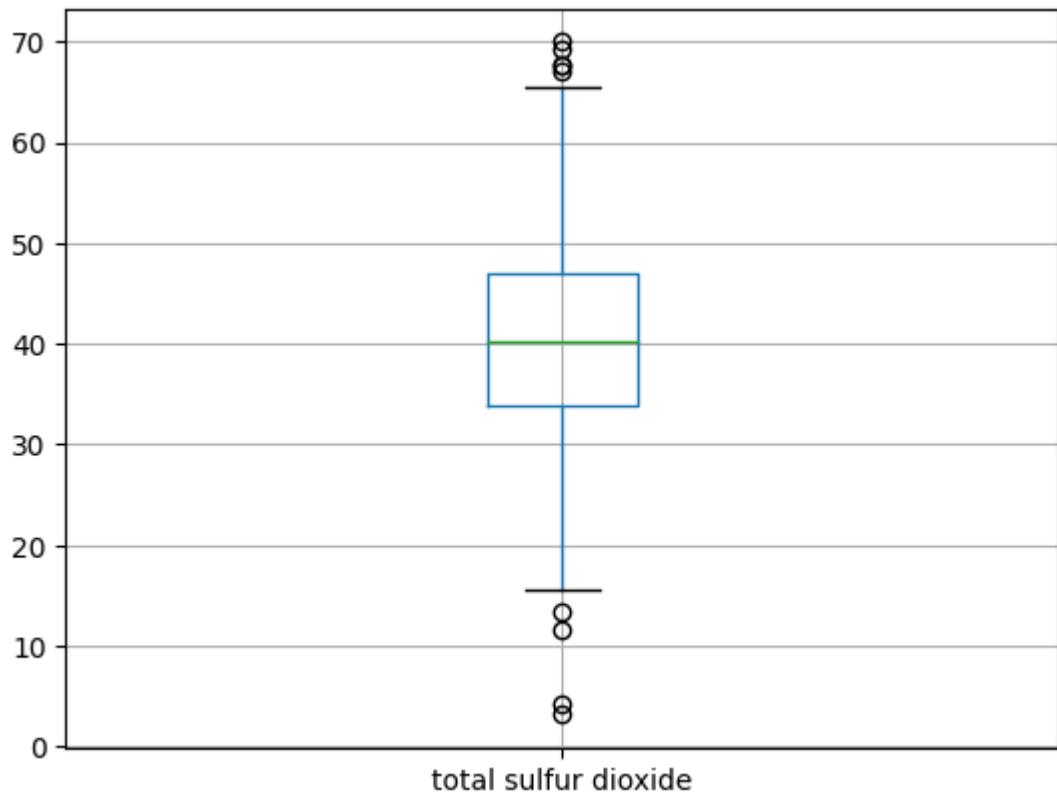
```
import csv
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('anggur.csv')
print(df.boxplot(column = [df.columns[6]]))
print(df.hist(column = [df.columns[6]], bins=25, edgecolor = "black"))
plt.show()

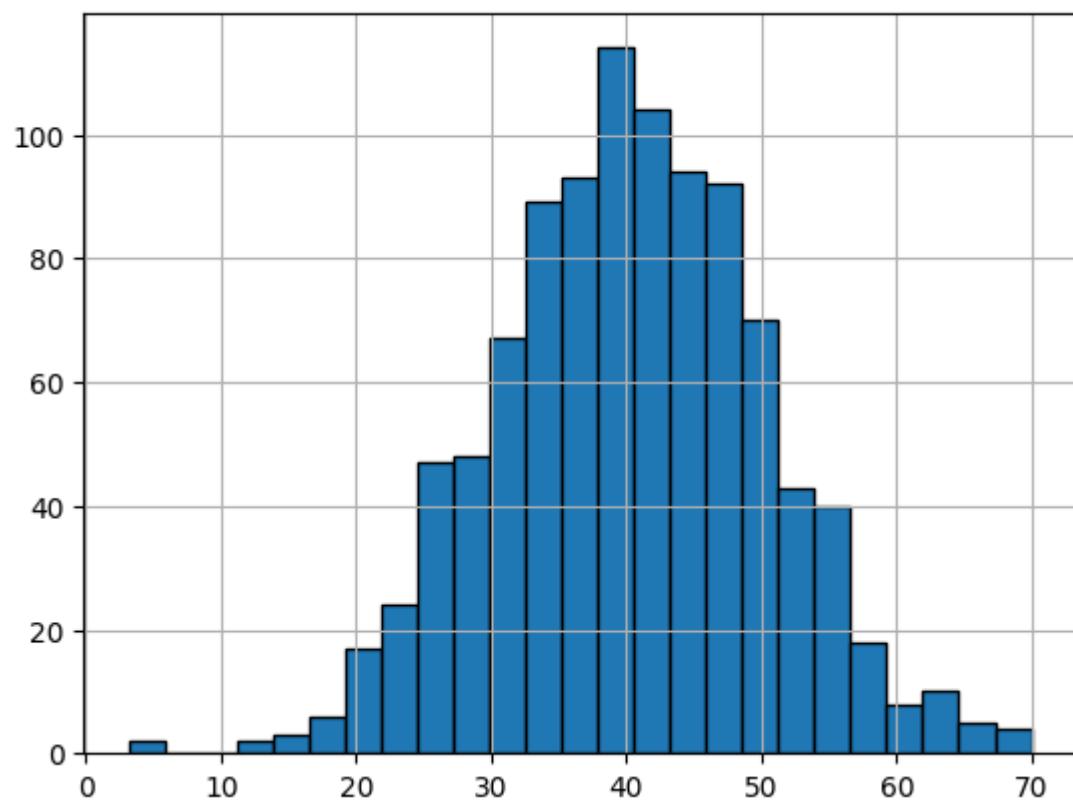
print("\n                                         DESKRIPSI")
print("Berdasarkan analisis Boxplot dan Histogram Total Sulfur Dioxide didapatkan")
print("A. BoxPlot")
print("Median berada disekitar nilai 40")
print("Nilai maksimum lebih dari 65")
print("Nilai minimum kurang dari 20")
print("Ada beberapa nilai outlier atau pencikan karena berada di luar garis whiskers")
print("Q1 = 33.785000, Q2 = Median = 40.190000, Q3 = 47.022500")
print("B. Histogram")
print("Histogram memiliki negative skew karena memiliki kecenderungan ke kanan.\r\nAxe
```

Axes(0.125,0.11;0.775x0.77)

[[<Axes: title={'center': 'total sulfur dioxide'}>]]



total sulfur dioxide



DESKRIPSI

Berdasarkan analisis Boxplot dan Histogram Total Sulfur Dioxide didapatkan beberapa informasi sebagai berikut.

A. BoxPlot

Median berada disekitar nilai 40

Nilai maksimum lebih dari 65

Nilai minimum kurang dari 20

Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers

$Q1 = 33.785000$, $Q2 = \text{Median} = 40.190000$, $Q3 = 47.022500$

B. Histogram

Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.

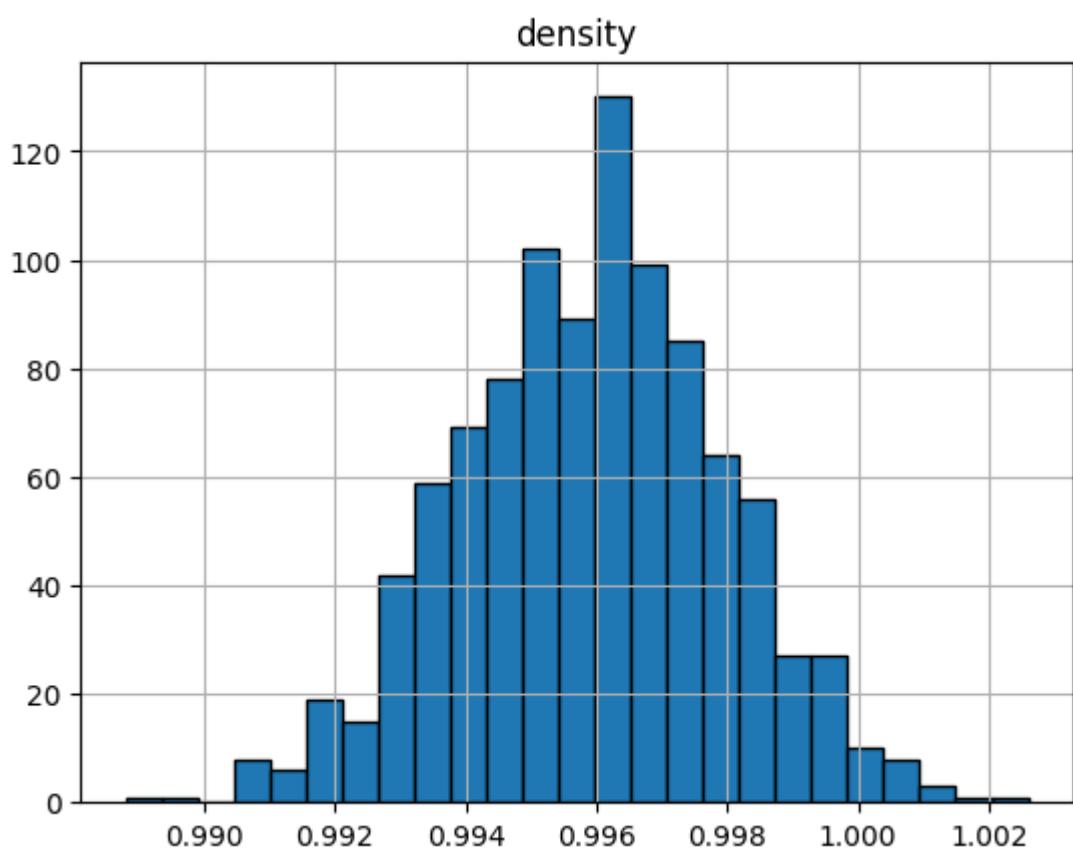
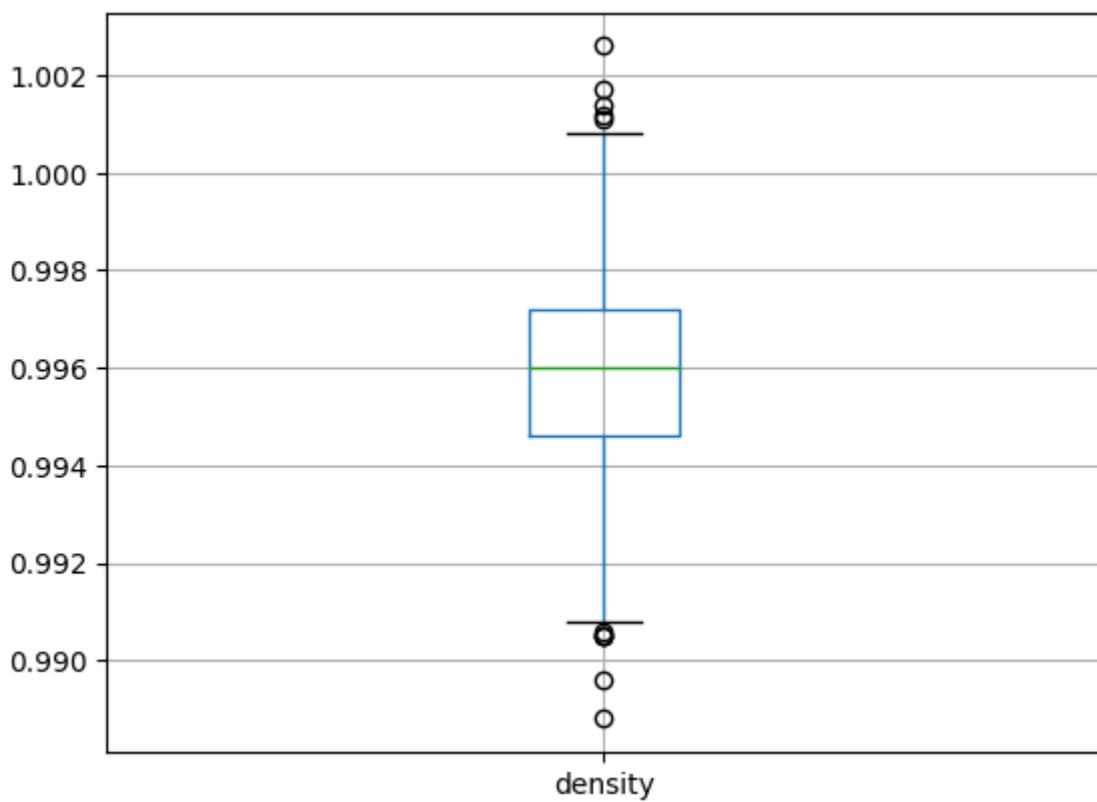
2.8 Boxplot dan Histogram Density

In [26]:

```
import csv
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('anggur.csv')
print(df.boxplot(column = [df.columns[7]]))
print(df.hist(column = [df.columns[7]], bins=25, edgecolor = "black"))
plt.show()

print("\n DESKRIPSI
print("Berdasarkan analisis Boxplot dan Histogram Density didapatkan beberapa in
print("A. BoxPlot")
print("Median berada disekitar nilai 0.99")
print("Nilai maksimum lebih dari 1.00")
print("Nilai minimum kurang dari 0.99")
print("Ada beberapa nilai outlier atau pencilan karena berada di luar garis whis
print("Q1 = 0.994600, Q2 = Median = 0.996000, Q3 = 0.997200")
print("B. Histogram")
print("Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.\r
Axes(0.125,0.11;0.775x0.77)
[[<Axes: title={'center': 'density'}>]]
```



DESKRIPSI

Berdasarkan analisis Boxplot dan Histogram Density didapatkan beberapa informasi sebagai berikut.

A. BoxPlot

Median berada disekitar nilai 0.99

Nilai maksimum lebih dari 1.00

Nilai minimum kurang dari 0.99

Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers

$Q1 = 0.994600$, $Q2 = \text{Median} = 0.996000$, $Q3 = 0.997200$

B. Histogram

Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.

2.9 Boxplot dan Histogram pH

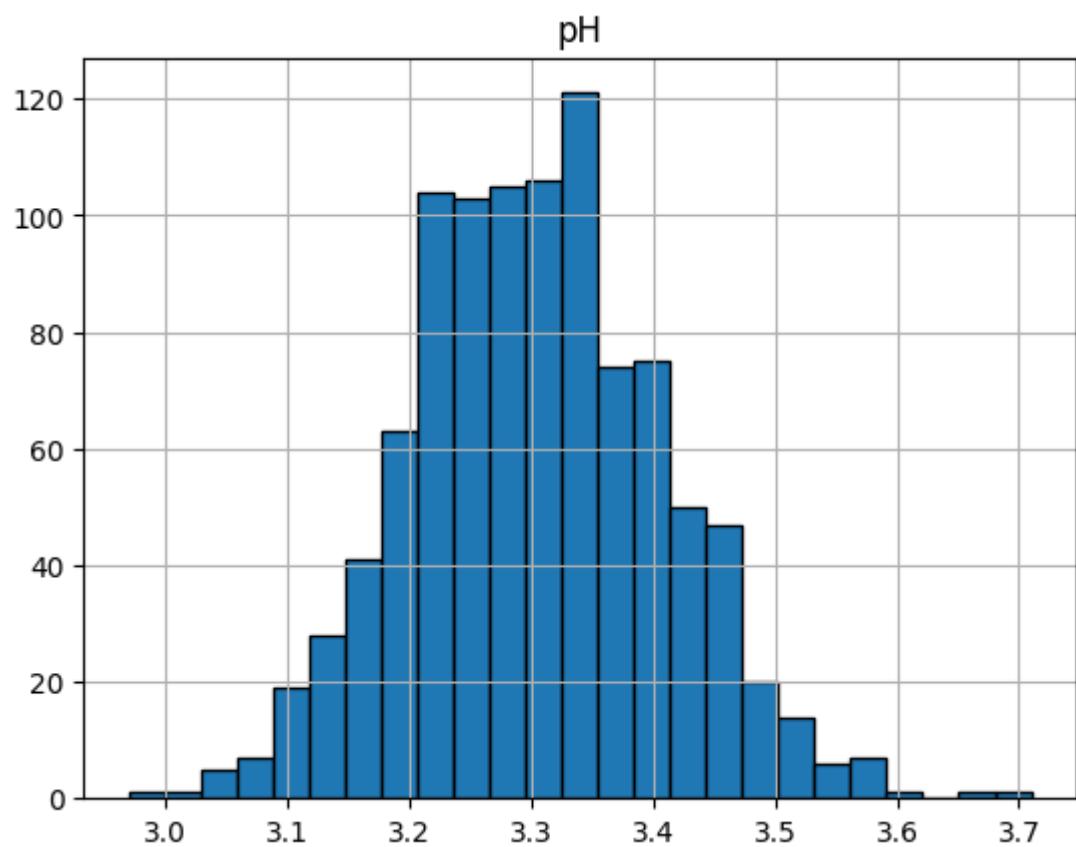
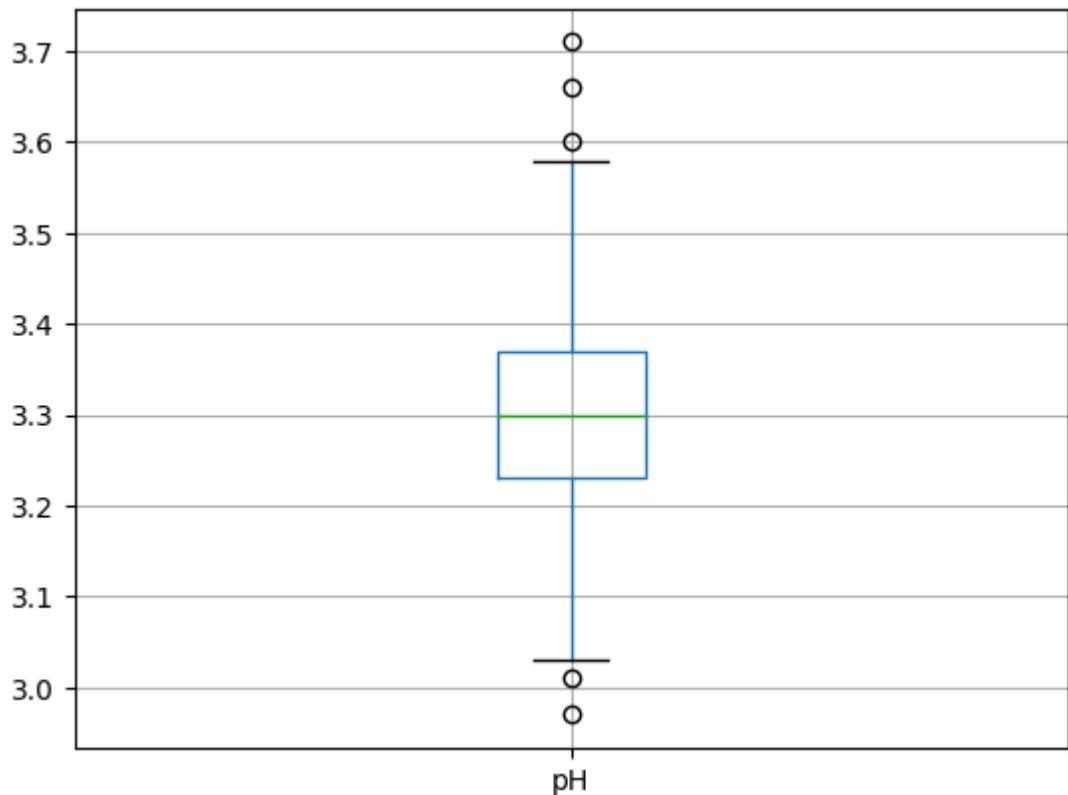
In [27]:

```
import csv
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('anggur.csv')
print(df.boxplot(column = [df.columns[8]]))
print(df.hist(column = [df.columns[8]], bins=25, edgecolor = "black"))
plt.show()

print("\n                                DESKRIPSI
print("Berdasarkan analisis Boxplot dan Histogram pH didapatkan beberapa informa
print("A. BoxPlot")
print("Median berada disekitar nilai 3.3")
print("Nilai maksimum lebih dari 3.5")
print("Nilai minimum kurang dari 3.1")
print("Ada beberapa nilai outlier atau pencilan karena berada di luar garis whis
print("Q1 = 3.230000, Q2 = Median = 3.300000, Q3 = 3.370000")
print("B. Histogram")
print("Histogram memiliki positive skew karena memiliki kecendrungan ke kiri.\n")
```

```
Axes(0.125,0.11;0.775x0.77)
[[<Axes: title={'center': 'pH'}>]]
```



DESKRIPSI

Berdasarkan analisis Boxplot dan Histogram pH didapatkan beberapa informasi sebagai berikut.

A. BoxPlot

Median berada disekitar nilai 3.3
Nilai maksimum lebih dari 3.5
Nilai minimum kurang dari 3.1
Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers
 $Q1 = 3.230000$, $Q2 = \text{Median} = 3.300000$, $Q3 = 3.370000$

B. Histogram

Histogram memiliki positive skew karena memiliki kecendrungan ke kiri.

2.10 Boxplot dan Histogram Sulphates

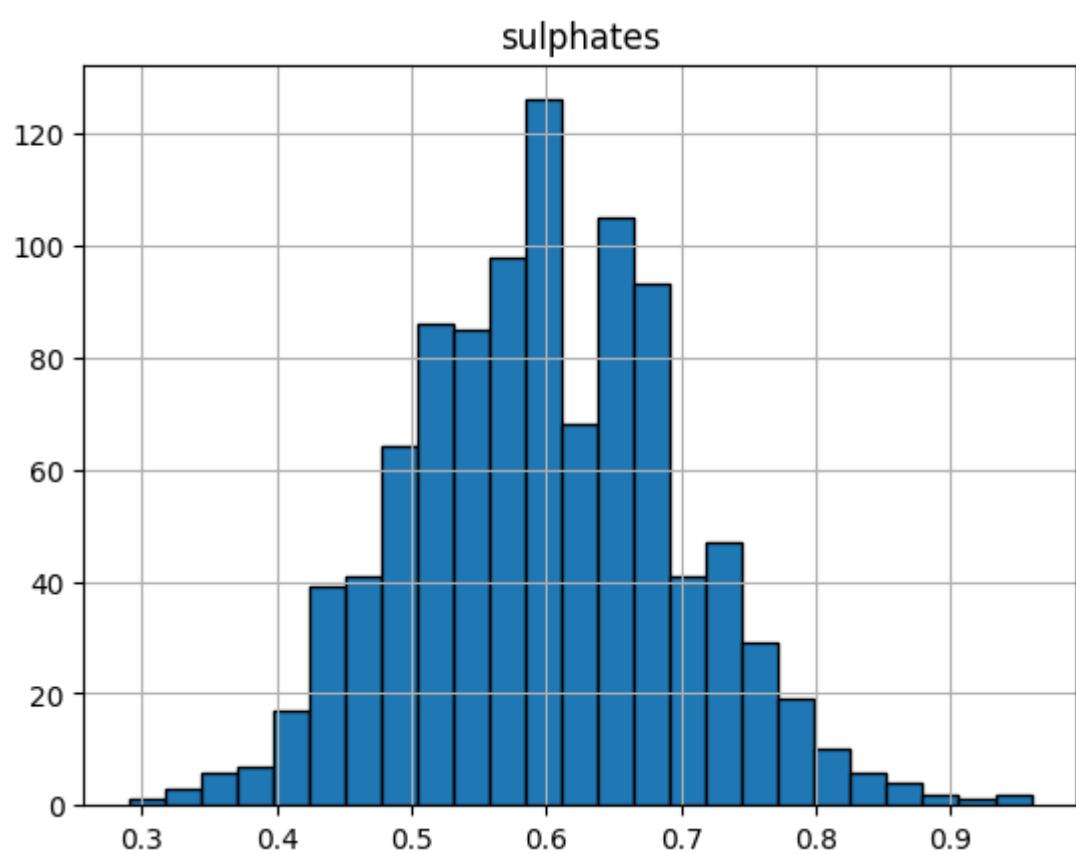
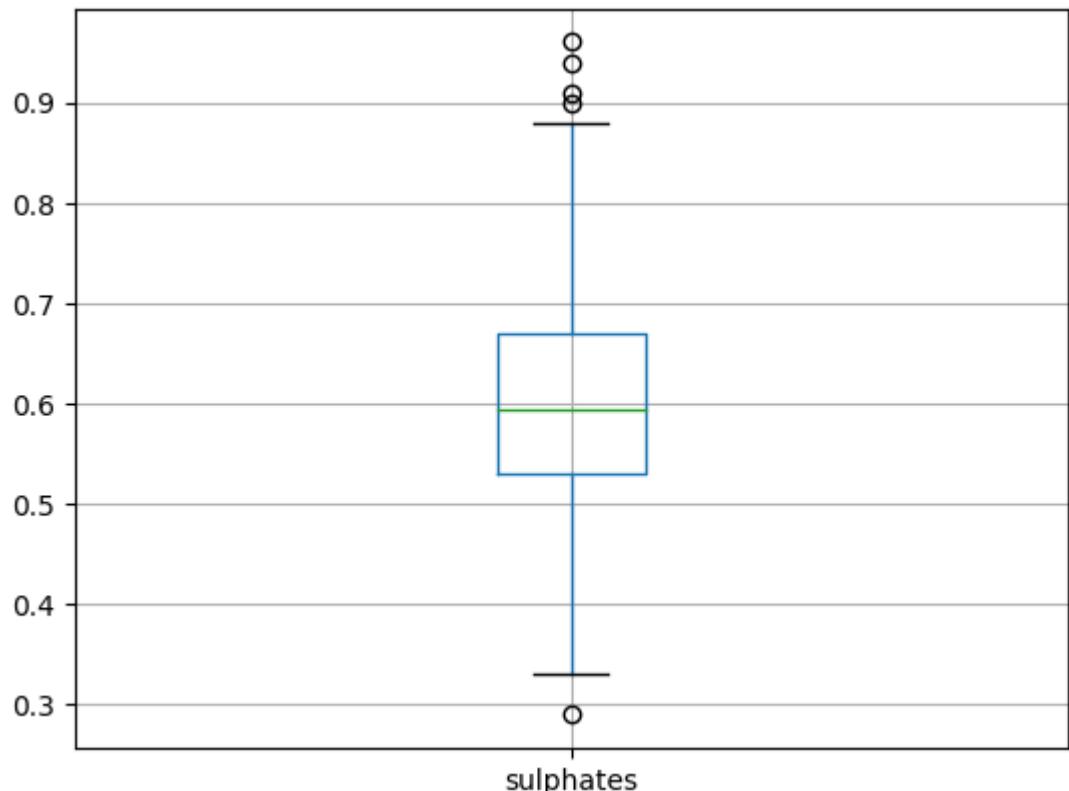
In [28]:

```
import csv
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('anggur.csv')
print(df.boxplot(column = [df.columns[9]]))
print(df.hist(column = [df.columns[9]], bins=25, edgecolor = "black"))
plt.show()

print("\n                                DESKRIPSI")
print("Berdasarkan analisis Boxplot dan Histogram Sulphates didapatkan beberapa")
print("A. BoxPlot")
print("Median berada disekitar nilai 0.6")
print("Nilai maksimum lebih dari 0.8")
print("Nilai minimum kurang dari 0.4")
print("Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers")
print("Q1 = 0.530000, Q2 = Median = 0.595000, Q3 = 0.670000")
print("B. Histogram")
print("Histogram memiliki positive skew karena memiliki kecendrungan ke kiri.\n")
```

```
Axes(0.125,0.11;0.775x0.77)
[[<Axes: title={'center': 'sulphates'}>]]
```



DESKRIPSI

Berdasarkan analisis Boxplot dan Histogram Sulphates didapatkan beberapa informasi sebagai berikut.

A. BoxPlot

Median berada disekitar nilai 0.6
Nilai maksimum lebih dari 0.8
Nilai minimum kurang dari 0.4
Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers
 $Q1 = 0.530000$, $Q2 = \text{Median} = 0.595000$, $Q3 = 0.670000$

B. Histogram

Histogram memiliki positive skew karena memiliki kecendrungan ke kiri.

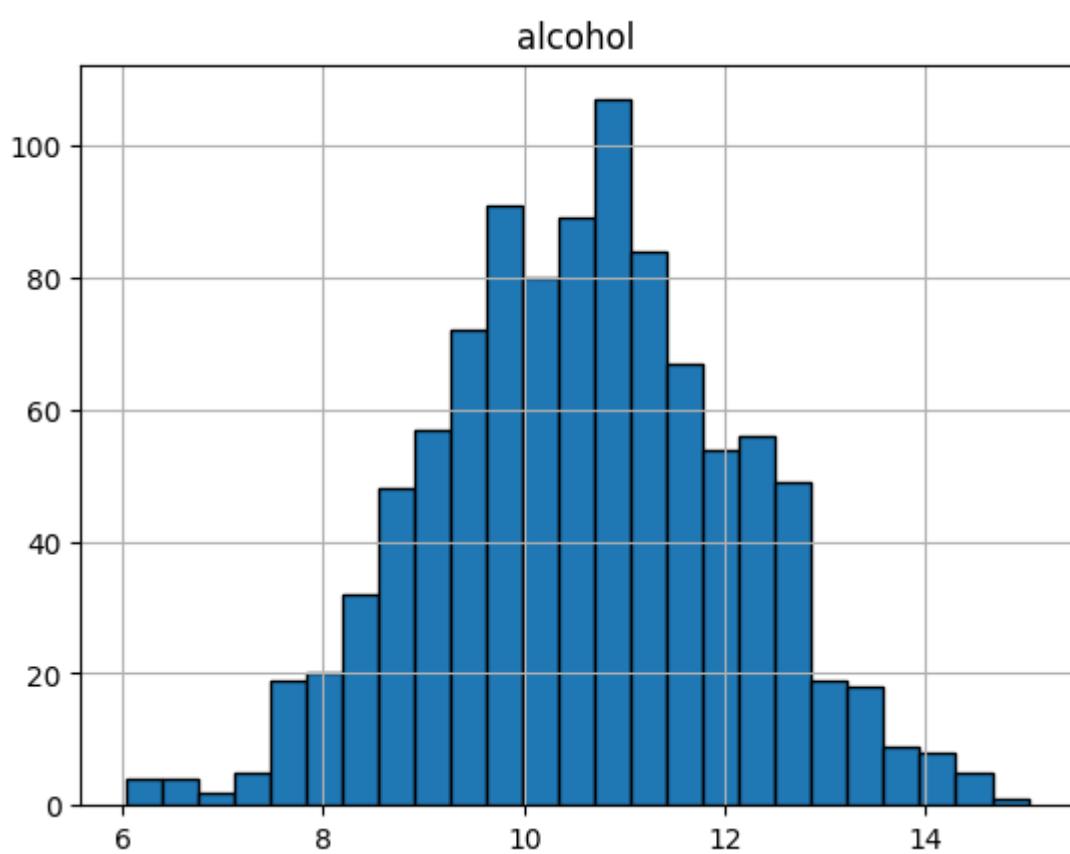
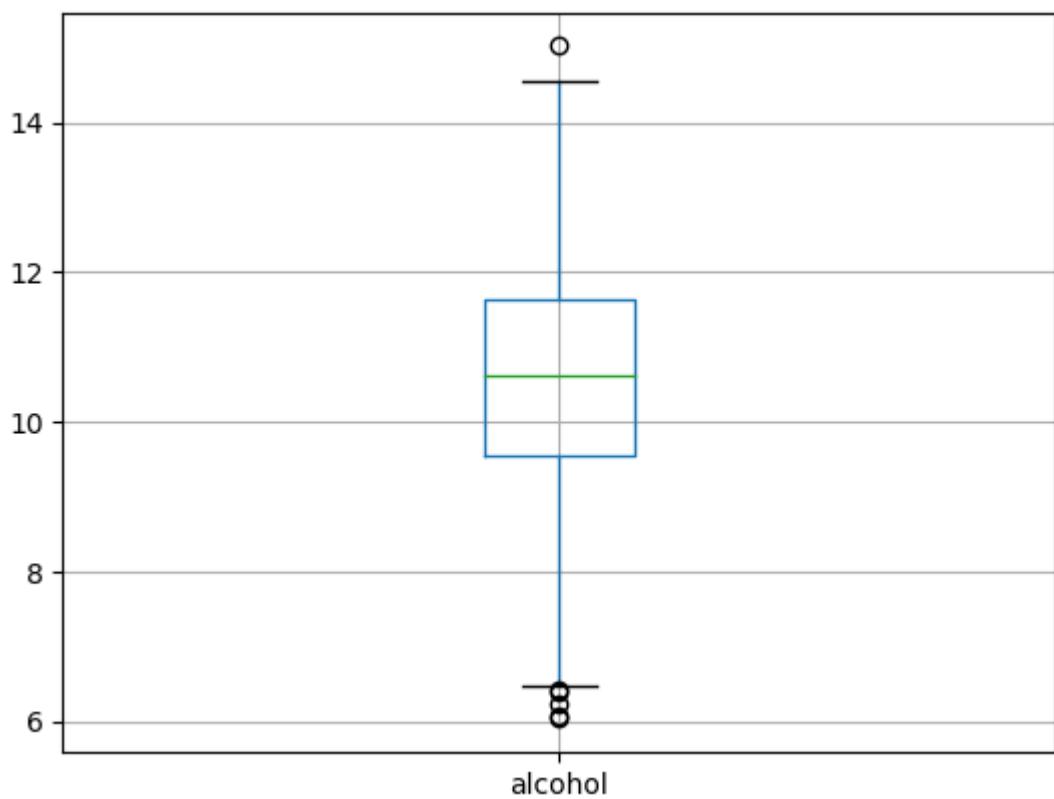
2.11 Boxplot dan Histogram Alcohol

In [29]:

```
import csv
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('anggur.csv')
print(df.boxplot(column = [df.columns[10]]))
print(df.hist(column = [df.columns[10]], bins=25, edgecolor = "black"))
plt.show()

print("\n DESKRIPSI
print("Berdasarkan analisis Boxplot dan Histogram Alcohol didapatkan beberapa in
print("A. BoxPlot")
print("Median berada disekitar nilai 10.5")
print("Nilai maksimum lebih dari 14")
print("Nilai minimum kurang dari 8")
print("Ada beberapa nilai outlier atau pencilan karena berada di luar garis whis
print("Q1 = 9.560000, Q2 = Median = 10.610000, Q3 = 11.622500")
print("B. Histogram")
print("Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.\r
Axes(0.125,0.11;0.775x0.77)
[[<Axes: title={'center': 'alcohol'}>]]
```



DESKRIPSI

Berdasarkan analisis Boxplot dan Histogram Alcool didapatkan beberapa informasi sebagai berikut.

A. BoxPlot

Median berada disekitar nilai 10.5
Nilai maksimum lebih dari 14
Nilai minimum kurang dari 8
Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers
 $Q1 = 9.560000$, $Q2 = \text{Median} = 10.610000$, $Q3 = 11.622500$

B. Histogram

Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.

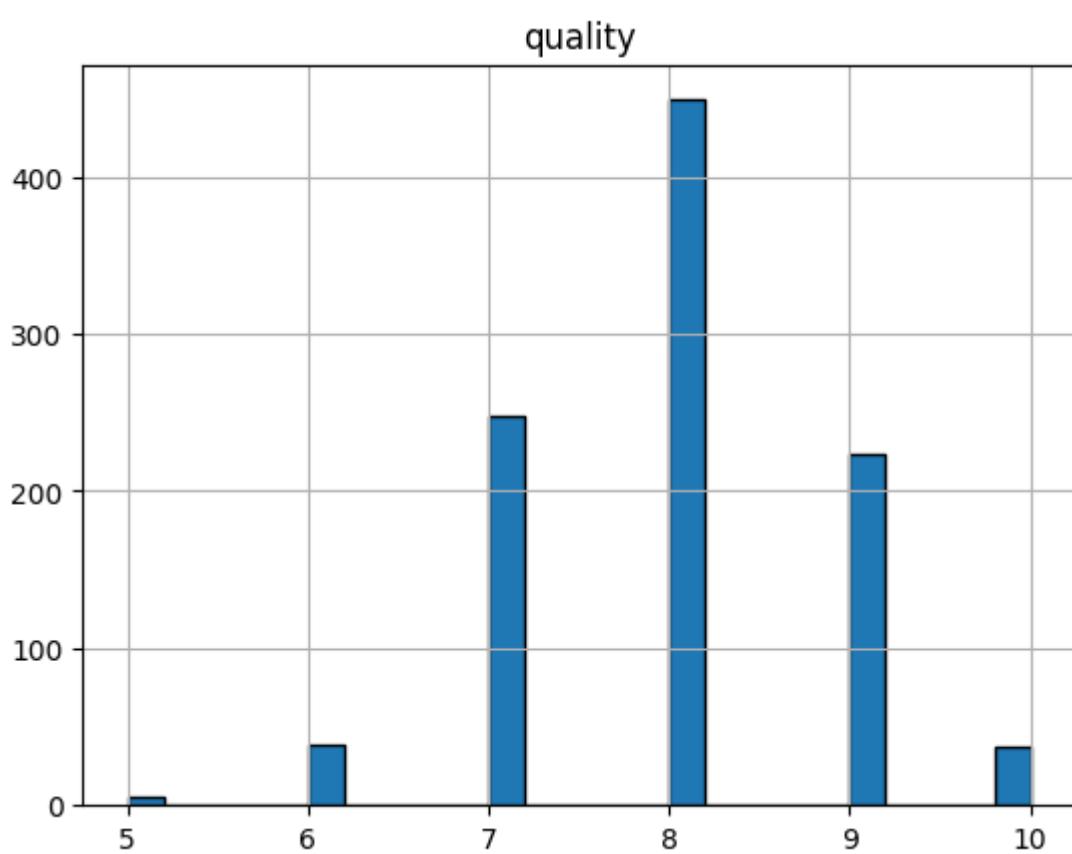
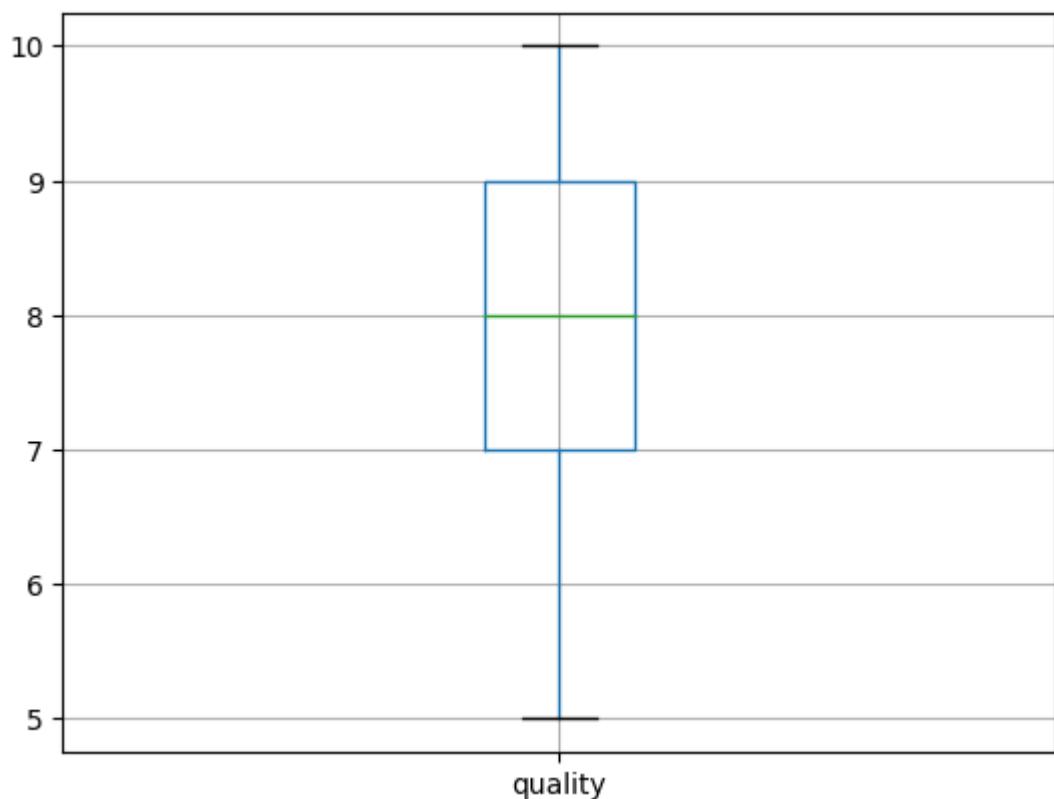
2.12 Boxplot dan Histogram Quality

In [30]:

```
import csv
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('anggur.csv')
print(df.boxplot(column = [df.columns[11]]))
print(df.hist(column = [df.columns[11]], bins=25, edgecolor = "black"))
plt.show()

print("\n DESKRIPSI
print("Berdasarkan analisis Boxplot dan Histogram Quality didapatkan beberapa in
print("A. BoxPlot")
print("Median berada disekitar nilai 8")
print("Nilai maksimum lebih dari sama dengan 10")
print("Nilai minimum kurang dari sama dengan 5")
print("Ada beberapa nilai outlier atau pencilan karena berada di luar garis whis
print("Q1 = 7.000000, Q2 = Median = 8.000000, Q3 = 9.000000")
print("B. Histogram")
print("Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.\r
Axes(0.125,0.11;0.775x0.77)
[[<Axes: title={'center': 'quality'}>]]
```



DESKRIPSI

Berdasarkan analisis Boxplot dan Histogram Quality didapatkan beberapa informasi sebagai berikut.

A. BoxPlot

Median berada disekitar nilai 8

Nilai maksimum lebih dari sama dengan 10

Nilai minimum kurang dari sama dengan 5

Ada beberapa nilai outlier atau pencilan karena berada di luar garis whiskers

$Q1 = 7.000000$, $Q2 = \text{Median} = 8.000000$, $Q3 = 9.000000$

B. Histogram

Histogram memiliki negative skew karena memiliki kecendrungan ke kanan.

In []: