

Red Wine Quality

MT21MCS013 Jay

Data Description

Input variables (based on physicochemical tests):

- | | |
|-------------------------|--------------------------|
| 1 - fixed acidity | 7 - total sulfur dioxide |
| 2 - volatile acidity | 8 - density |
| 3 - citric acid | 9 - pH |
| 4 - residual sugar | 10 - sulphates |
| 5 - chlorides | 11 - alcohol |
| 6 - free sulfur dioxide | |

Data Description

Output variable (based on sensory data):

12 - quality (score between 0 and 10)

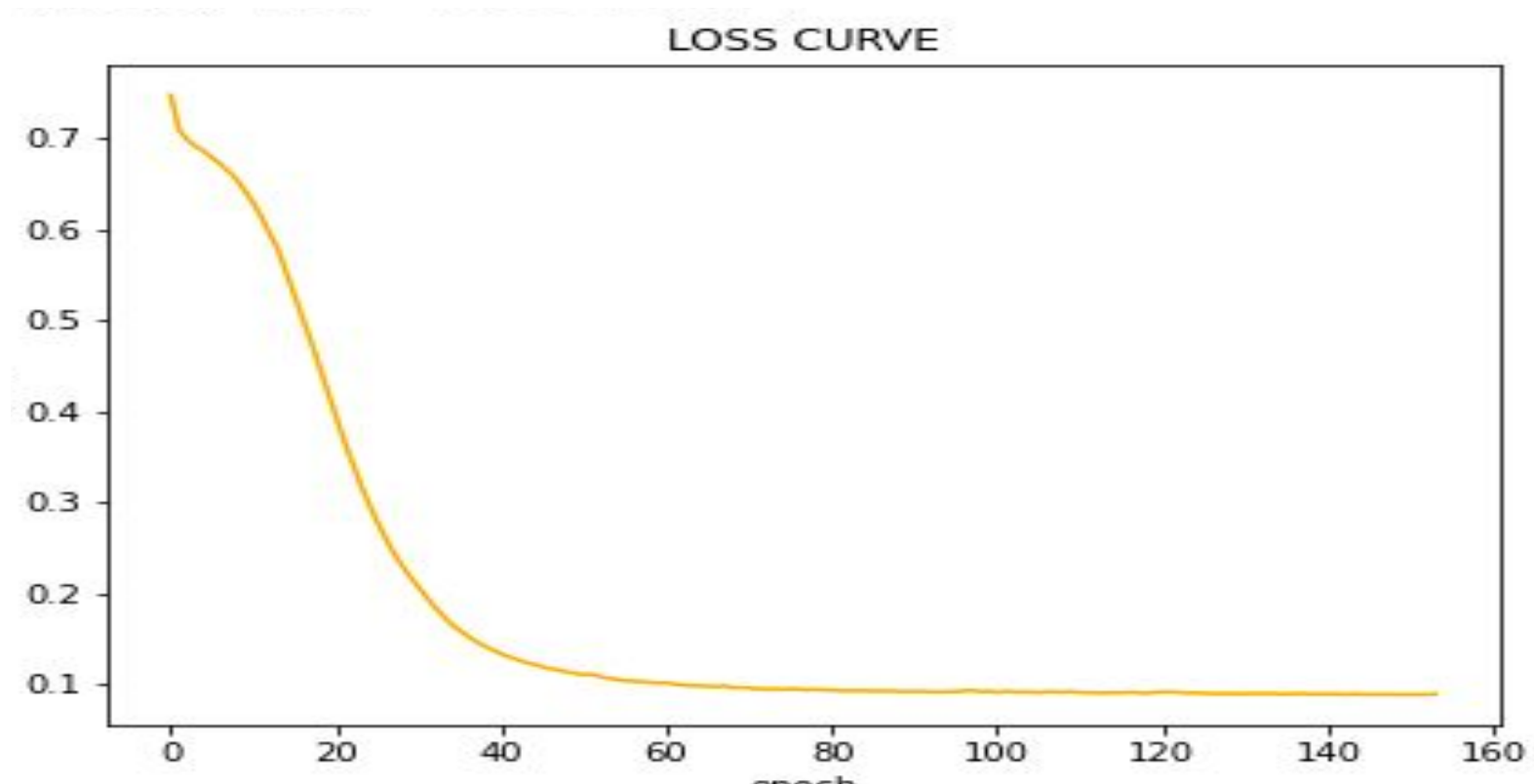
Data Statistics

In [7]: data.describe()

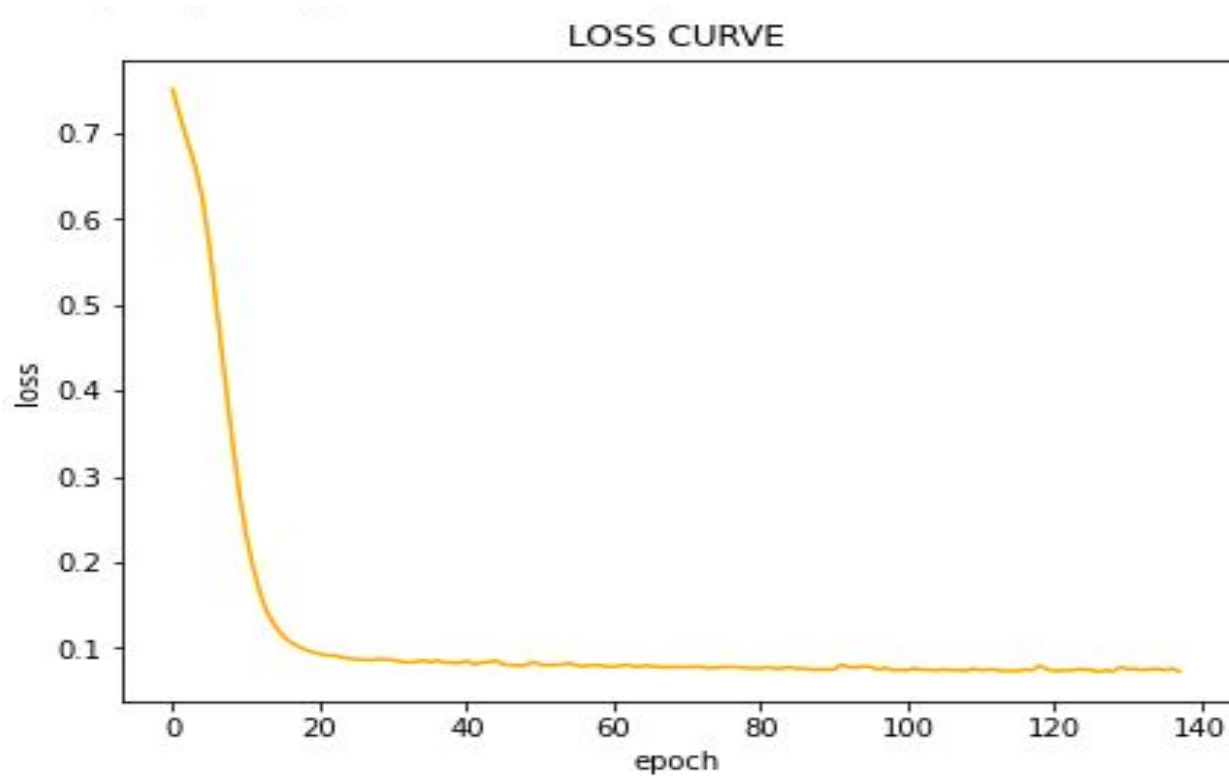
Out[7]:

	fixed acidity	volatile acidity	citric acid	residual sugar	chlorides	free sulfur dioxide	total sulfur dioxide	density	pH	sulphates	alcohol
count	1599.000000	1599.000000	1599.000000	1599.000000	1599.000000	1599.000000	1599.000000	1599.000000	1599.000000	1599.000000	1599.000000
mean	8.319637	0.527821	0.270976	2.538806	0.087467	15.874922	46.467792	0.996747	3.311113	0.658149	10.422983
std	1.741096	0.179060	0.194801	1.409928	0.047065	10.460157	32.895324	0.001887	0.154386	0.169507	1.065668
min	4.600000	0.120000	0.000000	0.900000	0.012000	1.000000	6.000000	0.990070	2.740000	0.330000	8.400000
25%	7.100000	0.390000	0.090000	1.900000	0.070000	7.000000	22.000000	0.995600	3.210000	0.550000	9.500000
50%	7.900000	0.520000	0.260000	2.200000	0.079000	14.000000	38.000000	0.996750	3.310000	0.620000	10.200000
75%	9.200000	0.640000	0.420000	2.600000	0.090000	21.000000	62.000000	0.997835	3.400000	0.730000	11.100000
max	15.900000	1.580000	1.000000	15.500000	0.611000	72.000000	289.000000	1.003690	4.010000	2.000000	14.900000

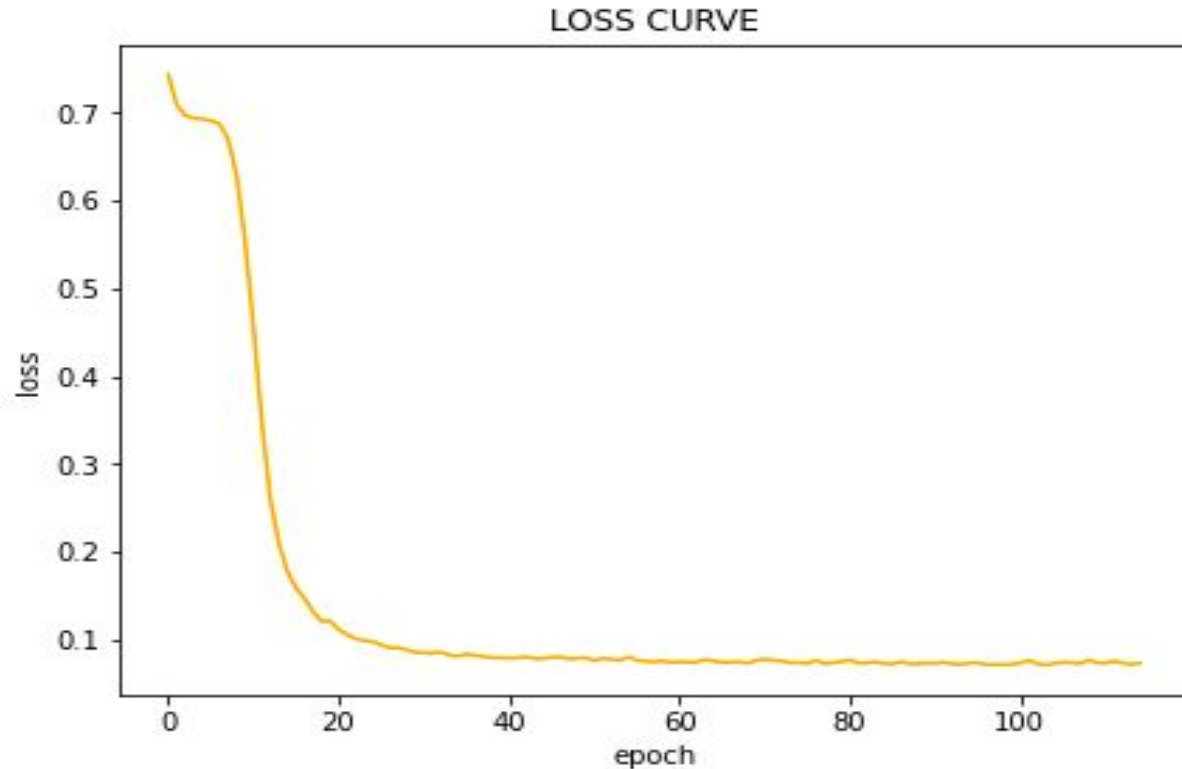
Epoch vs. Loss(error - Eavg) for 2 hidden layers



Epoch vs Loss(error - Eavg) for 8 Hidden layers



Epoch vs. Loss(error - Eavg) for 15 hidden layers



Conclusion

After some amount of layer(5-6) there is no any much improvement shown in the accuracy even after adding more layers(like 10 or 15 layers)