We have to predict the insurance charges based on database history. (Variables are Age, sex, BMI, children, smoker).

Linear Regression: 0.710092

Support vector Machine

S.No	Hyper parameter C	Linear	Poly	Rbf	Sigmoid
1	C=Null	-11.3963	-174.883	-34167.7	-3443455
2	C=10	-9.49564	-16.5825	-345.624	-33699.7
3	C=100	-0.62504	-12.4293	-14.672	-319.338
4	C=500	-0.005	-11.6927	-11.9412	-9.5046
5	C=1000	0.040687	-10.7178	-11.6079	-1.98446
6	C=2000	0.340592	-9.18971	-11.2402	-0.66385
7	C=3000	0.661538	-7.83205	-10.9052	-0.36908
8	C=4000	0.735931	-6.6126	-10.7329	-0.25344

Decision Tree Regressor:

s.no	criterion	splitter	Min sample Split	*Min impurity decrease*	*R value*
1	squared_error	Best	25	0.8	0.822113
2	squared_error	Random	25	0.8	0.85551
3	friedman_mse	Best	8	0.8	0.791217
4	friedman_mse	Best	40	0.8	0.845462
5	friedman_mse	Random	6	0.5	0.797651
6	friedman_mse	Random	50	0.8	0.854182
7	Absolute_error	Best	9	0.8	0.827578
8	Absolute_error	Best	25	0.8	0.878472
9	Absolute_error	random	38	0.8	0.872665
10	Absolute_error	Random	6	0.8	0.840841
11	Poisson	Best	6	0.8	0.804491
12	Poisson	random	7	0.8	0.836717
13	Poisson	Random	25	0.8	0.856586

Best R value is 0.8784 in decision tree.