

Following tabulation shows that r2_score with combination of respective fine turn hyper parameters

Algorithm – Support vector machine – Support vector regression

Si.no	Penalty value (c)	Linear r2_score	RBF (nonlinear)	Poly r2_score	Sigmoid r2_score
1	C=1.0	0.895	-0.057	-0.050	-0.057
2	C=100	-357.079	-0.030	0.465	-0.050
3	C=1000	-36014	0.160	0.640	-0.70
4	C=2000	-	0.288	0.671	-0.084
5	C=3000	-	0.395	0.69	-0.098

Note: penalty value too high leads to overfitting

Best r2_score is – 0.895

Algorithm – Decision tree – Decision tree regression

Si.no	Criterion	Splitter	Max_features	Min_impurity (Float=0-1)	Ccp-alpha (Float=0-infinity)	R2_score
1.	Mse	Best	None	0.0	0.0	0.9248
2.	Mse	Random	3	0.0	0.01	0.6113
3.	Mse	Best	Sqrt	0.1	0.0	0.722
4.	Mse	Best	3	0.01	0.05	0.683
5.	Mse	Random	None	0.1	0.05	0.6514
6.	Mse	Random	None	0.05	0.1	0.9096
7.	Mse	Best	Log2	0.05	0.1	0.7972
8.	Friedman_mse	Random	Sqrt	0.01	0.01	0.668
9.	Friedman_mse	Best	None	0.0	0.0	0.8987
10.	Friedman_mse	Random	Log2	0.05	0.05	0.343
11.	Friedman_mse	Random	None	0.0	0.01	0.827
12.	Friedman_mse	Best	4	0.1	0.0	0.7525
13.	Mae	Best	Log2	0.05	0.1	-1.127
14.	Mae	Random	5	0.01	0.1	0.9539
15.	Mae	Random	Sqrt	0.01	0.0	0.8090
16.	Mae	Best	None	0.0	0.1	0.9379
17.	Mae	Best	2	0.1	0.05	0.6134
18.	Mae	Best	3	0.1	0.0	0.516

Note: Mse- mean squared error

Mae- mean absolute error

Best r2_score is – 0.9539

