

Machine Learning Regression

Algorithm Validation:

1. SVM (Support Vector Machine)

Support Vector Machine					
Serial number	Hyper parameter	Linear (r2 value)	RBF(Non Linear) r2 value	Poly (r2 value)	Sigmoid (r2 value)
1	C1.0	0.8950	-0.0574	-0.0571	-0.0572
2	C10	-2.4370	-0.0568	-0.0537	-0.0547
3	C100	-357.0790	-0.0507	-0.0198	-0.030453
4	C1000	-36014.0206	0.0068	0.2662	0.1851
5	C1500	not checked	0.0378	0.3875	0.2949
6	C3000	not checked	0.1232	0.6370	0.59136
7	C6000	not checked	0.2452	0.8226	0.79725
8	C8000	not checked	0.3150	0.8286	0.83652

The Kernel type Linear R^2 value is 0.8950. This model looks good (1st choice)

The Kernel type Sigmoid R^2 value is 0.836 (2nd choice)

2. Decision Tree

Decision Tree				
Sno	Criterion	Splitter	Max Features	R Value
1	squared_error	best	log2	0.662
2	squared_error	best	sqrt	0.424
3	friedman_mse	best	log2	-0.443
4	friedman_mse	best	sqrt	0.202
5	friedman_mse	random	sqrt	0.823
6	friedman_mse	random	log2	0.673
7	absolute_error	best	log2	0.702
8	absolute_error	random	log2	0.246
9	absolute_error	best	sqrt	0.414
10	absolute_error	random	sqrt	0.210
11	poisson	best	sqrt	0.773
12	poisson	best	log2	0.893
13	poisson	random	log2	0.676
14	poisson	random	sqrt	0.793
15	squared_error	random	log2	0.709
16	squared_error	random	sqrt	0.483

The Decision tree algorithm gives a better R^2 value (0.893) when using
Criterion =poisson, splitter=best and max_features=log2