

## Using parameters of sklearn to find the optimized result of Machine learning Evaluation metrics $R^2$ \_Score

1. Multiple Linear Regression:  $R^2$  Value = 0.9358680970046243

2. Support Vector Machine:  $R^2$  Value = 0.923998

S.no	Hyper Parameter	Linear	rbf	Poly	sigmoid
1.	C=1000	0.780283	0.0067683	0.2661637	0.1850686
2.	C=5000	0.900376	0.2124283	0.7936555	0.7306562
3.	C=10000	0.923998	0.3718950	0.8129628	0.8535311
4.	epsilon=1	-0.05569	-0.057418	-0.057103	-0.0572093
5.	Epsilon=100	-0.05544	-0.057273	-0.0569534	-0.0570510
6.	Epsilon=1000	-0.04242	-0.044239	-0.0439216	-0.0440182

3. Decision Tree:  $R^2$  Value = 0.9492371 [Highest value]

S.no	criterion	splitter	max_features	R2 Values
1.	squared_error	Best	None	0.9492371459280327
2.	squared_error	Best	Auto	0.9071602560362991
3.	squared_error	Best	Sqrt	0.854411444210569
4.	squared_error	Best	Log2	0.6273928845689423
5.	squared_error	Random	None	0.7427738216624308
6.	squared_error	Random	Auto	0.9095566190199775
7.	squared_error	Random	Sqrt	-1.030720427541298
8.	squared_error	Random	Log2	-0.0514699946980568
9.	friedman_mse	Best	None	0.9164966036339289
10.	friedman_mse	Best	Auto	0.8904635630409867
11.	friedman_mse	Best	Sqrt	0.6897958053376525
12.	friedman_mse	Best	Log2	0.8273768619468396
13.	friedman_mse	Random	None	0.8781839737871053
14.	friedman_mse	Random	Auto	0.8315019341528512
15.	friedman_mse	Random	Sqrt	0.6836342600039864
16.	friedman_mse	Random	Log2	0.9341640255467492
17.	absolute_error	Best	None	0.9400511784060847
18.	absolute_error	Best	Auto	0.9241231167800039
19.	absolute_error	Best	Sqrt	0.5922849303180207
20.	absolute_error	Best	Log2	0.7013014401184543
21.	absolute_error	Random	None	0.8867170581944186
22.	absolute_error	Random	Auto	0.8961516354242842
23.	absolute_error	Random	Sqrt	0.4480106621607236
24.	absolute_error	Random	Log2	-0.0009965293733642522
25.	Poisson	Best	None	0.9156560008203132
26.	Poisson	Best	Auto	0.8996929626946634
27.	Poisson	Best	Sqrt	0.9449016318258922
28.	Poisson	Best	Log2	0.3440908031580059
29.	Poisson	Random	None	0.9074773924736793
30.	Poisson	Random	Auto	0.7622808656540578
31.	Poisson	Random	Sqrt	0.915712349409497
32.	Poisson	Random	Log2	0.8243149098107905