To find the best model in Machine Learning Regression Algorithm using r2 value

1.MULTIPLE LINEAR REGRESSION (R^2 Value)=0.93

2.SUPPORT VECTOR MACHINE:

S.NO	HYPER PARAMETER	LINEAR (r Value)	RBF (NON LINEAR) (r Value)	POLY (r Value)	SIGMOID (r Value)
1	C10	-0.0396	-0.0568	-0.0536	-0.0547
2	C100	0.1064	-0.0507	-0.0198	-0.0304
3	C500	0.5928	-0.0243	0.1146	0.0705
4	C1000	0.7802	0.0067	0.2661	0.1850
5	C2000	0.8767	0.0675	0.4810	0.3970
6	C3000	0.8956	0.123	0.6370	0.5913

The SVM Regression use R^2 Value(**Linear and Hyper Parameter C=3000**)=**0.8956**

3.DECISION TREE:

S.NO	CRITERION	MAX FEATURES	SPLITTER	R VALUE
1	Squared_error	None	Best	0.9048
2	Squared_error	None	Random	0.8894
3	Squared_error	Sqrt	Best	0.5367
4	Squared_error	Sqrt	Random	0.1732
5	Squared_error	Log2	Best	0.6992
6	Squared_error	Log2	Random	0.3786
7	Absolute_error	None	Best	0.9568
8	Absolute_error	None	Random	0.7217
9	Absolute_error	Sqrt	Best	0.9299
10	Absolute_error	Sqrt	Random	-0.4605
11	Absolute_error	Log2	Best	0.7863
12	Absolute_error	Log2	Random	0.3088
13	Friedman_mse	None	Best	0.9217
14	Friedman_mse	None	Random	0.9080
15	Friedman_mse	Sqrt	Best	0.4787
16	Friedman_mse	Sqrt	Random	-0.1985
17	Friedman_mse	Log2	Best	0.5804
18	Friedman_mse	Log2	Random	0.1281
19	Poisson	None	Best	0.9088
20	Poisson	None	Random	0.9363
21	Poisson	Sqrt	Best	0.5322
22	Poisson	Sqrt	Random	-0.3601
23	Poisson	Log2	Best	0.8638
24	Poisson	Log2	Random	-0.6262

The Decision Tree Regression use R^2Value (Criterion=**Absolute_error**, Splitter=**Best**, Max_features=None)=**0.9568**

4.Random Forest:

S.NO	CRITERION	MAX FEATURES	R VALUE
1	Squared_error	None	0.9446
2	Squared_error	Sqrt	0.6830
3	Squared_error	Log2	0.6830
4	Absolute_error	None	0.9401
5	Absolute_error	Sqrt	0.7222
6	Absolute_error	Log2	0.7222
7	Friedman_mse	None	0.9388
8	Friedman_mse	Sqrt	0.6889
9	Friedman_mse	Log2	0.6889
10	Poisson	None	0.9463
11	Poisson	Sqrt	0.7208
12	Poisson	Log2	0.7208

The Random Forest Regression use R^2Value(Criterion=**Squared_error,** Max_features=**None**)=**0.9446**

Conclusion:

Hence for the given **"50_Startups.csv"** dataset best algorithm is DECISION TREE with r2_score =95% with Hyper Tuning Parameters Criterion=**absolute_error**,Splitter=**best**,max_featues=**None.**