

## Machine Learning - Regression

### Sample Data : 50 Startup's :

1. **Simple Linear Regression** –  $R^2$  Value = 0.9740
2. **Multiple Linear Regression** -  $R^2$  Value = 0.9358
3. **Support Vector Machine:**

S.No	Regularization Parameter 'C'	R <sup>2</sup> Value for different Kernel			
		Linear	Poly	rbf	sigmoid
1	1	-0.055	-0.057	-0.057	-0.057
2	10	-0.039	-0.053	-0.0568	-0.054
3	100	0.106	-0.019	-0.0507	-0.030
4	1000	0.78	0.266	0.0067	0.185
5	3000	0.89	0.637	0.123	0.591

For the given dataset, c=3000; Kernel = Linear fits data better;  $r^2 = 0.89$

4. **Decision Tree:**

S.No	Criteria	Splitter	R Value
1	<i>squared_error</i>	best	0.918
2	<i>squared_error</i>	random	0.619
3	<i>friedman_mse</i>	best	0.928
4	<i>friedman_mse</i>	random	0.869
5	<i>absolute_error</i>	best	0.946
6	<i>absolute_error</i>	random	0.940
8	<i>poisson</i>	random	0.784
9	<i>poisson</i>	best	0.947

For the given dataset, criteria =Poisson; splitter = best fits data better;  $r^2=0.947$