

Profit Prediction Using Machine Learning Regression Models

1. Multiple Linear Regression: **R² Score: 0.9358**

2. Support Vector Machine:

Sl. No.	HYPER PARAMETER	LINEAR (R ² Score)	RBF (NON-LINEAR) (R ² Score)	POLY (R ² Score)	SIGMOID (R ² Score)
1	Default (C1.0)	0.8950	-0.0573	-0.0508	-0.0574
2	C10	-2.4372	-0.0558	0.0253	-0.0576
3	C100	-357.07951	-0.0302	0.4656	-0.0587
4	C500	-8996.8606	0.0500	0.6207	-0.0640
5	C1000		0.1606	0.6403	-0.0707
6	C2000		0.2883	0.6717	-0.0845
7	C3000		0.3951	0.6909	-0.0989

Model: **Support Vector Regression (SVR)**

Kernel: **Linear**

Hyperparameter (C): **1.0**

R² Score: 0.8950

3. Decision Tree:

Sl. No.	CRITERION	MAX FEATURES	SPLITTER	R ² Score
1	squared_error	None	best	0.9132
2	squared_error	sqrt	best	0.6564
3	squared_error	log2	best	0.6800
4	squared_error	int (max_features = 2)	best	0.7495
5	squared_error	float (max_features = 0.5)	best	0.6781
6	squared_error	None	random	0.8260
7	squared_error	sqrt	random	0.7493
8	squared_error	log2	random	-0.6116
9	squared_error	int (max_features = 2)	random	0.4089
10	squared_error	float (max_features = 0.5)	random	0.5253
11	friedman_mse	None	best	0.9033
12	friedman_mse	sqrt	best	-0.0782
13	friedman_mse	log2	best	0.5238
14	friedman_mse	int (max_features = 2)	best	-0.1489
15	friedman_mse	float (max_features = 0.5)	best	0.5711
16	friedman_mse	None	random	0.7730
17	friedman_mse	sqrt	random	0.2156
18	friedman_mse	log2	random	0.3640
19	friedman_mse	int (max_features = 2)	random	0.7849
20	friedman_mse	float (max_features = 0.5)	random	0.5098

21	absolute_error	None	best	0.9264
22	absolute_error	sqrt	best	0.8667
23	absolute_error	log2	best	0.6655
24	absolute_error	int (max_features = 2)	best	0.6765
25	absolute_error	float (max_features = 0.5)	best	0.4044
26	absolute_error	None	random	0.8845
27	absolute_error	sqrt	random	0.2729
28	absolute_error	log2	random	0.7850
29	absolute_error	int (max_features = 2)	random	-0.1798
30	absolute_error	float (max_features = 0.5)	random	0.4696

Criterion: **absolute_error**

Splitter: **best**

max_features: **None**

R² Score: 0.9264