Machine Learning Regression Models for Profit Prediction

1. Multiple Linear Regression: r_score: 0.935

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)	0.9250	-0.0573	-0.0508	-0.0574
2	C10	-2.4372	-0.0558	0.0253	-0.0576
3	C100	-357.07951	-0.0574	0.4656	-0.0587

Model: Support Vector Regression (SVR)
Kernel: linear
Hyperparameter (C): default
r_score: 0.9250

Model: Support Vector Regression (SVR)
Kernel: rbf
Hyperparameter (C): 100
r_score: -0.0574

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	0.9245
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**	**0.9251**
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**	**0.8769**
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: friedman_mse
Splitter: best
max_features: None
r_score: 0.9264

Criterion: absolute_error
Splitter: best
max_features: None
r_score: 0.9251