Lab Evaluation

Target Selected:-Target1

Distribution of Target Variable (target1)
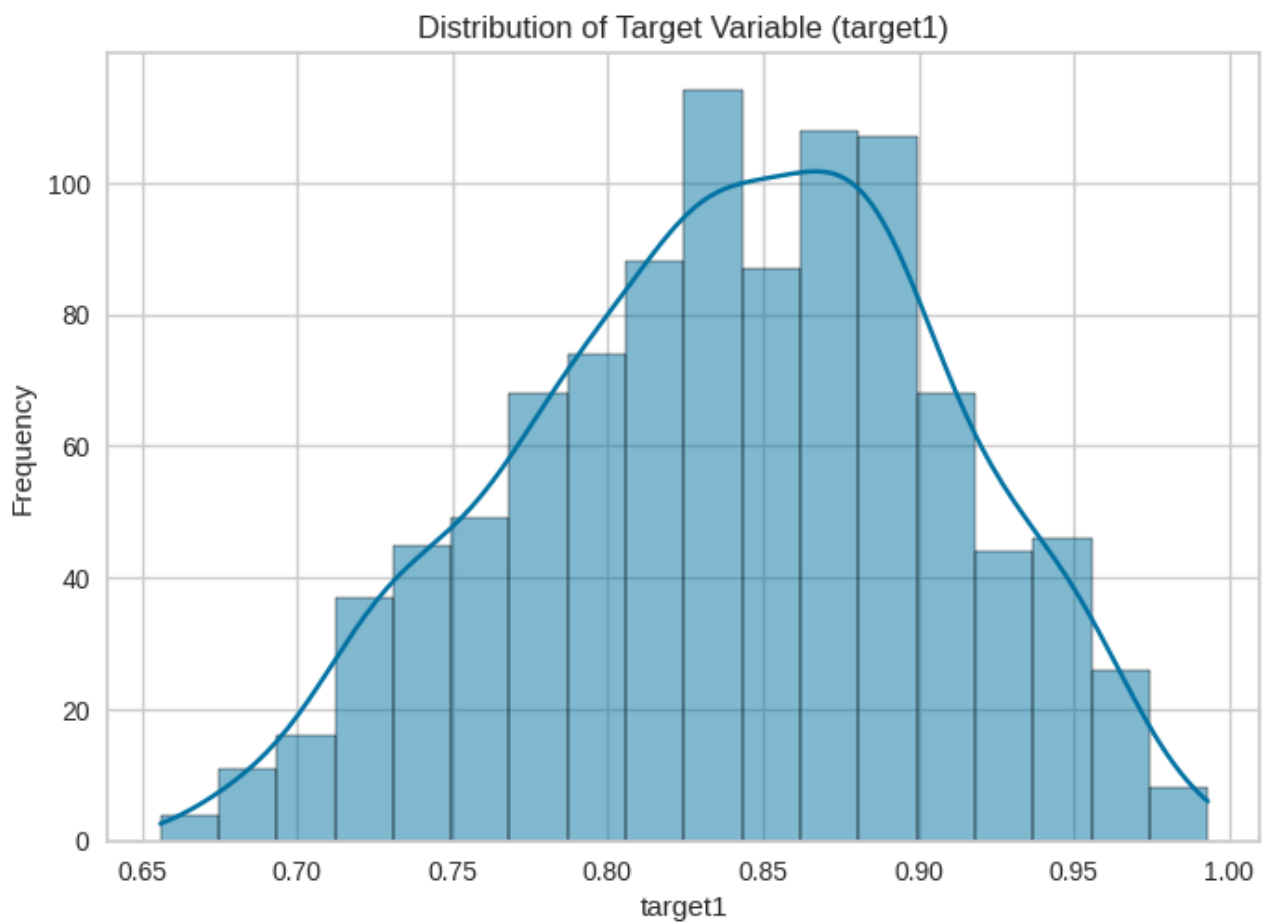
| Model	MSE	RMSE	MAE	MAPE	R2
Linear Regression	0.0034	0.0582	0.0486	5.9005	0.2511
Ridge Regression	0.0034	0.0582	0.0486	5.9008	0.2511
SVR	0.0036	0.06	0.05	6.05	0.205
Random Forest	0.0036	0.0602	0.0504	6.1093	0.2006
Lasso Regression	0.0045	0.0674	0.0543	6.6047	-0.0016
Decision Tree	0.0078	0.088	0.0731	8.8452	-0.7113
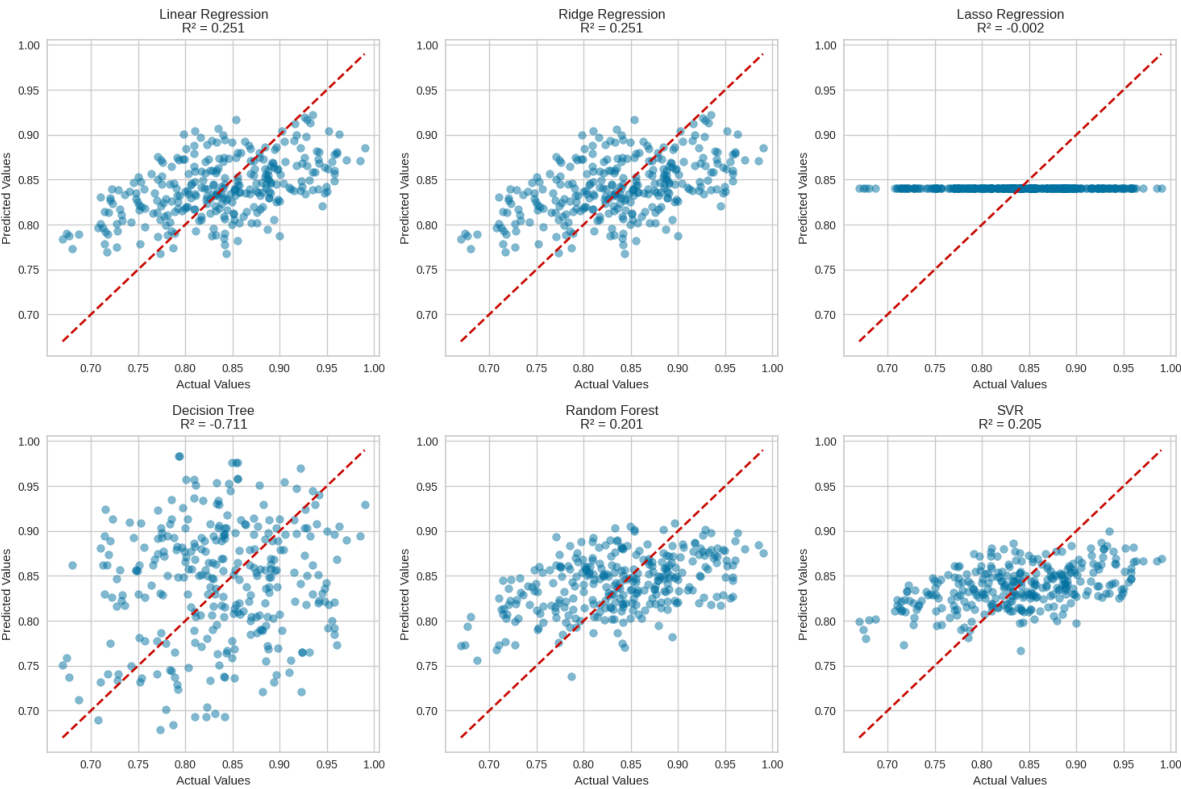
Output:-

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Best Prediction Model: Linear Regression
R² Score: 0.2511
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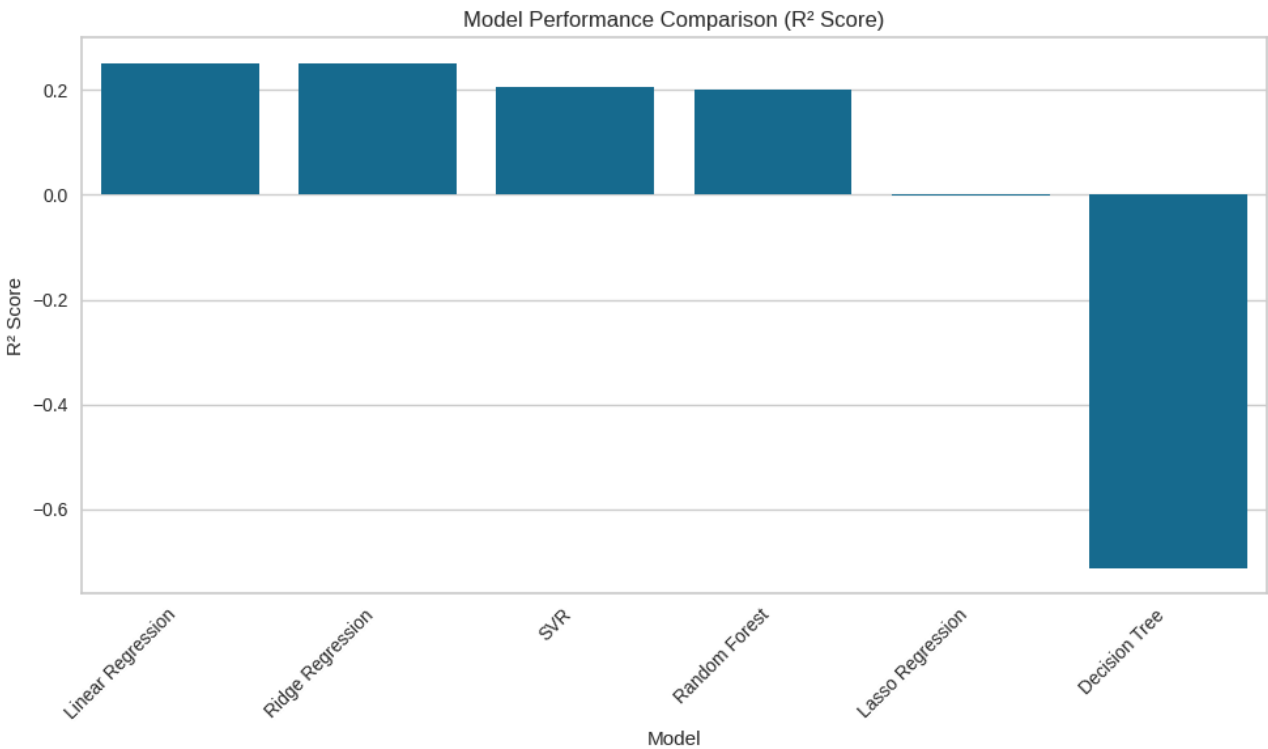
Conclusion:-

We tested several regression models to predict Target1 using 15 features, and the results were quite insightful. The Linear Regresssion model stood out with its ability and delivered the most accurate predictions, closely followed by SVR. Ridge regression performed well for simpler linear patterns, while feature importance analysis revealed the key contributors driving predictions. Visualizations showed a strong match between actual and predicted values for the top models. Going forward, fine-tuning the models and exploring advanced options like XGBoost could further enhance accuracy. Based on the results, Linear Regression is the best choice for deployment.