

Be Herbal Insights: Data Analytics and AI for Market Trends

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Abstract: *This study analyzed multiple machine learning models—Support Vector Regression (SVR), Decision Tree, Random Forest, Gradient Boosting, and XGBoost—to predict sales performance based on historical data. The findings revealed that SVR was the most effective model, achieving the highest accuracy (99.43%) while being the fastest (0.0064s). XGBoost and Gradient Boosting also performed well with high accuracy (98.00% and 98.09%, respectively), with XGBoost offering a better trade-off between accuracy and computational efficiency. Random Forest achieved a 93.94% accuracy but took significantly longer to compute. These results highlight SVR as the best choice for quick and precise forecasting, while XGBoost serves as an optimal model balancing speed and predictive accuracy.*

Keywords: Sales prediction, Machine learning, Support Vector Regression, Decision Tree, Random Forest, Gradient Boosting, XGBoost