



Ecuador Product Sales Forecasting: Summary Report

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Model Comparison

Sl. No.	Model	R2 Score	Root Mean Square Error (RMSE)	Mean Absolute Percentage Error (MAPE)
1	ARIMA	-2.550585	2099.175199	3.010674e+18
2	Random Forest Regressor	0.658421	651.094873	1.636273e+17
3	XGBoost	0.737822	570.422436	1.763444e+17
4	Naive Forecast	0.842456	439.501165	7.912285e+15
5	LSTM	0.674795	635.297401	2.131981e+17

Excluding the base model (Naive Forecast), XGBoost is the best model as the performance metrice for that is the best (Lowest RMSE: 570.422436, Highest R2: 0.737822, and Lower MAPE:1.763444e+17) in comparison to other ML/DL models.



Key Insights

Factors affecting sales:

Holidays and oil price do not affect sales, but we see an increase in sales due to promotions and the occurrence of certain events (Earthquakes).

Business Recommendations:

Inventory Planning: Use sales forecasts to optimize inventory levels, especially during peak holiday seasons; use weather/geo forecast data to predict natural disasters like Earthquakes to maintain inventory or safeguard existing inventory.

Targeted Promotions: Carry out promotional campaigns for low predicted sales periods to boost revenue.