

**Project Development Phase
Model Performance Test**

Date	10 November 2022
Team ID	PNT2022TMID13501
Project Name	Project - Crude Oil Price Prediction
Maximum Marks	10 Marks

Model Performance Testing:

S.No.	Parameter	Values	Screenshot																
1.	Metrics	Regression Model: MAE - , MSE - , RMSE - , R2 score Classification Model: Confusion Matrix - , Accuracy Score- & Classification Report -	<table border="1"> <thead> <tr> <th></th><th>RMSE</th><th>MAE</th><th>R2- SCORE</th></tr> </thead> <tbody> <tr> <td>1</td><td>12.08626 473</td><td>0.5738016 561</td><td>7.6429788</td></tr> <tr> <td>2</td><td>9.147314 047</td><td>0.9047892 679</td><td>5.0380903 1</td></tr> <tr> <td>3</td><td>1.452734 461</td><td>0.9979856 3</td><td>0.8729176 886</td></tr> </tbody> </table> <p>RMSE for different models used in our project Linear Regression : 19.3533662859143 Decision Tree Regression : 9.14731404717267 Random Forest Regression : 1.45273446145987</p> <p>R2 Score for different models used in our project : Linear Regression : 0.57380165610804 Decision Tree Regression : 0.90478926790260 Random Forest Regression : 0.997598562970117</p> <p><i>Calculate RMSE performance metrics</i></p> <p>Accuracy : 29.367830543269938</p>		RMSE	MAE	R2- SCORE	1	12.08626 473	0.5738016 561	7.6429788	2	9.147314 047	0.9047892 679	5.0380903 1	3	1.452734 461	0.9979856 3	0.8729176 886
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2.	Tune the Model	Hyper parameter Tuning Validation Method -	Hyper parameter tuning In the case of over fitting, some inclusion of regularization and further hyper parameter tuning for the training process must be considered. A good model should be based on a compromise between capturing the essential patterns in the data without																

over fitting to the training data.

This can be achieved with regularization parameters such as L1 and L2 in for example Lasso, Ridge and Elastic Net regression . Inclusion of the dropout strategy for regularization to prevent over fitting will be discussed further in chapter 3.5 about Recurrent Neural Networks. The dropout method is also a common technique used for fully connected dense networks. Other possibilities like adjusting learning rate, increasing or decreasing the number of nodes, and increasing or decreasing the number of hidden layers is commonly used in this step.

