

**Project Development Phase**  
**Model Performance Test**

Date	10 November 2022
Team ID	PNT2022TMID36734
Project Name	Project – University Admit Eligibility Predictor
Maximum Marks	10 Marks

**Model Performance Testing:**

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot															
1.	Metrics	<p><b>Regression Model:</b> MAE -0.043051, MSE - 0.003313, RMSE - 0.057560, R2 score - 0.807216</p> <p><b>Classification Model:</b> Confusion Matrix , Accuracy Score- 0.872 &amp; Classification Report.</p>	<div><pre>In [47]: mae = metrics.mean_absolute_error(y_test, predlinear) mse = metrics.mean_squared_error(y_test, predlinear) rmse = np.sqrt(mse) # or mse**(0.5) r2 = metrics.r2_score(y_test, predlinear)</pre></div> <div><pre>In [48]: chart = { 'Metric':['MAE', 'MSE', 'RMSE', 'R2-SCORE'], 'LINEAR_REGRESSION':[mae,mse,rmse,r2], } chart = pd.DataFrame(chart)</pre></div> <div><pre>In [49]: display(chart)</pre><table><thead><tr><th></th><th>Metric</th><th>LINEAR_REGRESSION</th></tr></thead><tbody><tr><td>0</td><td>MAE</td><td>0.043051</td></tr><tr><td>1</td><td>MSE</td><td>0.003313</td></tr><tr><td>2</td><td>RMSE</td><td>0.057560</td></tr><tr><td>3</td><td>R2-SCORE</td><td>0.807216</td></tr></tbody></table></div> <div><pre>In [43]: model = LinearRegression(normalize=True) model.fit(X_test, y_test) # model.score(X_test, y_test) predlinear = model.predict(X_test) print ("Accuracy : ",model.score(X_test, y_test)*100) methodDict = {} methodDict['Linear Regression'] = model.score(X_test, y_test)*100  Accuracy : 80.7216438856893</pre></div>		Metric	LINEAR_REGRESSION	0	MAE	0.043051	1	MSE	0.003313	2	RMSE	0.057560	3	R2-SCORE	0.807216
	Metric	LINEAR_REGRESSION																
0	MAE	0.043051																
1	MSE	0.003313																
2	RMSE	0.057560																
3	R2-SCORE	0.807216																
2.	Tune the Model	Hyperparameter Tuning. Validation Method.	<div><pre>In [64]: scores = cross_val_score(model, X_train, y_train, scoring='r2', cv=5) scores</pre></div> <div><pre>Out[64]: array([0.81813967, 0.77169539, 0.83989563, 0.74719974, 0.78589678])</pre></div> <div><pre>In [65]: avg_score=scores.mean()</pre></div> <div><pre>In [67]: print ("Cross Validation Scores : ",scores) print ("Average CV Score : ",avg_score) print ("Number of CV Scores used in Average : ",len(scores))</pre><p>Cross Validation Scores : [0.81813967 0.77169539 0.83989563 0.74719974 0.78589678] Average CV Score : 0.7925654408790849 Number of CV Scores used in Average : 5</p></div>															