

REPORT

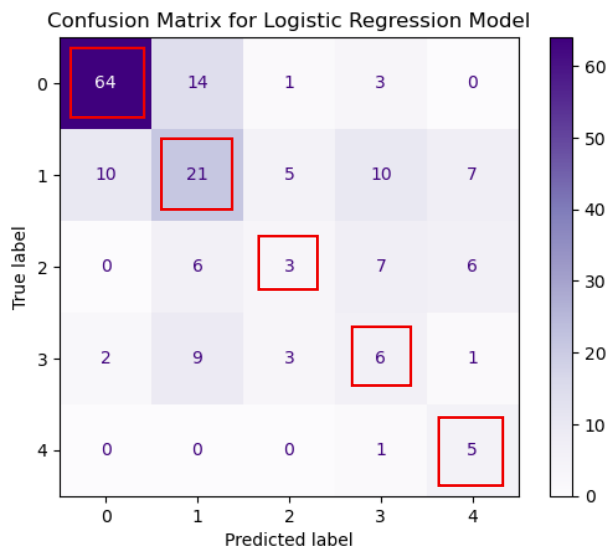
- INTERPRETING THE VALUES OF MACRO RECALL SCORES -

	Train Accuracy (%)	Test Accuracy (%)	Macro Recall (%)	Macro Precision (%)	Macro F1 Score (%)
Model					
Logistic	57.36	53.80	48.64	39.95	40.89
random_Forest	63.35	55.98	46.13	39.84	41.03
XGBoost	88.83	61.41	38.39	37.64	37.95
Gradient_boosting	98.09	60.33	37.81	37.77	37.55
KNN	100.00	60.33	36.84	36.28	36.38
Naive_Bayes	59.67	55.98	34.70	34.53	34.15
Decision_Trees	82.15	49.46	32.31	32.83	32.31

Macro recall tells us how a model identifies all classes equally, especially minority classes 1-4. Since, our dataset was imbalanced, Macro Recall is the most meaningful metric.

INFERENCE: **Logistic Regression gives the highest macro recall**, meaning its best at detecting classes 1–4

This matches with our confusion Matrix interpretation.



	precision	recall	f1-score	support
0	0.84	0.78	0.81	82
1	0.42	0.40	0.41	53
2	0.25	0.14	0.18	22
3	0.22	0.29	0.25	21
4	0.26	0.83	0.40	6
accuracy			0.54	184
macro avg	0.40	0.49	0.41	184
weighted avg	0.56	0.54	0.54	184

Train Accuracy = 57.36% Test Accuracy = 53.80%

Gap = 57.36% - 53.80% = 3.56% => this is small, which implies that the model is not overfitting. The model is generalizing reasonably well.