

Project Development Phase Model Performance Test

Date	19/05/2025-30/6/2025
Team ID	LTVIP2025TMID45017
Project Name	GrainPalette - A Deep Learning Odyssey In Rice Type Classification Through Transfer Learning
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	Classification Model: Confusion Matrix: Inserted as image (see below) Accuracy Score: 96.7% Classification Report: - Precision: 0.95 - Recall: 0.96 - F1-Score: 0.955	<div><p>Confusion matrix</p><table><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td>1</td><td>95</td><td>93</td><td>1</td><td>2</td></tr><tr><td>2</td><td>0</td><td>92</td><td>96</td><td>0</td></tr><tr><td>3</td><td>4</td><td>4</td><td>96</td><td>97</td></tr><tr><td>4</td><td>0</td><td>0</td><td>0</td><td>9</td></tr></table></div> <div><p>Classification report</p><table><tr><td></td><td>precision</td><td>recall</td><td>f1-score</td><td>support</td></tr><tr><td>0</td><td>0.95</td><td>0.98</td><td>0.96</td><td>97</td></tr><tr><td>1</td><td>0.96</td><td>0.96</td><td>0.96</td><td>97</td></tr><tr><td>2</td><td>0.96</td><td>0.93</td><td>0.95</td><td>99</td></tr><tr><td>3</td><td>0.96</td><td>0.97</td><td>0.97</td><td>99</td></tr><tr><td>4</td><td>0.96</td><td>0.99</td><td>0.97</td><td>98</td></tr><tr><td>macro avg</td><td>0.96</td><td>0.96</td><td>0.96</td><td>490</td></tr><tr><td>weighted av</td><td>0.96</td><td>0.96</td><td>0.96</td><td></td></tr></table></div> <div><p>Accuracy: 96.7%</p></div>	0	0	0	0	1	1	95	93	1	2	2	0	92	96	0	3	4	4	96	97	4	0	0	0	9		precision	recall	f1-score	support	0	0.95	0.98	0.96	97	1	0.96	0.96	0.96	97	2	0.96	0.93	0.95	99	3	0.96	0.97	0.97	99	4	0.96	0.99	0.97	98	macro avg	0.96	0.96	0.96	490	weighted av	0.96	0.96	0.96	
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2.	Tune the Model	Hyperparameter Tuning: Used GridSearchCV for tuning learning rate, dropout, and dense layer size. Validation Method: Used Stratified K-Fold Cross Validation (k=5) to ensure balanced validation splits across rice classes.	<pre>joch 1/5 3s 229ms/step - loss: 0.7646 - accuracy:0.7449 - val_loss: 0.2774 - val_accuracy:0.9350 joch 2/5 0.2574 - accuracy:0.9279 - 3s 222ms/step - loss: 0.1580 - accuracy:0.9540 joch 3/5 0.1580 - accuracy:0.9527 - 3s 229ms/step - loss: 0.1264 - accuracy:0.9590 joch 4/5 0.1254 - accuracy:0.9626 - 3s 225ms/step - loss: 0.1050 - accuracy:0.9680 joch 5/5 0.1047 - accuracy:0.9690 3s 226ms/step - loss: 0.1047 - accuracy:0.9650</pre>																																																																	

