

Project Development Phase
Model Performance Test

Date	26 June 2025
Team ID	LTVIP2025TMID44653
Project Name	Transfer Learning-Based Classification of Poultry Diseases for Enhanced Health Management
Maximum Marks	10 Marks

Model Performance Testing:

S.No.	Parameter	Values	Screenshot																																								
1.	Metrics	<div><div>Classification Model:</div><div>Confusion Matrix -</div><div>4-class matrix</div><div>(Coccidiosis, Healthy,</div><div>New Castle Disease,</div><div>Salmonella)</div><div>Accuray Score- 95.12%&</div><div>Classification Report -</div><div>Precision = 0.95</div><div>Recall = 0.95</div><div>F1-Score = 0.95</div><div>(macro avg)</div><div>Total samples: 70,677</div></div>	<div><table><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr><tr><td>Coccidiosis</td><td>0.98</td><td>0.96</td><td>0.97</td><td>18752</td></tr><tr><td>Healthy</td><td>0.92</td><td>0.95</td><td>0.94</td><td>17412</td></tr><tr><td>New Castle Disease</td><td>0.96</td><td>0.94</td><td>0.95</td><td>15888</td></tr><tr><td>Salmonella</td><td>0.95</td><td>0.95</td><td>0.95</td><td>18625</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.95</td><td>70677</td></tr><tr><td>macro avg</td><td>0.95</td><td>0.95</td><td>0.95</td><td>70677</td></tr><tr><td>weighted avg</td><td>0.95</td><td>0.95</td><td>0.95</td><td>70677</td></tr></table></div> <div><div>Test Loss: 0.1463, Test Accuracy: 95.12%</div><div>Confusion Matrix - Test Set</div><div><div>True Labels</div><div><div>Coccidiosis</div><div>Healthy</div><div>New Castle Disease</div><div>Salmonella</div></div><div><div>Coccidiosis</div><div>Healthy</div><div>New Castle Disease</div><div>Salmonella</div></div><div><div>18051</div><div>346</div><div>179</div><div>176</div><div>115</div><div>16597</div><div>241</div><div>459</div><div>173</div><div>494</div><div>14871</div><div>350</div><div>134</div><div>591</div><div>192</div><div>17708</div></div><div><div>18000</div><div>16000</div><div>14000</div><div>12000</div><div>10000</div><div>8000</div><div>6000</div><div>4000</div><div>2000</div></div></div><div>Predicted Labels</div></div>		precision	recall	f1-score	support	Coccidiosis	0.98	0.96	0.97	18752	Healthy	0.92	0.95	0.94	17412	New Castle Disease	0.96	0.94	0.95	15888	Salmonella	0.95	0.95	0.95	18625	accuracy			0.95	70677	macro avg	0.95	0.95	0.95	70677	weighted avg	0.95	0.95	0.95	70677
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2.	Tune the Model	Hyperparameter Tuning - Validation Method -	<div>Epoch 1/10, Training Loss: 0.2411, Val Loss: 0.2176, Train Accuracy: 90.87%, Val Accuracy: 91.85%, Time: 1259.69 seconds</div> <div>Epoch 2/10, Training Loss: 0.1524, Val Loss: 0.1834, Train Accuracy: 94.28%, Val Accuracy: 93.40%, Time: 1264.20 seconds</div> <div>Epoch 3/10, Training Loss: 0.1193, Val Loss: 0.1624, Train Accuracy: 95.50%, Val Accuracy: 93.99%, Time: 1269.69 seconds</div> <div>Epoch 4/10, Training Loss: 0.0961, Val Loss: 0.1557, Train Accuracy: 96.40%, Val Accuracy: 94.31%, Time: 1257.01 seconds</div> <div>Epoch 5/10, Training Loss: 0.0786, Val Loss: 0.1590, Train Accuracy: 97.04%, Val Accuracy: 94.48%, Time: 1251.40 seconds</div> <div>Epoch 6/10, Training Loss: 0.0658, Val Loss: 0.1455, Train Accuracy: 97.54%, Val Accuracy: 95.11%, Time: 1250.47 seconds</div> <div>Epoch 7/10, Training Loss: 0.0542, Val Loss: 0.1711, Train Accuracy: 97.90%, Val Accuracy: 94.63%, Time: 1258.99 seconds</div> <div>Epoch 8/10, Training Loss: 0.0460, Val Loss: 0.1598, Train Accuracy: 98.29%, Val Accuracy: 95.08%, Time: 1256.26 seconds</div> <div>Epoch 9/10, Training Loss: 0.0388, Val Loss: 0.1704, Train Accuracy: 98.58%, Val Accuracy: 95.02%, Time: 1261.20 seconds</div> <div>Epoch 10/10, Training Loss: 0.0343, Val Loss: 0.1774, Train Accuracy: 98.74%, Val Accuracy: 95.03%, Time: 1265.70 seconds</div> <div>Training complete</div> <div></div>
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