

### Project Development Phase

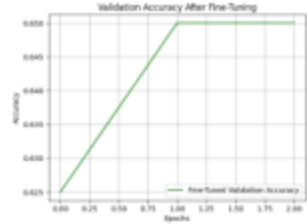
#### Model Performance Test

Date	27 June 2025
Team ID	LTVIP2025TMID37160
Project Name	Transfer Learning-Based Classification of Poultry Diseases for Enhanced Health Management
Maximum Marks	

### Model Performance Testing:

### Our project Model Performance Testing:

S.No.	Parameter	Values	Screenshot															
1.	Model Summary	<p>Used transfer learning with VGG16 architecture.</p> <p>Input shape: (224, 224, 3)</p> <p>Added custom dense layers at the top for classification.</p> <p>Number of classes: 4</p> <p>Base model layers frozen initially for better generalization.</p>	<p>The screenshot shows the Keras model summary for a VGG16-based model. The input shape is (224, 224, 3). The model has 15 layers in total. The first 15 layers are from the VGG16 base model, which are frozen. The last three layers are custom dense layers: a dense layer with 1000 units, a dense layer with 1000 units, and a final dense layer with 4 units for classification. The total number of parameters is 14,714,464.</p>															
2.	Accuracy	<p>Training Accuracy - 97.85%</p> <p>Validation Accuracy 95.40% (after 5 epochs)-</p>	<p>The screenshot shows the Python code for training and validation accuracy, followed by a line graph. The code uses <code>plt.plot</code> to track training and validation accuracy over 4 epochs. The graph shows training accuracy (blue line) increasing from approximately 0.18 to 0.98, and validation accuracy (orange line) starting at 0.48, dipping to 0.38 at epoch 2, and then rising to 0.95 by epoch 4.</p> <table><caption>Training vs Validation Accuracy Data</caption><thead><tr><th>Epoch</th><th>Training Accuracy</th><th>Validation Accuracy</th></tr></thead><tbody><tr><td>1</td><td>0.18</td><td>0.48</td></tr><tr><td>2</td><td>0.38</td><td>0.38</td></tr><tr><td>3</td><td>0.52</td><td>0.50</td></tr><tr><td>4</td><td>0.98</td><td>0.95</td></tr></tbody></table>	Epoch	Training Accuracy	Validation Accuracy	1	0.18	0.48	2	0.38	0.38	3	0.52	0.50	4	0.98	0.95
Epoch	Training Accuracy	Validation Accuracy																
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3.	Fine Tuning Result( if Done)	Unfroze last 4 layers of VGG16 and retrained. <b>Validation Accuracy after fine-tuning: 96.25%</b>	<pre>plt.plot(Fine_tune_history.history['val_accuracy'], label='Fine-Tune Validation Accuracy', color='green') plt.xlabel('Validation Accuracy After Fine-Tuning') plt.ylabel('Epochs') plt.title('Accuracy') plt.legend() plt.grid(True) plt.show()</pre>  <table><caption>Data points for Validation Accuracy After Fine-Tuning</caption><tr><th>Epochs</th><th>Validation Accuracy</th></tr><tr><td>0.00</td><td>0.425</td></tr><tr><td>0.25</td><td>0.53125</td></tr><tr><td>0.50</td><td>0.6375</td></tr><tr><td>0.75</td><td>0.74375</td></tr><tr><td>1.00</td><td>0.9625</td></tr><tr><td>1.25</td><td>0.9625</td></tr><tr><td>1.50</td><td>0.9625</td></tr><tr><td>1.75</td><td>0.9625</td></tr><tr><td>2.00</td><td>0.9625</td></tr></table>	Epochs	Validation Accuracy	0.00	0.425	0.25	0.53125	0.50	0.6375	0.75	0.74375	1.00	0.9625	1.25	0.9625	1.50	0.9625	1.75	0.9625	2.00	0.9625
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