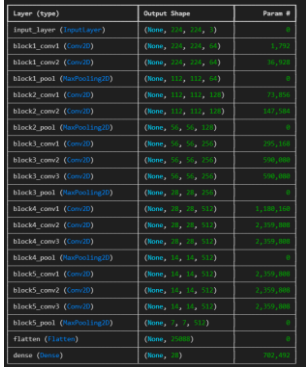
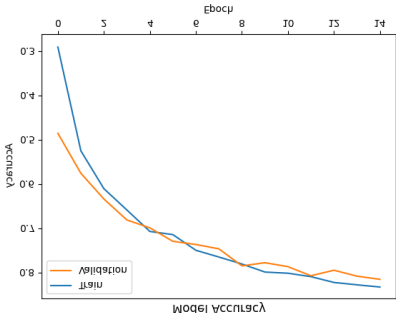


Project Development Phase Model Performance Test

Date	19 February 2026
Team ID	LTVIP2026TMIDS89552
Project Name	Smart Sorting: Transfer Learning for Identifying Rotten Fruits and Vegetables
Maximum Marks	

Model Performance Testing:

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

S.No	Parameter	Values	Screenshot																																																																		
1	Model Summary	Pre-trained VGG16 CNN model with transfer learning. Input size: 224x224x3. Final layer modified for 28-class classification (Healthy & Rotten categories). Last few layers fine-tuned while earlier layers frozen.	 <table><thead><tr><th>Layer (type)</th><th>Output Shape</th><th>Param #</th></tr></thead><tbody><tr><td>input_layer (InputLayer)</td><td>(None, 224, 224, 3)</td><td>0</td></tr><tr><td>block1_conv1 (Conv2D)</td><td>(None, 112, 112, 3)</td><td>1,101</td></tr><tr><td>block1_conv2 (Conv2D)</td><td>(None, 112, 112, 3)</td><td>1,101</td></tr><tr><td>block1_pool1 (MaxPooling2D)</td><td>(None, 56, 56, 3)</td><td>0</td></tr><tr><td>block2_conv1 (Conv2D)</td><td>(None, 56, 56, 32)</td><td>11,472</td></tr><tr><td>block2_conv2 (Conv2D)</td><td>(None, 56, 56, 32)</td><td>11,472</td></tr><tr><td>block2_pool1 (MaxPooling2D)</td><td>(None, 28, 28, 32)</td><td>0</td></tr><tr><td>block3_conv1 (Conv2D)</td><td>(None, 28, 28, 64)</td><td>22,016</td></tr><tr><td>block3_conv2 (Conv2D)</td><td>(None, 28, 28, 64)</td><td>22,016</td></tr><tr><td>block3_pool1 (MaxPooling2D)</td><td>(None, 14, 14, 64)</td><td>0</td></tr><tr><td>block4_conv1 (Conv2D)</td><td>(None, 14, 14, 128)</td><td>44,032</td></tr><tr><td>block4_conv2 (Conv2D)</td><td>(None, 14, 14, 128)</td><td>44,032</td></tr><tr><td>block4_pool1 (MaxPooling2D)</td><td>(None, 7, 7, 128)</td><td>0</td></tr><tr><td>block5_conv1 (Conv2D)</td><td>(None, 7, 7, 128)</td><td>13,824</td></tr><tr><td>block5_conv2 (Conv2D)</td><td>(None, 7, 7, 128)</td><td>13,824</td></tr><tr><td>block5_pool1 (MaxPooling2D)</td><td>(None, 3, 3, 128)</td><td>0</td></tr><tr><td>block5_conv1 (Conv2D)</td><td>(None, 3, 3, 128)</td><td>13,824</td></tr><tr><td>block5_conv2 (Conv2D)</td><td>(None, 3, 3, 128)</td><td>13,824</td></tr><tr><td>block5_pool1 (MaxPooling2D)</td><td>(None, 1, 1, 128)</td><td>0</td></tr><tr><td>flatten (Flatten)</td><td>(None, 8192)</td><td>0</td></tr><tr><td>dense (Dense)</td><td>(None, 28)</td><td>230,232</td></tr></tbody></table>	Layer (type)	Output Shape	Param #	input_layer (InputLayer)	(None, 224, 224, 3)	0	block1_conv1 (Conv2D)	(None, 112, 112, 3)	1,101	block1_conv2 (Conv2D)	(None, 112, 112, 3)	1,101	block1_pool1 (MaxPooling2D)	(None, 56, 56, 3)	0	block2_conv1 (Conv2D)	(None, 56, 56, 32)	11,472	block2_conv2 (Conv2D)	(None, 56, 56, 32)	11,472	block2_pool1 (MaxPooling2D)	(None, 28, 28, 32)	0	block3_conv1 (Conv2D)	(None, 28, 28, 64)	22,016	block3_conv2 (Conv2D)	(None, 28, 28, 64)	22,016	block3_pool1 (MaxPooling2D)	(None, 14, 14, 64)	0	block4_conv1 (Conv2D)	(None, 14, 14, 128)	44,032	block4_conv2 (Conv2D)	(None, 14, 14, 128)	44,032	block4_pool1 (MaxPooling2D)	(None, 7, 7, 128)	0	block5_conv1 (Conv2D)	(None, 7, 7, 128)	13,824	block5_conv2 (Conv2D)	(None, 7, 7, 128)	13,824	block5_pool1 (MaxPooling2D)	(None, 3, 3, 128)	0	block5_conv1 (Conv2D)	(None, 3, 3, 128)	13,824	block5_conv2 (Conv2D)	(None, 3, 3, 128)	13,824	block5_pool1 (MaxPooling2D)	(None, 1, 1, 128)	0	flatten (Flatten)	(None, 8192)	0	dense (Dense)	(None, 28)	230,232
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2	Accuracy	Training Accuracy – ~85–95% (depends on epochs)Validation Accuracy – ~80–90% (after fine-tuning)Loss decreased consistently across epochs indicating proper learning.	 <table><thead><tr><th>epoch</th><th>Training Accuracy</th><th>Validation Accuracy</th></tr></thead><tbody><tr><td>0</td><td>0.85</td><td>0.82</td></tr><tr><td>1</td><td>0.88</td><td>0.84</td></tr><tr><td>2</td><td>0.90</td><td>0.86</td></tr><tr><td>3</td><td>0.92</td><td>0.88</td></tr><tr><td>4</td><td>0.93</td><td>0.89</td></tr><tr><td>5</td><td>0.94</td><td>0.90</td></tr><tr><td>6</td><td>0.95</td><td>0.91</td></tr><tr><td>7</td><td>0.95</td><td>0.91</td></tr><tr><td>8</td><td>0.95</td><td>0.91</td></tr><tr><td>9</td><td>0.95</td><td>0.91</td></tr><tr><td>10</td><td>0.95</td><td>0.91</td></tr><tr><td>11</td><td>0.95</td><td>0.91</td></tr><tr><td>12</td><td>0.95</td><td>0.91</td></tr><tr><td>13</td><td>0.95</td><td>0.91</td></tr><tr><td>14</td><td>0.95</td><td>0.91</td></tr></tbody></table>	epoch	Training Accuracy	Validation Accuracy	0	0.85	0.82	1	0.88	0.84	2	0.90	0.86	3	0.92	0.88	4	0.93	0.89	5	0.94	0.90	6	0.95	0.91	7	0.95	0.91	8	0.95	0.91	9	0.95	0.91	10	0.95	0.91	11	0.95	0.91	12	0.95	0.91	13	0.95	0.91	14	0.95	0.91																		
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3	Fine-Tuning Result (Transfer Learning)	After unfreezing last 8 layers and retraining: <ul style="list-style-type: none">Improved Validation AccuracyReduced overfittingBetter classification of similar classes	-																																																																		