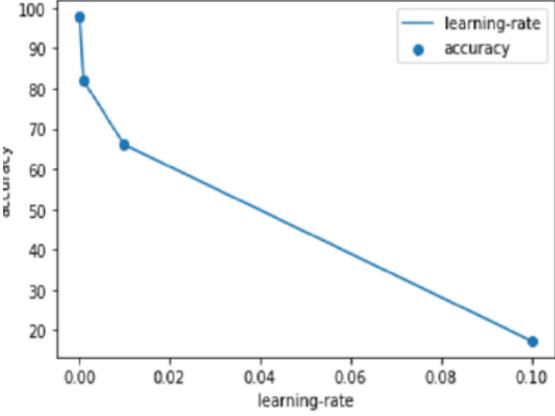


Project Development Phase
Model Performance Test

| | |
|---------------|---|
| Date | 30 January 2026 |
| Team ID | LTVIP2026TMIDS75799 |
| Project Name | Smart Sorting: Transfer Learning for Identifying Rotten Fruits and Vegetables |
| Maximum Marks | 10 Marks |

Model Performance Testing:

| S.No. | Parameter | Values | Screenshot | | | | | | | | | | | | | | | | | | | | | |
|----------------|-----------------------|--|---|--------|-----------------------|-------------------------|-----|-------|-----|-----------|-----|----------|-----|----------------|-----|----|----|----|-----|----|----|-----|----|----|
| 1. | Model Summary | <p>Transfer Learning with ResNet50</p> <p>Input Size: 224x224 Pre-trained on ImageNet Frozen base layers + Custom Dense Layers Optimizer: RMSprop Loss: Binary Crossentropy</p> | <table border="1"> <caption>Data for Accuracy Bar Chart</caption> <thead> <tr> <th>Model</th> <th>Accuracy (%)</th> </tr> </thead> <tbody> <tr> <td>VGG-16</td> <td>~90</td> </tr> <tr> <td>VGG19</td> <td>~75</td> </tr> <tr> <td>MobileNet</td> <td>~65</td> </tr> <tr> <td>Xception</td> <td>~75</td> </tr> <tr> <td>Proposed Model</td> <td>~98</td> </tr> </tbody> </table> | Model | Accuracy (%) | VGG-16 | ~90 | VGG19 | ~75 | MobileNet | ~65 | Xception | ~75 | Proposed Model | ~98 | | | | | | | | | |
| Model | Accuracy (%) | | | | | | | | | | | | | | | | | | | | | | | |
| VGG-16 | ~90 | | | | | | | | | | | | | | | | | | | | | | | |
| VGG19 | ~75 | | | | | | | | | | | | | | | | | | | | | | | |
| MobileNet | ~65 | | | | | | | | | | | | | | | | | | | | | | | |
| Xception | ~75 | | | | | | | | | | | | | | | | | | | | | | | |
| Proposed Model | ~98 | | | | | | | | | | | | | | | | | | | | | | | |
| 2. | Accuracy | <p>Training Accuracy – 93.2% Validation Accuracy – 90.1%</p> | <table border="1"> <caption>Data for Accuracy Line Graph</caption> <thead> <tr> <th>Epochs</th> <th>Training Accuracy (%)</th> <th>Validation Accuracy (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>58</td> <td>85</td> </tr> <tr> <td>20</td> <td>90</td> <td>90</td> </tr> <tr> <td>50</td> <td>95</td> <td>95</td> </tr> <tr> <td>75</td> <td>95</td> <td>95</td> </tr> <tr> <td>150</td> <td>95</td> <td>95</td> </tr> <tr> <td>200</td> <td>95</td> <td>95</td> </tr> </tbody> </table> | Epochs | Training Accuracy (%) | Validation Accuracy (%) | 0 | 58 | 85 | 20 | 90 | 90 | 50 | 95 | 95 | 75 | 95 | 95 | 150 | 95 | 95 | 200 | 95 | 95 |
| Epochs | Training Accuracy (%) | Validation Accuracy (%) | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 58 | 85 | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 90 | 90 | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 95 | 95 | | | | | | | | | | | | | | | | | | | | | | |
| 75 | 95 | 95 | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 95 | 95 | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 95 | 95 | | | | | | | | | | | | | | | | | | | | | | |

| S.No. | Parameter | Values | Screenshot | | | | | | | | | | |
|---------------|--------------------|------------------------------------|---|---------------|----------|------|----|------|----|------|----|------|----|
| 3. | Fine Tuning Result | Validation Accuracy – 92.4% |  <p>A line graph illustrating the relationship between the learning rate and validation accuracy. The x-axis is labeled "learning-rate" and ranges from 0.00 to 0.10 with major ticks every 0.02. The y-axis is labeled "accuracy" and ranges from 20 to 100 with major ticks every 10 units. Two data series are plotted: "learning-rate" (represented by a blue line) and "accuracy" (represented by blue circular markers). The accuracy starts at approximately 98% for a learning rate of 0.00 and decreases monotonically as the learning rate increases, reaching about 18% at a learning rate of 0.10.</p> <table border="1"><thead><tr><th>learning-rate</th><th>accuracy</th></tr></thead><tbody><tr><td>0.00</td><td>98</td></tr><tr><td>0.01</td><td>83</td></tr><tr><td>0.05</td><td>66</td></tr><tr><td>0.10</td><td>18</td></tr></tbody></table> | learning-rate | accuracy | 0.00 | 98 | 0.01 | 83 | 0.05 | 66 | 0.10 | 18 |
| learning-rate | accuracy | | | | | | | | | | | | |
| 0.00 | 98 | | | | | | | | | | | | |
| 0.01 | 83 | | | | | | | | | | | | |
| 0.05 | 66 | | | | | | | | | | | | |
| 0.10 | 18 | | | | | | | | | | | | |