

## Project Development Phase Model Performance Test

Date	21 November 2023
Team ID	PNT2023TMID592248
Project Name	Potato Disease Classification
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.	Model Summary	Total params: 183,747 Trainable params: 183,747 Non-trainable params: 0	<pre> Model: "sequential" Layer (type)                Output Shape              Param # ----- conv2d (Conv2D)              (None, 254, 254, 32)      896 max_pooling2d (MaxPooling2D) (None, 127, 127, 32)      0 conv2d_1 (Conv2D)             (None, 125, 125, 64)     18496 max_pooling2d_1 (MaxPooling2D) (None, 62, 62, 64)        0 conv2d_2 (Conv2D)             (None, 60, 60, 64)       36928 max_pooling2d_2 (MaxPooling2D) (None, 30, 30, 64)        0 conv2d_3 (Conv2D)             (None, 28, 28, 64)       36928 max_pooling2d_3 (MaxPooling2D) (None, 14, 14, 64)        0 conv2d_4 (Conv2D)             (None, 12, 12, 64)       36928 ... Total params: 183,747 Trainable params: 183,747 Non-trainable params: 0 </pre>

2.	Accuracy	Training Accuracy – 98.58 Validation Accuracy -99.48	<div>Epoch 1/20 47/47 [=====] - 106s 2s/step - loss: 0.9011 - accuracy: 0.5400 - val_loss: 0.7863 - val_accuracy: 0.7344 Epoch 2/20 47/47 [=====] - 79s 2s/step - loss: 0.6680 - accuracy: 0.7198 - val_loss: 0.4601 - val_accuracy: 0.8073 Epoch 3/20 47/47 [=====] - 83s 2s/step - loss: 0.4296 - accuracy: 0.8304 - val_loss: 0.5007 - val_accuracy: 0.8281 Epoch 4/20 47/47 [=====] - 91s 2s/step - loss: 0.3014 - accuracy: 0.8826 - val_loss: 0.1960 - val_accuracy: 0.9010 Epoch 5/20 47/47 [=====] - 93s 2s/step - loss: 0.1675 - accuracy: 0.9335 - val_loss: 0.1308 - val_accuracy: 0.9479 Epoch 6/20 47/47 [=====] - 83s 2s/step - loss: 0.2395 - accuracy: 0.9037 - val_loss: 0.1317 - val_accuracy: 0.9479 Epoch 7/20 47/47 [=====] - 80s 2s/step - loss: 0.1203 - accuracy: 0.9600 - val_loss: 0.1287 - val_accuracy: 0.9375 Epoch 8/20 47/47 [=====] - 84s 2s/step - loss: 0.2024 - accuracy: 0.9227 - val_loss: 0.1433 - val_accuracy: 0.9427 Epoch 9/20 47/47 [=====] - 114s 2s/step - loss: 0.1538 - accuracy: 0.9403 - val_loss: 0.0854 - val_accuracy: 0.9635 Epoch 10/20 47/47 [=====] - 86s 2s/step - loss: 0.1391 - accuracy: 0.9417 - val_loss: 0.1773 - val_accuracy: 0.9271 Epoch 11/20 47/47 [=====] - 84s 2s/step - loss: 0.0745 - accuracy: 0.9701 - val_loss: 0.0800 - val_accuracy: 0.9688 Epoch 12/20 47/47 [=====] - 82s 2s/step - loss: 0.0782 - accuracy: 0.9729 - val_loss: 0.0600 - val_accuracy: 0.9792 Epoch 13/20 ... Epoch 19/20 47/47 [=====] - 89s 2s/step - loss: 0.0645 - accuracy: 0.9756 - val_loss: 0.0346 - val_accuracy: 0.9948 Epoch 20/20 47/47 [=====] - 3601s 78s/step - loss: 0.0393 - accuracy: 0.9858 - val_loss: 0.0223 - val_accuracy: 0.9948</div>
3.	Confidence Score (Only Yolo Projects)	Class Detected - NA  Confidence Score - NA	Not Applicable

MODEL SUMMARY:

Model: "sequential"		
Layer (type)	Output Shape	Param #
=====		
conv2d (Conv2D)	(None, 254, 254, 32)	896
max_pooling2d (MaxPooling2D)	(None, 127, 127, 32)	0
conv2d_1 (Conv2D)	(None, 125, 125, 64)	18496
max_pooling2d_1 (MaxPooling2D)	(None, 62, 62, 64)	0
conv2d_2 (Conv2D)	(None, 60, 60, 64)	36928
max_pooling2d_2 (MaxPooling2D)	(None, 30, 30, 64)	0
conv2d_3 (Conv2D)	(None, 28, 28, 64)	36928
max_pooling2d_3 (MaxPooling2D)	(None, 14, 14, 64)	0
conv2d_4 (Conv2D)	(None, 12, 12, 64)	36928
...		
Total params: 183,747		
Trainable params: 183,747		
Non-trainable params: 0		

## ACCURACY:

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Epoch 1/20
47/47 [=====] - 106s 2s/step - loss: 0.9011 - accuracy: 0.5400 - val_loss: 0.7863 - val_accuracy: 0.7344
Epoch 2/20
47/47 [=====] - 79s 2s/step - loss: 0.6680 - accuracy: 0.7198 - val_loss: 0.4601 - val_accuracy: 0.8073
Epoch 3/20
47/47 [=====] - 83s 2s/step - loss: 0.4296 - accuracy: 0.8304 - val_loss: 0.5007 - val_accuracy: 0.8281
Epoch 4/20
47/47 [=====] - 91s 2s/step - loss: 0.3014 - accuracy: 0.8826 - val_loss: 0.1960 - val_accuracy: 0.9010
Epoch 5/20
47/47 [=====] - 93s 2s/step - loss: 0.1675 - accuracy: 0.9335 - val_loss: 0.1308 - val_accuracy: 0.9479
Epoch 6/20
47/47 [=====] - 83s 2s/step - loss: 0.2395 - accuracy: 0.9037 - val_loss: 0.1317 - val_accuracy: 0.9479
Epoch 7/20
47/47 [=====] - 80s 2s/step - loss: 0.1203 - accuracy: 0.9600 - val_loss: 0.1287 - val_accuracy: 0.9375
Epoch 8/20
47/47 [=====] - 84s 2s/step - loss: 0.2024 - accuracy: 0.9227 - val_loss: 0.1433 - val_accuracy: 0.9427
Epoch 9/20
47/47 [=====] - 114s 2s/step - loss: 0.1538 - accuracy: 0.9403 - val_loss: 0.0854 - val_accuracy: 0.9635
Epoch 10/20
47/47 [=====] - 86s 2s/step - loss: 0.1391 - accuracy: 0.9417 - val_loss: 0.1773 - val_accuracy: 0.9271
Epoch 11/20
47/47 [=====] - 84s 2s/step - loss: 0.0745 - accuracy: 0.9701 - val_loss: 0.0800 - val_accuracy: 0.9688
Epoch 12/20
47/47 [=====] - 82s 2s/step - loss: 0.0782 - accuracy: 0.9729 - val_loss: 0.0600 - val_accuracy: 0.9792
Epoch 13/20
...
Epoch 19/20
47/47 [=====] - 89s 2s/step - loss: 0.0645 - accuracy: 0.9756 - val_loss: 0.0346 - val_accuracy: 0.9948
Epoch 20/20
47/47 [=====] - 3601s 78s/step - loss: 0.0393 - accuracy: 0.9858 - val_loss: 0.0223 - val_accuracy: 0.9948
```