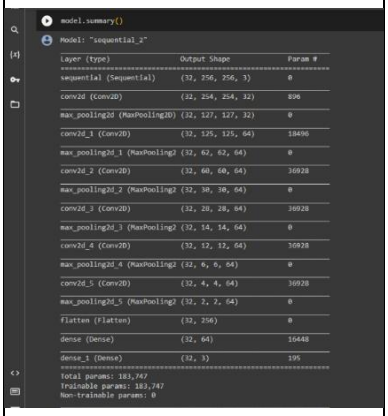
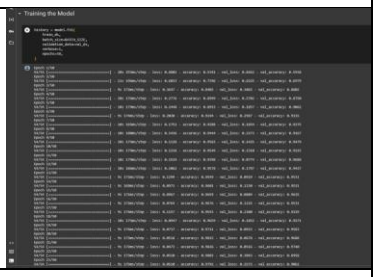
Project Development Phase
Model Performance Test

Date	10 November 2023
Team ID	592885
Project Name	Project – Potato Disease Classifcation
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**	
2.	Accuracy	Training Accuracy - 99.65 Validation Accuracy – 98.44	
3.	Confidence Score (Only Yolo Projects)	Class Detected - NA Confidence Score - NA	

Screenshots

Model Summary

```
model.summary()

Model: "sequential_2"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
sequential (Sequential)      (32, 256, 256, 3)         0
_________________________________________________________________
conv2d (Conv2D)              (32, 254, 254, 32)        896
_________________________________________________________________
max_pooling2d (MaxPooling2D) (32, 127, 127, 32)        0
_________________________________________________________________
conv2d_1 (Conv2D)            (32, 125, 125, 64)        18496
_________________________________________________________________
max_pooling2d_1 (MaxPooling2 (32, 62, 62, 64)          0
_________________________________________________________________
conv2d_2 (Conv2D)            (32, 60, 60, 64)          36928
_________________________________________________________________
max_pooling2d_2 (MaxPooling2 (32, 30, 30, 64)          0
_________________________________________________________________
conv2d_3 (Conv2D)            (32, 28, 28, 64)          36928
_________________________________________________________________
max_pooling2d_3 (MaxPooling2 (32, 14, 14, 64)          0
_________________________________________________________________
conv2d_4 (Conv2D)            (32, 12, 12, 64)          36928
_________________________________________________________________
max_pooling2d_4 (MaxPooling2 (32, 6, 6, 64)            0
_________________________________________________________________
conv2d_5 (Conv2D)            (32, 4, 4, 64)            36928
_________________________________________________________________
max_pooling2d_5 (MaxPooling2 (32, 2, 2, 64)            0
_________________________________________________________________
flatten (Flatten)            (32, 256)                 0
_________________________________________________________________
dense (Dense)                (32, 64)                  16448
_________________________________________________________________
dense_1 (Dense)              (32, 3)                   195
=================================================================
Total params: 183,747
Trainable params: 183,747
Non-trainable params: 0
```

Accuracy score

```
Training the Model

history = model.fit(
    train_ds,
    batch_size=BATCH_SIZE,
    validation_data=val_ds,
    verbose=1,
    epochs=50,
)

Epoch 1/50
54/54 [==============================] - 20s 255ms/step - loss: 0.8802 - accuracy: 0.5341 - val_loss: 0.8462 - val_accuracy: 0.5938
Epoch 2/50
54/54 [==============================] - 11s 196ms/step - loss: 0.6033 - accuracy: 0.7396 - val_loss: 0.6225 - val_accuracy: 0.6979
Epoch 3/50
54/54 [==============================] - 9s 172ms/step - loss: 0.3647 - accuracy: 0.8403 - val_loss: 0.3065 - val_accuracy: 0.8802
Epoch 4/50
54/54 [==============================] - 10s 176ms/step - loss: 0.2776 - accuracy: 0.8999 - val_loss: 0.2702 - val_accuracy: 0.8750
Epoch 5/50
54/54 [==============================] - 10s 179ms/step - loss: 0.2448 - accuracy: 0.8953 - val_loss: 0.1857 - val_accuracy: 0.9062
Epoch 6/50
54/54 [==============================] - 9s 174ms/step - loss: 0.2020 - accuracy: 0.9144 - val_loss: 0.2987 - val_accuracy: 0.9115
Epoch 7/50
54/54 [==============================] - 10s 185ms/step - loss: 0.1751 - accuracy: 0.9288 - val_loss: 0.1854 - val_accuracy: 0.9375
Epoch 8/50
54/54 [==============================] - 10s 180ms/step - loss: 0.1436 - accuracy: 0.9444 - val_loss: 0.2273 - val_accuracy: 0.9167
Epoch 9/50
54/54 [==============================] - 10s 179ms/step - loss: 0.1128 - accuracy: 0.9583 - val_loss: 0.1425 - val_accuracy: 0.9479
Epoch 10/50
54/54 [==============================] - 10s 179ms/step - loss: 0.1218 - accuracy: 0.9549 - val_loss: 0.2310 - val_accuracy: 0.9115
Epoch 11/50
54/54 [==============================] - 10s 179ms/step - loss: 0.1524 - accuracy: 0.9398 - val_loss: 0.0774 - val_accuracy: 0.9688
Epoch 12/50
54/54 [==============================] - 10s 186ms/step - loss: 0.1062 - accuracy: 0.9578 - val_loss: 0.1787 - val_accuracy: 0.9427
Epoch 13/50
54/54 [==============================] - 9s 172ms/step - loss: 0.1299 - accuracy: 0.9549 - val_loss: 0.0929 - val_accuracy: 0.9531
Epoch 14/50
54/54 [==============================] - 9s 169ms/step - loss: 0.0971 - accuracy: 0.9601 - val_loss: 0.1230 - val_accuracy: 0.9531
Epoch 15/50
54/54 [==============================] - 9s 171ms/step - loss: 0.0967 - accuracy: 0.9659 - val_loss: 0.0804 - val_accuracy: 0.9635
Epoch 16/50
54/54 [==============================] - 9s 172ms/step - loss: 0.0764 - accuracy: 0.9676 - val_loss: 0.1225 - val_accuracy: 0.9531
Epoch 17/50
54/54 [==============================] - 9s 174ms/step - loss: 0.1157 - accuracy: 0.9543 - val_loss: 0.2200 - val_accuracy: 0.9219
Epoch 18/50
54/54 [==============================] - 10s 175ms/step - loss: 0.0947 - accuracy: 0.9659 - val_loss: 0.1852 - val_accuracy: 0.9271
Epoch 19/50
54/54 [==============================] - 9s 174ms/step - loss: 0.0737 - accuracy: 0.9711 - val_loss: 0.0923 - val_accuracy: 0.9583
Epoch 20/50
54/54 [==============================] - 9s 173ms/step - loss: 0.0518 - accuracy: 0.9815 - val_loss: 0.0678 - val_accuracy: 0.9688
Epoch 21/50
54/54 [==============================] - 9s 172ms/step - loss: 0.0473 - accuracy: 0.9826 - val_loss: 0.0536 - val_accuracy: 0.9740
Epoch 22/50
54/54 [==============================] - 9s 173ms/step - loss: 0.0510 - accuracy: 0.9803 - val_loss: 0.3043 - val_accuracy: 0.8958
Epoch 23/50
54/54 [==============================] - 9s 175ms/step - loss: 0.0510 - accuracy: 0.9792 - val_loss: 0.2573 - val_accuracy: 0.9062
```