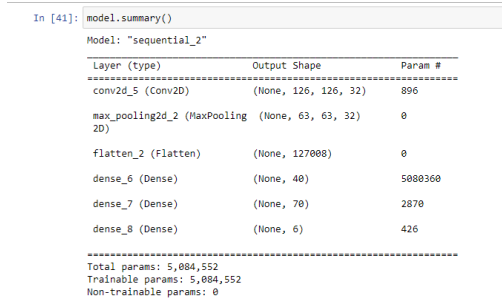
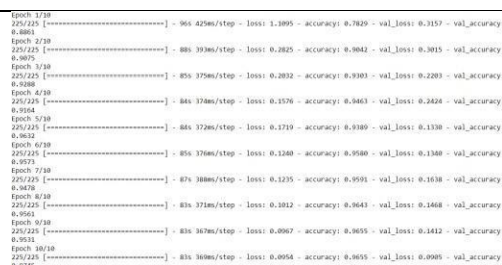


## Project Development Phase Model Performance Test

Date	16 November 2022
Team ID	PNT2022TMID15357
Project Name	Fertilizers RecommendationSystem for Disease Prediction
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: 5,084,552 Trainable params: 5,084,552 Non-trainable params: 0	 <pre> In [41]: model.summary()  Model: "sequential_2" Layer (type)                Output Shape                Param # ----- conv2d_5 (Conv2D)           (None, 126, 126, 32)       896 max_pooling2d_2 (MaxPooling2D) (None, 63, 63, 32)         0 flatten_2 (Flatten)         (None, 127008)              0 dense_6 (Dense)              (None, 40)                  5080360 dense_7 (Dense)              (None, 70)                  2870 dense_8 (Dense)              (None, 6)                   426 ----- Total params: 5,084,552 Trainable params: 5,084,552 Non-trainable params: 0 </pre>
2.	Accuracy	Training Accuracy – 96.55  Validation Accuracy – 97.45	 <pre> Epoch 1/10: ..... - loss: 1.1895 - accuracy: 0.7828 - val_loss: 0.3157 - val_accuracy: 0.4861 Epoch 2/10: ..... - loss: 0.2825 - accuracy: 0.8842 - val_loss: 0.3015 - val_accuracy: 0.5075 Epoch 3/10: ..... - loss: 0.2832 - accuracy: 0.9383 - val_loss: 0.2283 - val_accuracy: 0.5088 Epoch 4/10: ..... - loss: 0.3576 - accuracy: 0.8463 - val_loss: 0.2428 - val_accuracy: 0.5164 Epoch 5/10: ..... - loss: 0.3719 - accuracy: 0.8389 - val_loss: 0.1338 - val_accuracy: 0.9532 Epoch 6/10: ..... - loss: 0.3348 - accuracy: 0.9588 - val_loss: 0.1348 - val_accuracy: 0.9571 Epoch 7/10: ..... - loss: 0.3235 - accuracy: 0.9591 - val_loss: 0.1638 - val_accuracy: 0.9478 Epoch 8/10: ..... - loss: 0.3812 - accuracy: 0.8641 - val_loss: 0.1468 - val_accuracy: 0.9561 Epoch 9/10: ..... - loss: 0.8867 - accuracy: 0.8655 - val_loss: 0.1412 - val_accuracy: 0.9531 Epoch 10/10: ..... - loss: 0.8954 - accuracy: 0.8655 - val_loss: 0.9905 - val_accuracy: 0.9745 </pre>

## Model Summary

```
In [41]: model.summary()
```

```
Model: "sequential_2"
```

Layer (type)	Output Shape	Param #
conv2d_5 (Conv2D)	(None, 126, 126, 32)	896
max_pooling2d_2 (MaxPooling2D)	(None, 63, 63, 32)	0
flatten_2 (Flatten)	(None, 127008)	0
dense_6 (Dense)	(None, 40)	5080360
dense_7 (Dense)	(None, 70)	2870
dense_8 (Dense)	(None, 6)	426

```
=====  
Total params: 5,084,552  
Trainable params: 5,084,552  
Non-trainable params: 0  
=====
```

## Accuracy

```
model.fit_generator(x_train, steps_per_epoch=len(x_train), validation_data=x_test, validation_steps=len(x_test), epochs=10)
```

C:\Users\Sree Ram\AppData\Local\Temp\ipykernel\_13228\1582812018.py:1: UserWarning: `Model.fit\_generator` is deprecated and will be removed in a future version. Please use `Model.fit`, which supports generators.

```
model.fit_generator(x_train, steps_per_epoch=len(x_train), validation_data=x_test, validation_steps=len(x_test), epochs=10)
```

Epoch 1/10

225/225 [=====] - 96s 425ms/step - loss: 1.1095 - accuracy: 0.7829 - val\_loss: 0.3157 - val\_accuracy: 0.8861

Epoch 2/10

225/225 [=====] - 88s 393ms/step - loss: 0.2825 - accuracy: 0.9042 - val\_loss: 0.3015 - val\_accuracy: 0.9075

Epoch 3/10

225/225 [=====] - 85s 375ms/step - loss: 0.2032 - accuracy: 0.9303 - val\_loss: 0.2203 - val\_accuracy: 0.9288

Epoch 4/10

225/225 [=====] - 84s 374ms/step - loss: 0.1576 - accuracy: 0.9463 - val\_loss: 0.2424 - val\_accuracy: 0.9164

Epoch 5/10

225/225 [=====] - 84s 372ms/step - loss: 0.1719 - accuracy: 0.9389 - val\_loss: 0.1330 - val\_accuracy: 0.9632

Epoch 6/10

225/225 [=====] - 85s 376ms/step - loss: 0.1240 - accuracy: 0.9580 - val\_loss: 0.1340 - val\_accuracy: 0.9573

Epoch 7/10

225/225 [=====] - 87s 388ms/step - loss: 0.1235 - accuracy: 0.9591 - val\_loss: 0.1638 - val\_accuracy: 0.9478

Epoch 8/10

225/225 [=====] - 83s 371ms/step - loss: 0.1012 - accuracy: 0.9643 - val\_loss: 0.1468 - val\_accuracy: 0.9561

Epoch 9/10

225/225 [=====] - 83s 367ms/step - loss: 0.0967 - accuracy: 0.9655 - val\_loss: 0.1412 - val\_accuracy: 0.9531

Epoch 10/10

225/225 [=====] - 83s 369ms/step - loss: 0.0954 - accuracy: 0.9655 - val\_loss: 0.0905 - val\_accuracy: 0.9745