

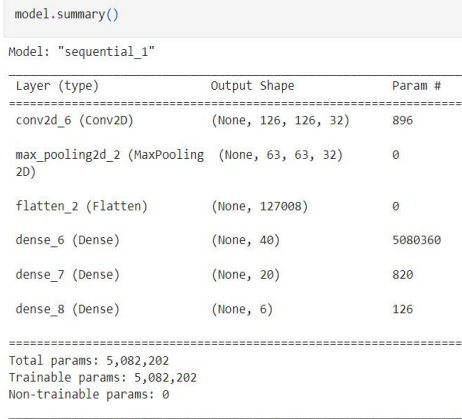
# Project Development Phase

## Model Performance Test

Date	18-11-2022
Team ID	PNT2022TMID33888
Project Name	Fertilizers Recommendation System for Disease Prediction
Maximum Marks	8mark

### 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: 5,082,202 Trainable params: 5,082,202 Non-trainable params: 0	 <pre>model.summary() Model: "sequential_1" Layer (type)                Output Shape                Param # ----- conv2d_6 (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, 20)                  820 dense_8 (Dense)              (None, 6)                   126 Total params: 5,082,202 Trainable params: 5,082,202 Non-trainable params: 0</pre>

2.	Accuracy	Training Accuracy – 96.55 Validation Accuracy – 97.45	<pre>Epoch 1/10 225/225 [=====] - 96s 425ms/step - loss: 1.1895 - 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: 0.9079 Epoch 3/10 225/225 [=====] - 85s 375ms/step - loss: 0.2802 - 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: 0.9380 - val_loss: 0.1338 - val_accuracy: 0.9632 Epoch 6/10 225/225 [=====] - 85s 376ms/step - loss: 0.1248 - accuracy: 0.9580 - val_loss: 0.1348 - 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</pre>
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Model Summary

```
model.summary()
```

Model: "sequential\_1"

Layer (type)	Output Shape	Param #
=====		
conv2d_6 (Conv2D)	(None, 126, 126, 32)	896
max_pooling2d_2 (MaxPooling 2D)	(None, 63, 63, 32)	0
flatten_2 (Flatten)	(None, 127008)	0
dense_6 (Dense)	(None, 40)	5080360
dense_7 (Dense)	(None, 20)	820
dense_8 (Dense)	(None, 6)	126
=====		
Total params: 5,082,202		
Trainable params: 5,082,202		
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