```
from keras.preprocessing.image import ImageDataGenerator
train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,zoom_r
ange=0.2,horizontal_flip=True)
test_datagen=ImageDataGenerator(rescale=1)

x_train=train_datagen.flow_from_directory(r'/content/drive/MyDrive/
DataSet/Dataset Plant
Disease/Veg-dataset/Veg-dataset/test_set',target_size=(128,128),batch_
size=2,class_mode='categorical')
x_test=test_datagen.flow_from_directory(r'/content/drive/MyDrive/DataS
et/Dataset Plant
Disease/Veg-dataset/Veg-dataset/train_set',target_size=(128,128),batch
_size=2,class_mode='categorical')

Found 3416 images belonging to 9 classes.
Found 11386 images belonging to 9 classes.

from keras.models import Sequential
from keras.layers import Dense
from keras.layers import Convolution2D
from keras.layers import MaxPooling2D
from keras.layers import Flatten

model=Sequential()

model.add(Convolution2D(32,
(3,3),input_shape=(128,128,3),activation='relu'))

model.add(MaxPooling2D(pool_size=(2,2)))

model.add(Flatten())

model.add(Dense(units=300,kernel_initializer='uniform',activation='rel
u'))

model.add(Dense(units=150,kernel_initializer='uniform',activation='rel
u'))

model.add(Dense(units=75,kernel_initializer='uniform',activation='relu
'))

model.add(Dense(units=9,kernel_initializer='uniform',activation='softm
ax'))

model.compile(loss='categorical_crossentropy',optimizer="adam",metrics
=["accuracy"])

model.fit(x_train,steps_per_epoch=89,epochs=20,validation_data=x_test,
validation_steps=27)

Epoch 1/20
89/89 [==============================] - 66s 735ms/step - loss: 2.1991
- accuracy: 0.1685 - val_loss: 34.9906 - val_accuracy: 0.1667
```

```
Epoch 2/20
89/89 [==============================] - 52s 586ms/step - loss: 2.1355
- accuracy: 0.2191 - val_loss: 126.3206 - val_accuracy: 0.1481
Epoch 3/20
89/89 [==============================] - 52s 579ms/step - loss: 2.1752
- accuracy: 0.1629 - val_loss: 51.6178 - val_accuracy: 0.1667
Epoch 4/20
89/89 [==============================] - 48s 535ms/step - loss: 2.1048
- accuracy: 0.2079 - val_loss: 69.3990 - val_accuracy: 0.1852
Epoch 5/20
89/89 [==============================] - 48s 540ms/step - loss: 2.1155
- accuracy: 0.1910 - val_loss: 93.5892 - val_accuracy: 0.1852
Epoch 6/20
89/89 [==============================] - 49s 547ms/step - loss: 2.0742
- accuracy: 0.2191 - val_loss: 124.8375 - val_accuracy: 0.1852
Epoch 7/20
89/89 [==============================] - 47s 521ms/step - loss: 1.8939
- accuracy: 0.2809 - val_loss: 220.7767 - val_accuracy: 0.2407
Epoch 8/20
89/89 [==============================] - 44s 499ms/step - loss: 1.9078
- accuracy: 0.2978 - val_loss: 259.1734 - val_accuracy: 0.2222
Epoch 9/20
89/89 [==============================] - 43s 481ms/step - loss: 1.8248
- accuracy: 0.3202 - val_loss: 106.8574 - val_accuracy: 0.3333
Epoch 10/20
89/89 [==============================] - 42s 474ms/step - loss: 1.8874
- accuracy: 0.3146 - val_loss: 94.2278 - val_accuracy: 0.4630
Epoch 11/20
89/89 [==============================] - 42s 475ms/step - loss: 1.7656
- accuracy: 0.3427 - val_loss: 324.2667 - val_accuracy: 0.2963
Epoch 12/20
89/89 [==============================] - 42s 474ms/step - loss: 1.7070
- accuracy: 0.3146 - val_loss: 188.0005 - val_accuracy: 0.2407
Epoch 13/20
89/89 [==============================] - 39s 436ms/step - loss: 1.9401
- accuracy: 0.2753 - val_loss: 130.1401 - val_accuracy: 0.2593
Epoch 14/20
89/89 [==============================] - 41s 469ms/step - loss: 1.8265
- accuracy: 0.2978 - val_loss: 113.8954 - val_accuracy: 0.3333
Epoch 15/20
89/89 [==============================] - 40s 441ms/step - loss: 1.6787
- accuracy: 0.3202 - val_loss: 122.3567 - val_accuracy: 0.3519
Epoch 16/20
89/89 [==============================] - 38s 431ms/step - loss: 1.7424
- accuracy: 0.3090 - val_loss: 94.6337 - val_accuracy: 0.3704
Epoch 17/20
89/89 [==============================] - 36s 408ms/step - loss: 1.7309
- accuracy: 0.2865 - val_loss: 127.5731 - val_accuracy: 0.3148
Epoch 18/20
89/89 [==============================] - 37s 421ms/step - loss: 1.6828
```

```
- accuracy: 0.3764 - val_loss: 124.5040 - val_accuracy: 0.3704
Epoch 19/20
89/89 [==============================] - 38s 423ms/step - loss: 1.5997
- accuracy: 0.4045 - val_loss: 108.5413 - val_accuracy: 0.4259
Epoch 20/20
89/89 [==============================] - 38s 423ms/step - loss: 1.6695
- accuracy: 0.3652 - val_loss: 79.3885 - val_accuracy: 0.3519

<keras.callbacks.History at 0x7f12002bba10>
```

```
model.save('vegetable.h5')
```

```
model.summary()
```

```
Model: "sequential"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 conv2d (Conv2D)             (None, 126, 126, 32)      896

 max_pooling2d (MaxPooling2D  (None, 63, 63, 32)       0
 )

 flatten (Flatten)           (None, 127008)            0

 dense (Dense)               (None, 300)               38102700

 dense_1 (Dense)             (None, 150)               45150

 dense_2 (Dense)             (None, 75)                11325

 dense_3 (Dense)             (None, 9)                 684

=================================================================
Total params: 38,160,755
Trainable params: 38,160,755
Non-trainable params: 0
_________________________________________________________________
```