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from keras.preprocessing.image import ImageDataGenerator
train_datagen = ImageDataGenerator(rescale = 1./255, shear_range = 0.2, zoom_range = 0.2,
test_datagen = ImageDataGenerator(rescale = 1./255)

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

X_train = train_datagen.flow_from_directory('/content/Dataset/training_set', target_size =

    Found 15750 images belonging to 9 classes.

X_test = test_datagen.flow_from_directory('/content/Dataset/test_set', target_size = (64,6

    Found 2250 images belonging to 9 classes.

model = Sequential()
model.add(Convolution2D(32,(3,3), input_shape = (64,64,1), activation = 'relu'))
model.add(MaxPooling2D(pool_size = (2,2)))
model.add(Flatten())
model.add(Dense(units = 512, activation = 'relu'))
model.add(Dense(units = 256, activation = 'relu'))
model.add(Dense(units = 128, activation = 'relu'))
model.add(Dense(units = 64, activation = 'relu'))
model.add(Dense(units = 9, activation = 'softmax'))

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

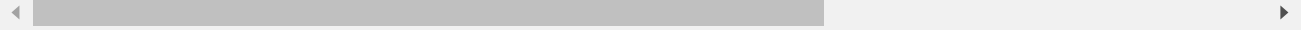
model.fit(X_train, steps_per_epoch = len(X_train),epochs=10, validation_data = X_test, val

    Epoch 1/10
    53/53 [=====] - 20s 323ms/step - loss: 0.6905 - accuracy: 0
    Epoch 2/10
    53/53 [=====] - 13s 246ms/step - loss: 0.0775 - accuracy: 0
    Epoch 3/10
    53/53 [=====] - 13s 240ms/step - loss: 0.0266 - accuracy: 0
    Epoch 4/10
    53/53 [=====] - 13s 241ms/step - loss: 0.0169 - accuracy: 0
    Epoch 5/10
    53/53 [=====] - 13s 243ms/step - loss: 0.0113 - accuracy: 0
    Epoch 6/10
    53/53 [=====] - 13s 244ms/step - loss: 0.0100 - accuracy: 0
    Epoch 7/10
    53/53 [=====] - 13s 251ms/step - loss: 0.0065 - accuracy: 0
    Epoch 8/10
    53/53 [=====] - 13s 239ms/step - loss: 0.0036 - accuracy: 0
    Epoch 9/10
    53/53 [=====] - 13s 241ms/step - loss: 0.0037 - accuracy: 0

```

Epoch 10/10

53/53 [=====] - 13s 244ms/step - loss: 0.0033 - accuracy: 0
<keras.callbacks.History at 0x7fc9c2b6e9d0>



model.summary()

Model: "sequential"

Layer (type)	Output Shape	Param #
=====		
conv2d (Conv2D)	(None, 62, 62, 32)	320
max_pooling2d (MaxPooling2D)	(None, 31, 31, 32)	0
flatten (Flatten)	(None, 30752)	0
dense (Dense)	(None, 512)	15745536
dense_1 (Dense)	(None, 256)	131328
dense_2 (Dense)	(None, 128)	32896
dense_3 (Dense)	(None, 64)	8256
dense_4 (Dense)	(None, 9)	585
=====		
Total params: 15,918,921		
Trainable params: 15,918,921		
Non-trainable params: 0		

model.save('Model.h5')

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