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Model Building

Adding The Pooling Layer

In [ ]:

```
from tensorflow.keras.preprocessing.image import ImageDataGenerator
```

In [ ]:

```
import numpy as np from keras.models
import Sequential from keras.layers
import MaxPooling2D
```

In [ ]:

```
# define input image
image = np.array([[2, 2, 7, 3],
                              [9, 4, 6, 1],
                        [8, 5, 2, 4],
                  [3, 1, 2, 6]]) image =
image.reshape(1, 4, 4, 1)
```

In [ ]:

```
# define model containing just a single max pooling layer
model = Sequential(
       [MaxPooling2D(pool_size = 2, strides = 2)])

# generate pooled output output
= model.predict(image)
```

In [ ]:

```
# print output image output
= np.squeeze(output)
print(output)
```

In [ ]:

```
# Training Datagen train_datagen
=
ImageDataGenerator(rescale=1/255,zoom_range=0.2,horizontal_flip=True,vertica
l_flip=False) # Testing Datagen
test_datagen = ImageDataGenerator(rescale=1/255)
```

In [ ]:

```
# Training Dataset
x_train=train_datagen.flow_from_directory(r'/content/drive/MyDrive/Dataset/t
raining_set',target_size=(64,64), class_mode='categorical',batch_size=900)
# Testing Dataset
x_test=test_datagen.flow_from_directory(r'/content/drive/MyDrive/Dataset/tes
t_set',target_size=(64,64), class_mode='categorical',batch_size=900)
```

```
Found 15760 images belonging to 9 classes.
Found 2250 images belonging to 9 classes.
```

In [ ]:

```
print("Len x-train : ", len(x_train)) print("Len
x-test : ", len(x_test))
```

```
Len x-train :  18 Len
x-test :  3
```

In [ ]:

```
# The Class Indices in Training Dataset x_train.class_indices
```

Out[ ]:

```
{'A': 0, 'B': 1, 'C': 2, 'D': 3, 'E': 4, 'F': 5, 'G': 6, 'H': 7, 'I': 8}
```

Model Creation

In [ ]:

```
# Importing Libraries from
tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Convolution2D,MaxPooling2D,Flatten,Dense
```

In [ ]:

```
# Creating Model model=Sequential()
```

In [ ]:

```
# Adding Layers
model.add(Convolution2D(32,(3,3),activation='relu',input_shape=(64,64,3)))
```

In [ ]:

```
model.add(MaxPooling2D(pool_size
```