Project Development Phase

Model Performance Test

Date	10 November 2022
Team ID	PNT2022TMID27699
Project Name	Real-Time Communication Using AI for Specially Abled
Maximum Marks	10 Marks

Model Performance Testing:

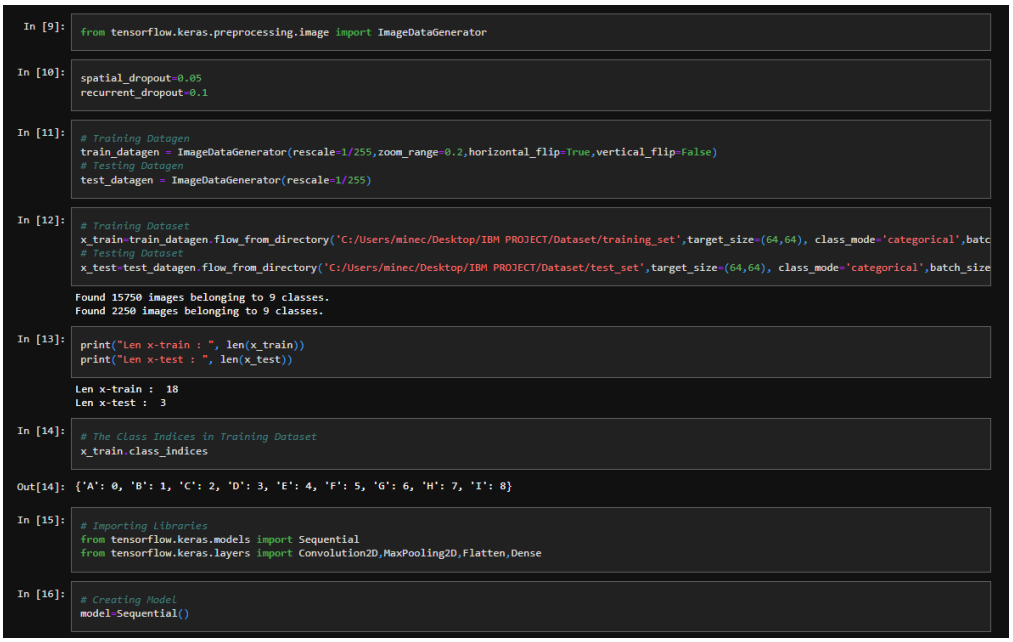
The below table consists of information in model performance by the project team,

S.no	Parameter	Values
1.	Model Summary	Total amount of Test data imported – **2250 images in 9 classes**. Total amount of Training data – **15750 images in 9 classes**. Length of the Training set – **18** Length of the Test set – **3**
2.	Accuracy	Model Accuracy - **0.7874015748031497** Training Accuracy – **0.9991** Validation Accuracy – **0.9760**

Screenshots:

The Screenshots below are for the Model Performance Testing table,

Model Screenshot:



```
In [9]:
from tensorflow.keras.preprocessing.image import ImageDataGenerator

In [10]:
spatial_dropout=0.05
recurrent_dropout=0.1

In [11]:
# Training Datagen
train_datagen = ImageDataGenerator(rescale=1/255,zoom_range=0.2,horizontal_flip=True,vertical_flip=False)
# Testing Datagen
test_datagen = ImageDataGenerator(rescale=1/255)

In [12]:
# Training Dataset
x_train=train_datagen.flow_from_directory('C:/Users/minec/Desktop/IBM PROJECT/Dataset/training_set',target_size=(64,64), class_mode='categorical',batc
# Testing Dataset
x_test=test_datagen.flow_from_directory('C:/Users/minec/Desktop/IBM PROJECT/Dataset/test_set',target_size=(64,64), class_mode='categorical',batch_size
Found 15750 images belonging to 9 classes.
Found 2250 images belonging to 9 classes.

In [13]:
print("Len x-train : ", len(x_train))
print("Len x-test : ", len(x_test))
Len x-train :  18
Len x-test :  3

In [14]:
# The Class Indices in Training Dataset
x_train.class_indices

Out[14]: {'A': 0, 'B': 1, 'C': 2, 'D': 3, 'E': 4, 'F': 5, 'G': 6, 'H': 7, 'I': 8}

In [15]:
# Importing Libraries
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Convolution2D,MaxPooling2D,Flatten,Dense

In [16]:
# Creating Model
model=Sequential()
```

Accuracy Screenshot:

```
# Fitting the Model Generator
model.fit_generator(x_train,steps_per_epoch=len(x_train),epochs=10,validation_data=x_test,validation_steps=len(x_test))
```

```
C:\Users\minec\AppData\Local\Temp\ipykernel_12712\1042518445.py:2: 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),epochs=10,validation_data=x_test,validation_steps=len(x_test))
Epoch 1/10
18/18 [==============================] - 28s 2s/step - loss: 1.1885 - accuracy: 0.6356 - val_loss: 0.3970 - val_accuracy: 0.9084
Epoch 2/10
18/18 [==============================] - 23s 1s/step - loss: 0.2429 - accuracy: 0.9309 - val_loss: 0.2971 - val_accuracy: 0.9409
Epoch 3/10
18/18 [==============================] - 22s 1s/step - loss: 0.0933 - accuracy: 0.9761 - val_loss: 0.1903 - val_accuracy: 0.9724
Epoch 4/10
18/18 [==============================] - 22s 1s/step - loss: 0.0483 - accuracy: 0.9889 - val_loss: 0.2213 - val_accuracy: 0.9733
Epoch 5/10
18/18 [==============================] - 22s 1s/step - loss: 0.0281 - accuracy: 0.9933 - val_loss: 0.2241 - val_accuracy: 0.9733
Epoch 6/10
18/18 [==============================] - 21s 1s/step - loss: 0.0201 - accuracy: 0.9953 - val_loss: 0.2540 - val_accuracy: 0.9756
Epoch 7/10
18/18 [==============================] - 22s 1s/step - loss: 0.0122 - accuracy: 0.9975 - val_loss: 0.2513 - val_accuracy: 0.9756
Epoch 8/10
18/18 [==============================] - 21s 1s/step - loss: 0.0089 - accuracy: 0.9984 - val_loss: 0.2877 - val_accuracy: 0.9769
Epoch 9/10
18/18 [==============================] - 23s 1s/step - loss: 0.0065 - accuracy: 0.9990 - val_loss: 0.2771 - val_accuracy: 0.9764
Epoch 10/10
18/18 [==============================] - 21s 1s/step - loss: 0.0055 - accuracy: 0.9991 - val_loss: 0.2952 - val_accuracy: 0.9760
```