

Project Development Phase

Model Performance Test

Date	18 November 2022
Team ID	PNT2022TMID27708
Project Name	Real-Time Communication Using AI for Specially Abled
Maximum Marks	10 Marks

Model Performance Testing:

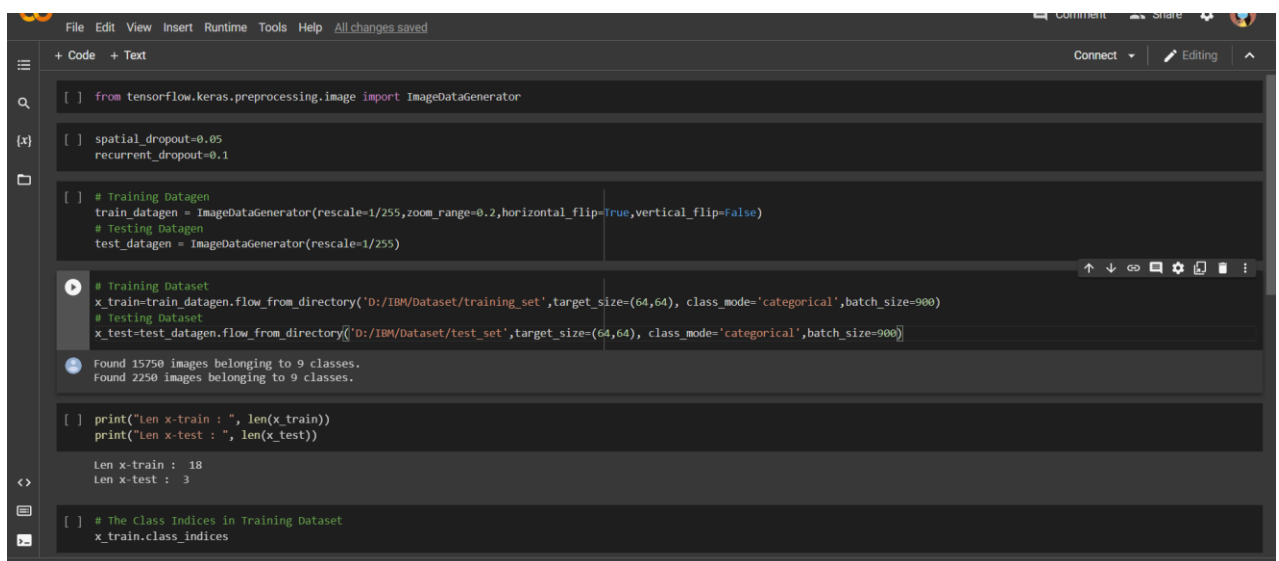
The below table consists of information in model performance by the project team,

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:



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

[ ] spatial_dropout=0.05
    recurrent_dropout=0.1

[ ] # 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)

[ ] # Training Dataset
    x_train=train_datagen.flow_from_directory('D:/IBM/Dataset/training_set', target_size=(64,64), class_mode='categorical', batch_size=900)
    # Testing Dataset
    x_test=test_datagen.flow_from_directory('D:/IBM/Dataset/test_set', target_size=(64,64), class_mode='categorical', batch_size=900)

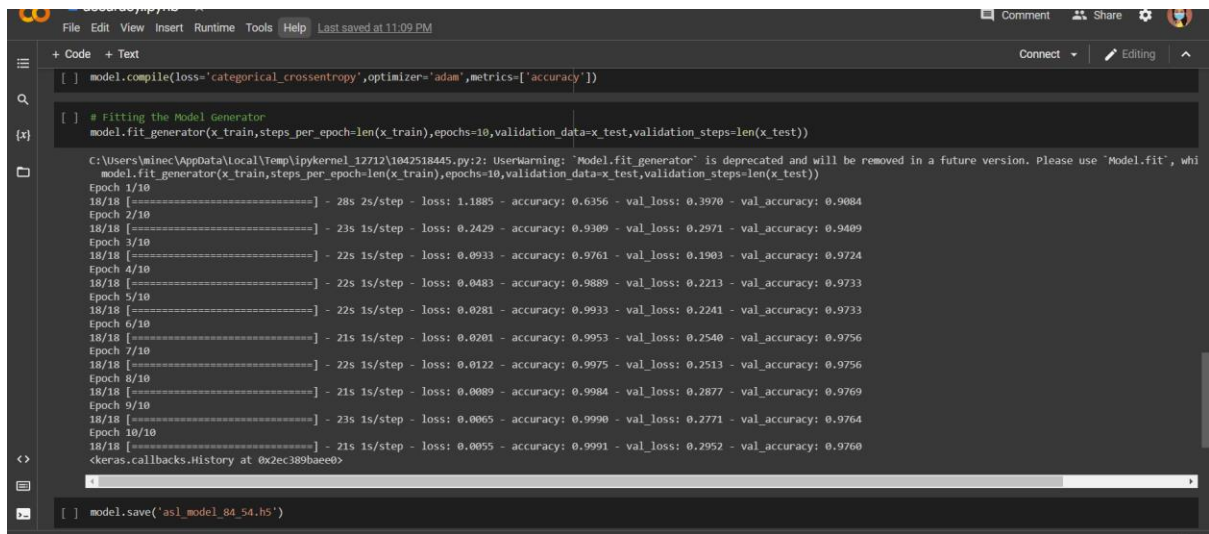
Found 15750 images belonging to 9 classes.
Found 2250 images belonging to 9 classes.

[ ] print("len x-train : ", len(x_train))
    print("len x-test : ", len(x_test))

len x-train : 18
len x-test : 3

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

Accuracy Screenshot:



The screenshot shows a Jupyter Notebook interface with a dark theme. The code cell contains the following Python code:

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

[ ] # 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))
```

The output of the code cell shows the training progress for 10 epochs. Each epoch is displayed with a progress bar and the following metrics: loss, accuracy, val_loss, and val_accuracy. The accuracy increases from approximately 0.6356 in the first epoch to 0.9991 in the tenth epoch.

```
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", whi
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
<keras.callbacks.History at 0x2ec389baee0>

[ ] model.save('asl_model_84_54.h5')
```