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Project: Real-Time Communicationsystempowered by AI for speciallyabled

Image processing ApplyImageDataGenerator FunctionalityTo Train And Test Set

```
#import imagedatagenerator from
keras.preprocessing.image import ImageDataGenerator


#training datagen
train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,zoom_range=0.2,horizontal
_


#testing datagen
test_datagen=ImageDataGenerator(rescale=1./255)
```

IMPORTING tensorflow

```
import tensorflow as tf
import os
```

IMPORTING SEQUENTIAL, DENSE, FLATTEN LAYER

```
from tensorflow.keras.models import Sequential from tensorflow.keras.layers import
Dense,       Conv2D,       Flatten,       Dropout,       MaxPooling2D       from
tensorflow.keras.preprocessing.image import ImageDataGenerator


import numpy as np import matplotlib.pyplot as plt #to view
graph in colab itself import IPython.display as display from
PIL import Image import pathlib
```

Unzipping the dataset

```
!unzip '/content/conversation engine for deaf and dumb.zip' inflating:
      Dataset/training_set/I/1733.png inflating: Dataset/training_set/I/1734.png
      inflating: Dataset/training_set/I/1735.png extracting:
      Dataset/training_set/I/1736.png inflating: Dataset/training_set/I/1737.png
      inflating: Dataset/training_set/I/1738.png extracting:
      Dataset/training_set/I/1739.png inflating: Dataset/training_set/I/174.png
      inflating: Dataset/training set/I/1740.png
```

```
 inflating:            Dataset/training_set/I/1741.png            inflating:
Dataset/training_set/I/1742.png  inflating:  Dataset/training_set/I/1743.png
inflating:            Dataset/training_set/I/1744.png            inflating:
Dataset/training_set/I/1745.png  inflating:  Dataset/training_set/I/1746.png
inflating:            Dataset/training_set/I/1747.png            inflating:
Dataset/training_set/I/1748.png extracting: Dataset/training_set/I/1749.png
inflating:            Dataset/training_set/I/175.png             inflating:
Dataset/training_set/I/1750.png  inflating:  Dataset/training_set/I/176.png
inflating:            Dataset/training_set/I/177.png             inflating:
Dataset/training_set/I/178.png   inflating:  Dataset/training_set/I/179.png
inflating:             Dataset/training_set/I/18.png             inflating:
Dataset/training_set/I/180.png   inflating:  Dataset/training_set/I/181.png
inflating:            Dataset/training_set/I/182.png             inflating:
Dataset/training_set/I/183.png   inflating:  Dataset/training_set/I/184.png
inflating:            Dataset/training_set/I/185.png             inflating:
Dataset/training_set/I/186.png   inflating:  Dataset/training_set/I/187.png
inflating:            Dataset/training_set/I/188.png             inflating:
Dataset/training_set/I/189.png   inflating:   Dataset/training_set/I/19.png
inflating:            Dataset/training_set/I/190.png             inflating:
Dataset/training_set/I/191.png   inflating:  Dataset/training_set/I/192.png
inflating:            Dataset/training_set/I/193.png             inflating:
Dataset/training_set/I/194.png   inflating:  Dataset/training_set/I/195.png
inflating:            Dataset/training_set/I/196.png             inflating:
Dataset/training_set/I/197.png   inflating:  Dataset/training_set/I/198.png
inflating:            Dataset/training_set/I/199.png             inflating:
Dataset/training_set/I/2.png    inflating:    Dataset/training_set/I/20.png
inflating:            Dataset/training_set/I/200.png             inflating:
Dataset/training_set/I/201.png   inflating:  Dataset/training_set/I/202.png
inflating:            Dataset/training_set/I/203.png             inflating:
Dataset/training_set/I/204.png   inflating:  Dataset/training_set/I/205.png
inflating:            Dataset/training_set/I/206.png             inflating:
Dataset/training_set/I/207.png   inflating:  Dataset/training_set/I/208.png
inflating: Dataset/training_set/I/209.png
```

```
from tensorflow.keras.preprocessing.image import ImageDataGenerator
print("This dataset has been created and uploaded by IBM-TeamID-IBM-Project-45753-
16607320
```

```
 This dataset has been created and uploaded by IBM-TeamID-IBM-Project-45753-166073207
```

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

print("This dataset has been created and uploaded by IBM-TeamID-IBM-Project-45753-
16607320
```

```
     This dataset has been created and uploaded by IBM-TeamID-IBM-Project-45753-166073207
```

```
test_datagen= ImageDataGenerator(rescale=1./255)
```

Applying ImageDataGenerator to training set

```
x_train=train_datagen.flow_from_directory('/content/Dataset/training_set',target_size=(64
                                          ,
                                          class_mode='categorical',color_mode="grayscale"
                                          )
```

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

Applying ImageDataGenerator to test set

```
x_test=test_datagen.flow_from_directory('/content/Dataset/test_set',target_size=(64,64),b
                                        a
                                        class_mode='categorical',color_mode="grayscale"
                                        )
```

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

```
x_train.class_indices
```

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

```
x_test.class_indices
```

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