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Team Id: PNT2022TMID41505

Project: Real-Time Communication system powered by AI for specially abled

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Image processing

Apply ImageDataGenerator Functionality To 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),ba
                                    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}
```

✓ completed at 10/11/22 ● ✕