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

The Required Model Building Libraries

```
#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 tfimport os
```

IMPORTING LIBRARIES TO INITIALIZE NEURAL NETWORK LAYER

```
from keras.models import Sequentialfrom keras.layers import Dense
from keras.layers import Convolution2Dfrom keras.layers import MaxPooling2Dfrom
keras.layers import Dropout
from keras.layers import Flatten
from tensorflow.keras.preprocessing.image import ImageDataGenerator
```

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

Unzipping the dataset

```
!unzip '/content/conversation engine for deaf and dumb.zip'
```

```
       inflating:   Dataset/training_set/I/947.png  inflating:   Dataset/training_set/I/948.png
       inflating: Dataset/training_set/I/949.pnginflating: Dataset/training_set/I/95.png
```

```
 inflating: Dataset/training_set/I/950.pnginflating: Dataset/training_set/I/951.pr
inflating: Dataset/training_set/I/952.pnginflating: Dataset/training_set/I/953.pn
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inflating: Dataset/training_set/I/96.png inflating: Dataset/training_set/I/960.pn
inflating: Dataset/training_set/I/961.pnginflating: Dataset/training_set/I/962.pn
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inflating: Dataset/training_set/I/967.pnginflating: Dataset/training_set/I/968.pn
 inflating: Dataset/training_set/I/969.pnginflating: Dataset/training_set/I/97.png
inflating: Dataset/training_set/I/970.pnginflating: Dataset/training_set/I/971.pn
inflating: Dataset/training_set/I/972.pngextracting: Dataset/training_set/I/973.pr
inflating: Dataset/training_set/I/974.pnginflating: Dataset/training_set/I/975.pn
inflating: Dataset/training_set/I/976.pnginflating: Dataset/training_set/I/977.pn
inflating: Dataset/training_set/I/978.pnginflating: Dataset/training_set/I/979.pn
inflating: Dataset/training_set/I/98.png inflating: Dataset/training_set/I/980.pn
inflating: Dataset/training_set/I/981.pnginflating: Dataset/training_set/I/982.pn
extracting: Dataset/training_set/I/983.pnginflating: Dataset/training_set/I/984.png
inflating: Dataset/training_set/I/985.png inflating: Dataset/training_set/I/986.png
inflating: Dataset/training_set/I/987.png inflating: Dataset/training_set/I/988.png
inflating: Dataset/training_set/I/989.png inflating: Dataset/training_set/I/99.png
inflating: Dataset/training_set/I/990.png inflating: Dataset/training_set/I/991.png
inflating: Dataset/training_set/I/992.png extracting: Dataset/training_set/I/993.png
inflating: Dataset/training_set/I/994.pnginflating: Dataset/training_set/I/995.png
extracting: Dataset/training_set/I/996.pnginflating: Dataset/training_set/I/997.png
inflating: Dataset/training_set/I/998.pnginflating: Dataset/training_set/I/999.png
```

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.
```

```
a=len(x_train)b=len(x_test)
```

Length of training set

```
print(a)
```

```
79
```

Length of test set

```
print(b)
```

```
12
```

Add Layers

```
#create model model=Sequential()
```

Colab paid products - **Cancel contracts here** **0scompleted at 10/11/22**