

Real –Time Communication System Powered by AI for Specially Abled
Team ID : PNT2022TMID14463

Model Building

Import 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_flip=True)

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

IMPORTING tensorflow
```

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

Initialize The Model

```
#create model
from keras.models import Sequential
from keras.layers import Dense
from keras.layers import Convolution2D
from keras.layers import MaxPooling2D
from 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 itself
import IPython.display as display
from PIL import Image
import pathlib
```

Unzipping the dataset

```
!unzip '/content/conversation engine for deaf and dumb (1).zip'
```

Streaming output truncated to the last 5000 lines.

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inflating: Dataset/training_set/I/885.png
extracting: Dataset/training_set/I/886.png
extracting: Dataset/training_set/I/887.png
inflating: Dataset/training_set/I/888.png
inflating: Dataset/training_set/I/889.png
inflating: Dataset/training_set/I/89.png
inflating: Dataset/training_set/I/890.png
inflating: Dataset/training_set/I/891.png
inflating: Dataset/training_set/I/892.png
inflating: Dataset/training_set/I/893.png
inflating: Dataset/training_set/I/894.png
inflating: Dataset/training_set/I/895.png
inflating: Dataset/training_set/I/896.png
inflating: Dataset/training_set/I/897.png
inflating: Dataset/training_set/I/898.png
inflating: Dataset/training_set/I/899.png
inflating: Dataset/training_set/I/9.png
inflating: Dataset/training_set/I/90.png
inflating: Dataset/training_set/I/900.png
inflating: Dataset/training_set/I/901.png
inflating: Dataset/training_set/I/902.png
inflating: Dataset/training_set/I/903.png
inflating: Dataset/training_set/I/904.png
extracting: Dataset/training_set/I/905.png
inflating: Dataset/training_set/I/906.png
inflating: Dataset/training_set/I/907.png
inflating: Dataset/training_set/I/908.png
inflating: Dataset/training_set/I/909.png
inflating: Dataset/training_set/I/91.png
inflating: Dataset/training_set/I/910.png
extracting: Dataset/training_set/I/911.png
extracting: Dataset/training_set/I/912.png
inflating: Dataset/training_set/I/913.png
inflating: Dataset/training_set/I/914.png
extracting: Dataset/training_set/I/915.png
inflating: Dataset/training_set/I/916.png
inflating: Dataset/training_set/I/917.png
inflating: Dataset/training_set/I/918.png
inflating: Dataset/training_set/I/919.png
inflating: Dataset/training_set/I/92.png
inflating: Dataset/training_set/I/920.png
inflating: Dataset/training_set/I/921.png

[illegible]


```

inflating: Dataset/training_set/I/974.png
inflating: Dataset/training_set/I/975.png
inflating: Dataset/training_set/I/976.png
inflating: Dataset/training_set/I/977.png
inflating: Dataset/training_set/I/978.png
inflating: Dataset/training_set/I/979.png
inflating: Dataset/training_set/I/98.png
inflating: Dataset/training_set/I/980.png
inflating: Dataset/training_set/I/981.png
inflating: Dataset/training_set/I/982.png
extracting: Dataset/training_set/I/983.png
inflating: 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.png
inflating: Dataset/training_set/I/995.png
extracting: Dataset/training_set/I/996.png
inflating: Dataset/training_set/I/997.png
inflating: Dataset/training_set/I/998.png
inflating: Dataset/training_set/I/999.png
Applying ImageDataGenerator to training set

```

In [8]:

```

x_train=train_datagen.flow_from_directory('/content/Dataset/training_set',target_size=(64,64),batch_size=200,
                                          class_mode='categorical',color_mode="grayscale")

```

Found 15750 images belonging to 9 classes.

Applying ImageDataGenerator to test set

In [9]:

```

x_test=test_datagen.flow_from_directory('/content/Dataset/test_set',target_size=(64,64),batch_size=200,
                                       class_mode='categorical',color_mode="grayscale")

```

Found 2250 images belonging to 9 classes.

In [10]:

```

a=len(x_train)

```

```

b=len(x_test)

```

Length of training set

In [11]:

```

print(a)

```

79

Length of test set

In [12]:

```

print(b)

```

12

Add Layers

In [15]:

```

#create model

```

```

model=Sequential()

```

Add The Convolution Layer

In [16]:

```
model.add(Convolution2D(32,(3,3),input_shape=(64,64,1),activation='relu'))
```

Add Pooling Layer

In [17]:

```
model.add(MaxPooling2D(pool_size=(2,2)))
```