

# IBM Project Name: Real-Time Communication System Powered by AI for Specially Abled

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Model Building

Import The Required Model Building Libraries

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

In [1]:

```
#training datagen
train_datagen=ImageDataGenerator(rescale=1./255, shear_range=0.2, zoom_range=0.2, horizontal_flip=True)
```

In [2]:

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

In [3]:

IMPORTING tensorflow

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

In [4]:

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
```

In [13]:

```
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
```

In [6]:

Unzipping the dataset

In [7]:

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

**Streaming output truncated to the last 5000 lines.**

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```
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```

#### 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'))
```