

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

## TEAM ID: PNT2022TMID19449

### Model Building

Import The Required Model Building Libraries

In [1]:

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

In [2]:

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

In [3]:

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

IMPORTING tensorflow

In [4]:

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

IMPORTING LIBRARIES TO INITIALIZE NEURAL NETWORK LAYER

In [13]:

```
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 [6]:

```
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

In [7]:

```
!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/561.png  
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extracting: Dataset/training\_set/I/664.png  
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inflating: Dataset/training\_set/I/669.png  
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inflating: Dataset/training\_set/I/675.png  
inflating: Dataset/training\_set/I/676.png  
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inflating: Dataset/training\_set/I/679.png  
inflating: Dataset/training\_set/I/68.png  
inflating: Dataset/training\_set/I/680.png  
inflating: Dataset/training\_set/I/681.png  
inflating: Dataset/training\_set/I/682.png  
extracting: Dataset/training\_set/I/683.png  
inflating: Dataset/training\_set/I/684.png  
    inflating: Dataset/training\_set/I/685.png  
inflating: Dataset/training\_set/I/686.png  
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inflating: Dataset/training\_set/I/69.png  
inflating: Dataset/training\_set/I/690.png  
inflating: Dataset/training\_set/I/691.png  
inflating: Dataset/training\_set/I/692.png  
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extracting: Dataset/training\_set/I/697.png  
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extracting: Dataset/training\_set/I/70.png  
extracting: Dataset/training\_set/I/700.png  
    inflating: Dataset/training\_set/I/701.png  
    inflating: Dataset/training\_set/I/702.png  
    inflating: Dataset/training\_set/I/703.png  
    inflating: Dataset/training\_set/I/704.png  
extracting: Dataset/training\_set/I/705.png  
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    inflating: Dataset/training\_set/I/707.png  
    inflating: Dataset/training\_set/I/708.png  
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    inflating: Dataset/training\_set/I/710.png  
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    inflating: Dataset/training\_set/I/712.png  
    inflating: Dataset/training\_set/I/713.png  
    inflating: Dataset/training\_set/I/714.png

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```

    inflating: Dataset/training_set/I/972.png
extracting: Dataset/training_set/I/973.png
    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
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    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
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    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)

```

Length of test set

```
In [12]:  
print(b)  
12
```