

## ▼ Image Preprocessing

Import ImageDataGenerator Library

```
from tensorflow.keras.preprocessing.image import ImageDataGenerator
```

```
# Training Datagen
train_datagen = ImageDataGenerator(rescale=1/255, zoom_range=0.2, horizontal_flip=True, verti
# Testing Datagen
test_datagen = ImageDataGenerator(rescale=1/255)
```

Import Required Library

```
import tensorflow as tf
import os
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
import IPython.display as display
from PIL import Image
import pathlib
```

## ▼ Apply Image Data Generator Functionality To Train And Test set

```
from google.colab import drive
drive.mount('/content/drive')
```

Mounted at /content/drive

```
!unzip '/content/drive/MyDrive/Dataset.zip'
  inflating: Dataset/training_set/I/947.png
  inflating: Dataset/training_set/I/948.png
  inflating: Dataset/training_set/I/949.png
  inflating: Dataset/training_set/I/95.png
  inflating: Dataset/training_set/I/950.png
  inflating: Dataset/training_set/I/951.png
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  inflating: Dataset/training_set/I/955.png
  inflating: Dataset/training set/I/956.png
```

```
inflating: Dataset/training_set/I/957.png
inflating: Dataset/training_set/I/958.png
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inflating: Dataset/training_set/I/96.png
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extracting: Dataset/training_set/I/993.png
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inflating: Dataset/training_set/I/997.png
inflating: Dataset/training_set/I/998.png
inflating: Dataset/training_set/I/999.png
```

```
from tensorflow.keras.preprocessing.image import ImageDataGenerator
```

## Test and Train

```
train_datagen = ImageDataGenerator(rescale=1./255, zoom_range=0.2, horizontal_flip=True, ver
```

```
test_datagen= ImageDataGenerator(rescale=1./255)
```

```
x_train = train_datagen.flow_from_directory('/content/drive/MyDrive/Dataset/training_set',  
                                            class_mode='categorical', color_mode = "grayscale")
```

Found 44 images belonging to 2 classes.

```
x_test = test_datagen.flow_from_directory('/content/drive/MyDrive/Dataset/test_set',target  
                                          class_mode='categorical', color_mode = "grayscale")
```

Found 0 images belonging to 9 classes.

```
x_train.class_indices
```

```
{'A': 0, 'B': 1}
```

```
x_test.class_indices
```

```
{'A': 0, 'B': 1, 'C': 2, 'D': 3, 'E': 4, 'F': 5, 'G': 6, 'H': 7, 'I': 8}
```

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