Image Preprocessing

Import ImageDataGenerator Library And Configure It

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

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

```
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 tensorflow.keras.preprocessing.image import ImageDataGenerator
print("This dataset has been created and uploaded by IBM-TeamID-IBM-Project-12319-1659447311"
```

```
    This dataset has been created and uploaded by IBM-TeamID-IBM-Project-12319-1659447311
```

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

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

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

```
    Found 15750 images belonging to 9 classes.
```

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

```
Found 2250 images belonging to 9 classes.
```

```
x_train.class_indices
```

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

```
x_test.class_indices
```

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