Image Preprocessing

Import Image Data Generator Library and Configure

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

```
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 functionallity to train and test data_set

```
train_datapath ="Dataset/train_set/"
test_datapath= "Dataset/test_set/"
```

```
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(train_datapath,target_size=(64,64), batch_size
                                            class_mode='categorical', color_mode = "graysc
```

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

```
x_test = test_datagen.flow_from_directory(test_datapath,target_size=(64,64), batch_size=30
                                          class_mode='categorical', color_mode = "grayscal
```

```
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}
```