Data Pre-Processing

Importing the Libraries:

DATA PRE-PROCESSING

Importing The Libraries

[14]:
```
from tensorflow.keras.layers import Dense,Flatten,Input
from tensorflow.keras.models import Model
from tensorflow.keras.preprocessing import image
from tensorflow.keras.preprocessing.image import ImageDataGenerator,load_img
from tensorflow.keras.applications.xception import Xception,preprocess_input
from glob import glob
import numpy as np
import matplotlib.pyplot as plt
```

Configure Image Data Generator Class:

Image Data Generator class is instantiated and the configuration for the types of data augmentationThere are five main types of data augmentation techniques for image data; specifically:

- Image shifts via the width shift_range and height_shift_range arguments.
- The image flips via the horizontal_flip and vertical_flip arguments.
- Image rotations via the rotation_range argument
- Image brightness via the brightness_range argument.
- Image zoom via the zoom_range argument.

An instance of the Image Data Generator class can be constructed for train and test.

Configuring ImageDataGenerator Class

[15]:
```
train_datagen = ImageDataGenerator (rescale=1./255,
                                    shear_range= 0.2,
                                    zoom_range = 0.2,
                                    horizontal_flip = True)
test_datagen = ImageDataGenerator (rescale = 1./255)
```

Let us apply Image Data Generator functionality to the Train set and Test set by using the following code. For Training setusing flow_from_directory function.

Apply Image Data Generator Functionality To Train Set And Test Set:

This function will return batches of images from the subdirectories

Applying Image Data Generator Functionality To Train Set And Test Set

In [16]:

```
training_set = train_datagen.flow_from_directory('/content/preprocessed dataset/preprocessed dataset/
                                                 target_size = (299,299),
                                                 batch_size = 32,
                                                 class_mode = 'categorical')
test_set = test_datagen.flow_from_directory('/content/preprocessed dataset/preprocessed dataset/testi
                                            target_size =(299,299),
                                            batch_size = 32,
                                            class_mode = 'categorical')
```

```
Found 3662 images belonging to 5 classes.
Found 734 images belonging to 5 classes.
```