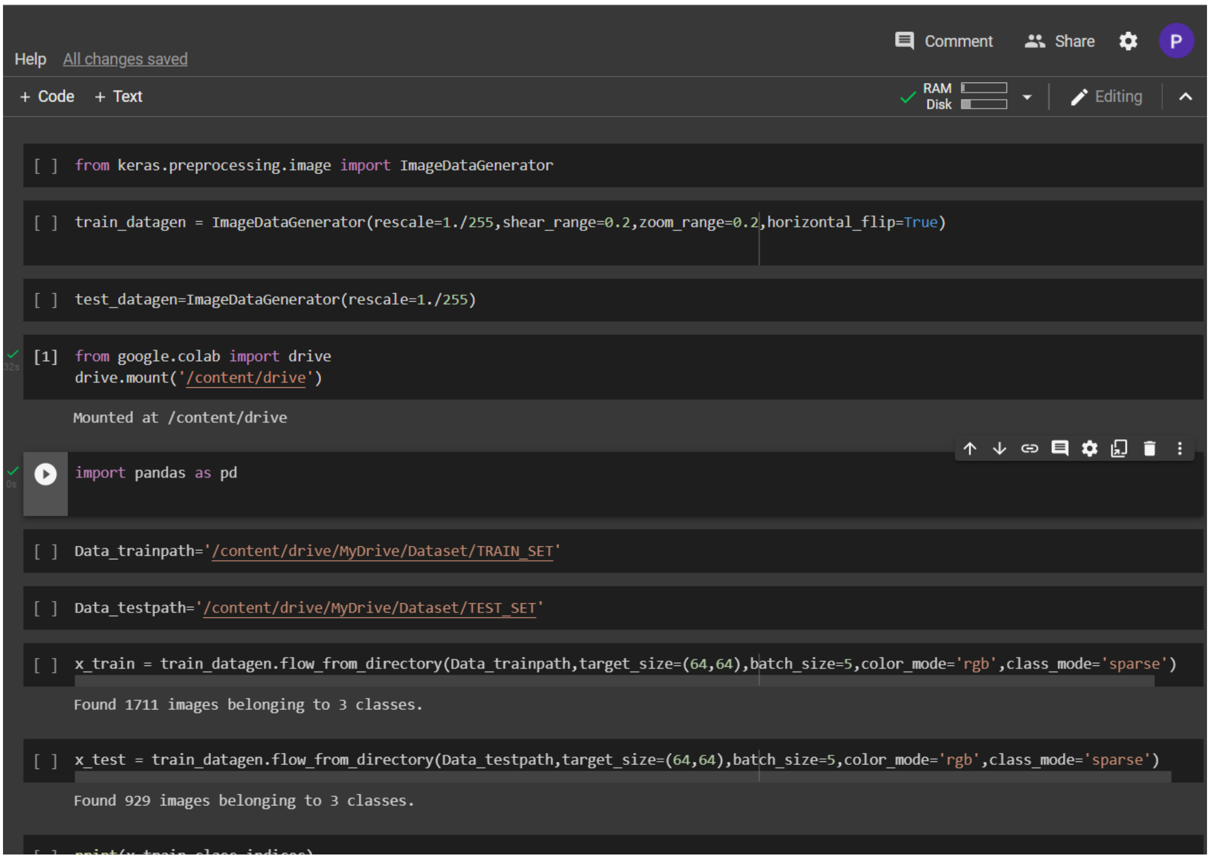
IMAGE PREPROCESSING

We use Keras' ImageDataGenerator class to perform data augmentation. i.e, we are using some kind of parameters to process our collected data.

The word "augment" means to make something "greater" or "increase" something (in this case, data), the Keras ImageDataGenerator class actually works by: Accepting a batch of images used for training.

Taking this batch and applying a series of random transformations to each image in the batch (including random rotation, resizing, shearing, etc.). the original batch with the new, randomly transformed batch.

Training the CNN on this randomly transformed batch (i.e., the original data itself is not used for training).



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

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

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

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

```
Mounted at /content/drive
```

```
import pandas as pd
```

```
Data_trainpath='/content/drive/MyDrive/Dataset/TRAIN_SET'
```

```
Data_testpath='/content/drive/MyDrive/Dataset/TEST_SET'
```

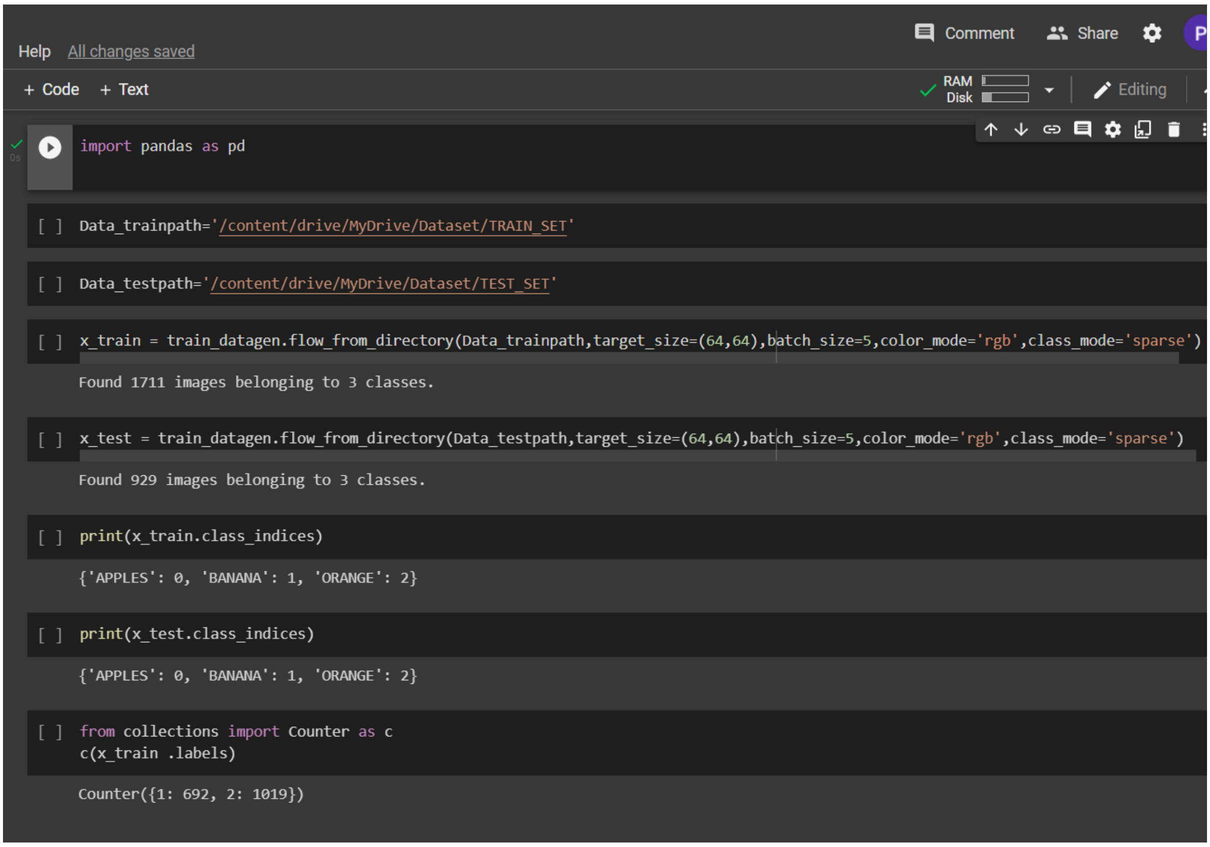
```
x_train = train_datagen.flow_from_directory(Data_trainpath,target_size=(64,64),batch_size=5,color_mode='rgb',class_mode='sparse')
```

```
Found 1711 images belonging to 3 classes.
```

```
x_test = train_datagen.flow_from_directory(Data_testpath,target_size=(64,64),batch_size=5,color_mode='rgb',class_mode='sparse')
```

```
Found 929 images belonging to 3 classes.
```

```
print(x_train.class_indices)
```



```
import pandas as pd
```

```
Data_trainpath='/content/drive/MyDrive/Dataset/TRAIN_SET'
```

```
Data_testpath='/content/drive/MyDrive/Dataset/TEST_SET'
```

```
x_train = train_datagen.flow_from_directory(Data_trainpath,target_size=(64,64),batch_size=5,color_mode='rgb',class_mode='sparse')
```

```
Found 1711 images belonging to 3 classes.
```

```
x_test = train_datagen.flow_from_directory(Data_testpath,target_size=(64,64),batch_size=5,color_mode='rgb',class_mode='sparse')
```

```
Found 929 images belonging to 3 classes.
```

```
print(x_train.class_indices)
```

```
{'APPLES': 0, 'BANANA': 1, 'ORANGE': 2}
```

```
print(x_test.class_indices)
```

```
{'APPLES': 0, 'BANANA': 1, 'ORANGE': 2}
```

```
from collections import Counter as c
c(x_train .labels)
```

```
Counter({1: 692, 2: 1019})
```