Initializing The Model

Keras has 2 ways to define a neural network:

- Sequential
- Function API

The Sequential class is used to define linear initializations of network layers which then, collectively, constitute a model. In our project, we will use the Sequential constructor to create a model, which will then have layers added to it using the add () method.

Now, will initialize our model.

Initialize the neural network layer by creating a reference/object to the Sequential class.

```
model=Sequential()
```

The core data structures of Keras are layers and models. The simplest type of model is the Sequential model, a linear stack of layers.

For more complex architectures, you should use the Keras functional API, which allows to build arbitrary graphs of layers, or write models entirely from scratch via subclassing.

Import The Libraries

In [1]:
```
from keras.models import Sequential
from keras.layers import Dense
from keras.layers import Convolution2D
from keras.layers import MaxPooling2D
from keras.layers import Flatten
```

IMAGE PREPROCESSING

In [5]:
```
from keras.preprocessing.image import ImageDataGenerator
```

In [6]:
```
train_datagen = ImageDataGenerator(rescale = 1./255, shear_range = 0.2,zoom_range = 0.2,horizontal_flip = True)
```

In [7]:
```
test_datagen = ImageDataGenerator(rescale = 1)
```

In [8]:
```
x_train= train_datagen.flow_from_directory('/content/drive/MyDrive/fruit-dataset/fruit-dataset/train',batch_size=32,target_size=(128,128),
                                           color_mode='rgb',class_mode='categorical')
x_test = test_datagen.flow_from_directory('/content/drive/MyDrive/fruit-dataset/fruit-dataset/test',batch_size=32,target_size=(128,128),
                                           color_mode='rgb',class_mode='categorical')
```

```
Found 5384 images belonging to 6 classes.
Found 1686 images belonging to 6 classes.
```

In [9]:
```
from tensorflow.keras.utils import Sequence
```

Initializing The Model

In [10]:
```
model=Sequential()
```