Model Building Phase
Adding Dense Layers

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Project Name	AI-Powered Nutrition Analyzer For Fitness Enthusiasts

A dense layer is a deeply connected neural network layer. It is the most common and frequently used layer.

```python
# Adding a fully connected layer
classifier.add(Dense(units=128, activation='relu'))
classifier.add(Dense(units=5, activation='softmax')) # softmax for more than 2
```

The number of neurons in the Dense layer is the same as the number of classes in the training set. The neurons in the last Dense layer, use softmax activation to convert their outputs into respective probabilities.

Understanding the model is a very important phase to properly using it for training and prediction purposes. Keras provides a simple method, a summary to get the full information about the model and its layers.

```
classifier.summary()#summary of our model

Model: "sequential"
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Layer (type)                Output Shape              Param #
=================================================================
conv2d (Conv2D)             (None, 62, 62, 32)        896

max_pooling2d (MaxPooling2D) (None, 31, 31, 32)       0

conv2d_1 (Conv2D)           (None, 29, 29, 32)        9248

max_pooling2d_1 (MaxPooling2 (None, 14, 14, 32)       0

flatten (Flatten)           (None, 6272)              0

dense (Dense)               (None, 128)               802944

dense_1 (Dense)             (None, 5)                 645
=================================================================
Total params: 813,733
Trainable params: 813,733
Non-trainable params: 0
_____
```

Screenshot:

Adding Dense Layers

```
[54]: #Adding a fully connected layer
      classifier.add(Dense(units=128, activation = 'relu'))

      #softmax for more than 2
      classifier.add(Dense(units=5, activation = 'softmax'))
```

```
[55]: #Summary of the model
      classifier.summary()
```

Model: "sequential_3"

Layer (type)	Output Shape	Param #
conv2d_5 (Conv2D)	(None, 62, 62, 32)	896
max_pooling2d_4 (MaxPooling 2D)	(None, 31, 31, 32)	0
conv2d_6 (Conv2D)	(None, 29, 29, 32)	9248
max_pooling2d_5 (MaxPooling 2D)	(None, 14, 14, 32)	0
flatten_2 (Flatten)	(None, 6272)	0
dense_6 (Dense)	(None, 128)	802944
dense_7 (Dense)	(None, 5)	645
dense_8 (Dense)	(None, 128)	768
dense_9 (Dense)	(None, 5)	645

Total params: 815,146
Trainable params: 815,146
Non-trainable params: 0