# LAB 10

| Name of the Student | J. Sharat Shankar |
|---|---|
| Roll Number | J045 |
| Course | B.Tech Data Science |

## Codes:

https://colab.research.google.com/drive/17I2Ue7sUvz7DWEmZp57BBX8c8_t6Avw0

https://colab.research.google.com/drive/1GQ7Qj9TG7rOS5aw6fI2PM5MNFonTMCX7

https://colab.research.google.com/drive/1ac7jfrfE9K-uLgSRm73NKeATRRfeYaBL

## Bottleneck Features:

loss: 1.8269e-06 - accuracy: 1.0000 - val_loss: 6.7434 - val_accuracy: 0.4771

## Transfer Learning:

```
Model: "resnet50"

Layer (type)                    Output Shape           Param #    Connected to
==================================================================================================
input_1 (InputLayer)            [(None, 224, 224, 3)   0

conv1_pad (ZeroPadding2D)       (None, 230, 230, 3)    0          input_1[0][0]

conv1_conv (Conv2D)             (None, 112, 112, 64)   9472       conv1_pad[0][0]

conv1_bn (BatchNormalization)   (None, 112, 112, 64)   256        conv1_conv[0][0]

conv1_relu (Activation)         (None, 112, 112, 64)   0          conv1_bn[0][0]

pool1_pad (ZeroPadding2D)       (None, 114, 114, 64)   0          conv1_relu[0][0]

pool1_pool (MaxPooling2D)       (None, 56, 56, 64)     0          pool1_pad[0][0]

conv2_block1_1_conv (Conv2D)    (None, 56, 56, 64)     4160       pool1_pool[0][0]

conv2_block1_1_bn (BatchNormali (None, 56, 56, 64)     256        conv2_block1_1_conv[0][0]

conv2_block1_1_relu (Activation (None, 56, 56, 64)     0          conv2_block1_1_bn[0][0]

conv2_block1_2_conv (Conv2D)    (None, 56, 56, 64)     36928      conv2_block1_1_relu[0][0]

conv2_block1_2_bn (BatchNormali (None, 56, 56, 64)     256        conv2_block1_2_conv[0][0]

conv2_block1_2_relu (Activation (None, 56, 56, 64)     0          conv2_block1_2_bn[0][0]

conv2_block1_0_conv (Conv2D)    (None, 56, 56, 256)    16640      pool1_pool[0][0]

conv2_block1_3_conv (Conv2D)    (None, 56, 56, 256)    16640      conv2_block1_2_relu[0][0]
```

| | | | |
|---|---|---|---|
| conv2_block1_0_bn (BatchNormali | (None, 56, 56, 256) | 1024 | conv2_block1_0_conv[0][0] |
| conv2_block1_3_bn (BatchNormali | (None, 56, 56, 256) | 1024 | conv2_block1_3_conv[0][0] |
| conv2_block1_add (Add) | (None, 56, 56, 256) | 0 | conv2_block1_0_bn[0][0] conv2_block1_3_bn[0][0] |
| conv2_block1_out (Activation) | (None, 56, 56, 256) | 0 | conv2_block1_add[0][0] |
| conv2_block2_1_conv (Conv2D) | (None, 56, 56, 64) | 16448 | conv2_block1_out[0][0] |
| conv2_block2_1_bn (BatchNormali | (None, 56, 56, 64) | 256 | conv2_block2_1_conv[0][0] |
| conv2_block2_1_relu (Activation | (None, 56, 56, 64) | 0 | conv2_block2_1_bn[0][0] |
| conv2_block2_2_conv (Conv2D) | (None, 56, 56, 64) | 36928 | conv2_block2_1_relu[0][0] |
| conv2_block2_2_bn (BatchNormali | (None, 56, 56, 64) | 256 | conv2_block2_2_conv[0][0] |
| conv2_block2_2_relu (Activation | (None, 56, 56, 64) | 0 | conv2_block2_2_bn[0][0] |
| conv2_block2_3_conv (Conv2D) | (None, 56, 56, 256) | 16640 | conv2_block2_2_relu[0][0] |
| conv2_block2_3_bn (BatchNormali | (None, 56, 56, 256) | 1024 | conv2_block2_3_conv[0][0] |
| conv2_block2_add (Add) | (None, 56, 56, 256) | 0 | conv2_block1_out[0][0] conv2_block2_3_bn[0][0] |
| conv2_block2_out (Activation) | (None, 56, 56, 256) | 0 | conv2_block2_add[0][0] |
| conv2_block3_1_conv (Conv2D) | (None, 56, 56, 64) | 16448 | conv2_block2_out[0][0] |
| conv2_block3_1_bn (BatchNormali | (None, 56, 56, 64) | 256 | conv2_block3_1_conv[0][0] |