Ex No: 5	Transfer Learning
Date:	

Objective:

Utilize transfer learning and take pre-trained model from Google's Tensorflow Hub and re-train that on flowers dataset

Descriptions:

After making the necessary installations and imports, We first load the model from the Tensorflow hub, while passing the input shape and a boolean variable called trainable, which is an argument to control the freezing of weights. Then a sample image is converted to a Numpy array and reshape it by adding a new dimension. Then the said array is use to run predictions from the loaded model. Next we select a dataset and a model to finetune on. Here we use the Flowers dataset and the MobileNet_v2 model for our task. We add a FC layer on top of this model to match the number of classes in the dataset. Then we build, compile and train the model.

Model:

```
Model: "sequential_3"
_____
 Layer (type)                Output Shape              Param #
=================================================================
 module_wrapper_3 (ModuleWr  (None, 1280)              2257984
 apper)

 dense_3 (Dense)             (None, 5)                 6405

=================================================================
Total params: 2264389 (8.64 MB)
Trainable params: 6405 (25.02 KB)
Non-trainable params: 2257984 (8.61 MB)
_____
```

Conclusion

The model have achieved 92.3% validation accuracy when trained for 5 epochs and test accuracy of 85.4 %. Then we check the prediction of the model on another sample image and found that it gives the correct output.

Github:https://github.com/ananyakaligal/DeepLearning-Assignments/tree/main/Lab5

No changes made to the code.