Transfer Learning Project

In this project you are asked to do tranfer learning on the "flowers" dataset from Kaggle. The dataset has 13 classes. We will assume that classes are described in alphabetical order:

```
classes = {astilbe, bellflower, black-eyed susan, calendula, california poppy,
           carnation, common daisy, coreopsis, dandelion, iris, rose,
           sunflower, tulip}.
```

You may find the example code in the following link to be useful:

https://www.tensorflow.org/tutorials/images/transfer_learning

In designing your program you may use all of the functionality of OpenCV, and deep learning under the following conditions:

- You must use tensorflow.
- You must not use pytorch for this project.
- You must use the backbone models from:

  https://www.tensorflow.org/api_docs/python/tf/keras/applications

- You cannot use any special libraries or software packages. Please contact the TA if you are not sure if something should be considered "special".

Provided files

- **flowers.zip** file for training data.
- The python script **proj2_test.py** is provided as basic for testing program. Test program read in test folder and csv file for their labels.
- Sample test folder as **flowers_test.zip** and the corresponding csv file **flowers_test.csv** files are provided for testing.

Evaluation

- We will use test accuracy as the measure for evaluation.
- We will create a test folder containing test images and their corresponding labels. The images **will not** be the same as those in the provided **flowers** folder, but similarly collected from the web.

What you need to submit

1. Python or ipython notebook source code of your program. Please name it **proj2.py**.

2. Documentation that explains your approach.

3. Your model, weight files, your testing code and instruction on how to set up environment for testing your code. Please put in any pre-processing you do in your test code. Please name this as **proj2_test.py**.

These items should be put in a zip file named with your netid and submitted on elearning. For example, if your netid is xyz1234 you should submit a zip file named xyz1234.zip.