Lab Assignment 8. CNN Transfer Learning

Implement different CNN Transfer Learning models for Multiclass classification using your custom image dataset. You can use https://tinyurl.com/yxd8e265

Steps

1. **Preparation of Dataset:** Following the style of the given sample dataset, prepare a new dataset for classification tasks of your choice such as Dogs vs Humans, Aliens vs Predators vs Zombies etc.
2. **Transfer Learning with MobileNet:** Run the CNN transfer learning mode for the given dataset with MobileNet model.
3. **Experimentation with Different Base Models:** Run Experiments for different base models (single line of Keras function will do) such as
   a. Xception
   b. VGG19
   c. ResNet50
   d. InceptionV3
   e. InceptionResNetV2
   f. MobileNet
   g. DenseNet
   h. NASNet
4. **Number of Layers:** Run the models with different newly added layers such as 2, 3, 4 etc.
5. **Effect of Freezing:** Run the transfer learning models with different number of frozen layers (in the base network) setups such as 25%, 50%, 75%, 100%.