Assignment 9.1

Problem Statement

VGG16, Xception and InceptionV3 in tensorflow

Data:

https://www.kaggle.com/datasets/ananthu017/emotion-detection-fer

Task:

1. Read only training images and split the images into training and validation set by 80:20 ratio.
2. Use ImageDataGenerator to read the images for the model.
3. Build VGG16, Xception and InceptionV3 model setting trainable parameters as False.
4. Which model performs well? Comment.

Assignment 9.2

Problem Statement

ResNet 50, 101, 152, DenseNet 121, 161 and UNET in tensorflow

Data:

https://www.kaggle.com/datasets/enesumcu/car-and-truck

Task:

1. Build ResNet 50, 101, 152, DenseNet 121, 161 for car and truck prediction using fastai.
2. Prepare a report on the UNET framework, list out the features, model design and computational power of the model (Individual assignment).
3. Build a UNET model on the car and truck data.

References:

- VGG16: https://arxiv.org/abs/1409.1556
- Xception: https://arxiv.org/abs/1610.02357
- InceptionV3: https://arxiv.org/abs/1512.00567
- Resnet: https://arxiv.org/abs/1512.03385
- Densenet: https://arxiv.org/abs/1608.06993
- UNET: https://arxiv.org/abs/1505.04597

https://keras.io/api/applications/densenet/
https://keras.io/api/applications/inceptionv3/
https://keras.io/api/applications/resnet/
https://keras.io/api/applications/vgg/
https://keras.io/api/applications/xception/