Assignment 7

1. Explain the concept of a "dead ReLU" and why it can occur during training.

2. What is dropout in neural networks. How does it prevent overfitting?

3. Given a neural network with a dropout rate of 0.3, calculate the probability that a specific neuron is dropped during a forward pass.

4. Discuss the concept of early stopping in the context of training neural networks. What are the potential advantages and drawbacks?

5. Explain the idea behind transfer learning and how it can be beneficial when training neural networks.

Image Classification Challenge: Apples vs. Tomatoes:

You are provided with a dataset containing images of apples and tomatoes. The dataset is split into training images, and testing images. The goal is to build a Convolutional Neural Network (ConvNet) to classify these images.

Submission Instructions:

1. Submit a Notebook (.ipynb) or Python script (.py) containing the complete code.
2. Save the trained model in a file named "yourname_model.h5".
3. Report the final test accuracy achieved by your model.

Tips:

- Make use of transfer learning if necessary.
- You can use 'ImageDataGenerator' from keras to help you read the data.

Dataset

Google drive:

https://drive.google.com/drive/folders/1Q_nqTUZnHGM8tKup0om8lMaufGgFtBbj?usp=sharing

Kaggle dataset page:

https://www.kaggle.com/datasets/samuelcortinhas/apples-or-tomatoes-image-classification/data