Assignment 6

1. Explain the purpose of Batch Normalization in deep neural networks.

2. Describe the two main steps in the Batch Normalization process: normalization and scale/shift.

3. How do the learnable parameters, gamma and beta, contribute to Batch Normalization?

4. What was the groundbreaking contribution of AlexNet to the field of Convolutional Neural Networks?

5. How does the VGG architecture differ from other ConvNet architectures in terms of filter size?

6. Explain the concept of the inception module in GoogLeNet and its advantages.

7. What is the main innovation introduced by ResNet to address training challenges in deep networks?

Programming assignment:

Modify both the VGG and ResNet architectures to work with the CIFAR-10 dataset, considering the smaller size of CIFAR-10 images. Implement and evaluate the adapted VGG and ResNet models on the CIFAR-10 dataset.

- Adapt the VGG architecture to accommodate the smaller size of CIFAR-10 images.
- Adjust the number of layers, filter sizes, or any other architectural aspects for compatibility.
- Similarly, modify the ResNet architecture to suit the CIFAR-10 dataset.
- Report the test accuracy for the adapted VGG and ResNet models.