2CSDE61 - Deep Learning

List of Practical

Sr. No.	List of Experiments	Hours	Mapped CLO
1	Basics of Python, Numpy and Scikit-Learn	2	1
2	Basics of Tensorflow and Keras	2	1
3	Conventional Feed Forward Neural Network on MNIST. Write code using (a) Sequential Class (b) Model Class API	2	1, 2, 3
4	Convolutional Neural Network on MNIST & Fashion MNIST. Write code using (a) Sequential Class (b) Model Class API	4	1, 2, 3
5	Convolutional Neural Network on CIFAR10 Small Image Classification Dataset. Also perform this classification using transfer learning. Write code using (a) Sequential Class (b) Model Class API	4	1, 2, 3
5.1 (Optional)	Develop a graphical user interface in terms of (i) a small web application (ii) a mobile app for end-to-end CIFAR10 image classification. The GUI should allow to select and upload the image (to be classified) from your device. The classification result should also be displayed by the GUI		1,2,3
5.2 (Optional)	An automatic kinship classifier. (Kaggle: https://www.kaggle.com/c/recognizing-faces-in-the-wild/overview)		1, 2, 3
6	Image Segmentation & Detection using Deep Networks	2	1, 2, 3
7	Auto Encoders for Dimensionality Reduction	2	1, 2, 3
7.1 (Optional)	Stacked Auto Encoders and Stacked Sparse Auto Encoders for Image Denoising		1, 2, 3
8	Build a language model using RNN. Write functions to sample novel sentences and find the probability of input sentence. Also, use Recurrent Neural Network for Sentiment Analysis.	4	1, 2, 3
9	Recurrent Neural Network for Image Captioning	4	1, 2, 3
10	GAN for MNIST like image generation.	4	1, 2, 3
10.1 (Optional)	Unsupervised MNIST		1, 2, 3
10.2 (Optional)	The Pac-Man Projects (http://ai.berkeley.edu/project_overview.html)		1, 2, 3