Title of the Course: Deep Learning

Code and Credit Structure: IT549 (3-0-2-4)

Experiment 2:

Study ANN Model for Single and Multi-Classification

Theory:

Preprocess and load data- As we have already discussed data is the key for the working of neural network and we need to process it before feeding to the neural network. In this step, we will also visualize data which will help us to gain insight into the data.

Define model- Now we need a neural network model. This means we need to specify the number of hidden layers in the neural network and their size, the input and output size.

Loss and optimizer- Now we need to define the loss function according to our task. We also need to specify the optimizer to use with learning rate and other hyperparameters of the optimizer.

Fit model- This is the training step of the neural network. Here we need to define the number of epochs for which we need to train the neural network.

PART I:

In this experiment, you will implement ANN model for classification where you classify between chance of heart attack or not.

You will use first 13 attributes to as input the network and later try to implement the model with several layers and output layer will comprise of 2 neurons so model reduce from 13 to 2 with few hidden layers.

You have to write a code in Python using keras library with following requirements

1) Data Processing: read, Normalization, one hot encodes, Split train and test data set
2) Building Neural Network: Define no of hidden layer with their neuron size
3) Training model
4) Model's performance on test data
5) Visualize training and validation, losses and accuracies.

PART II:

In this experiment, you will implement ANN Model for multi-classification where you will classify mobiles into various price range based on multiple features. You have to train the network for all total 20 attributes.

You have to write a code in Python using keras library with following requirements

1) Data Processing: read, Normalization, one hot encodes, Split train and test data set
2) Building Neural Network: Define no of hidden layer with their neuron size
3) Training model
4) Model's performance on test data
5) Visualize training and validation, losses and accuracies.