

Lab Practice - V

Assignment NO. 06 [DL]

Title : classification using Deep neural network.
Binary classification using Deep Neural Networks : classify movie reviews into "positive" & "negative" reviews, based on text reviews. Use IMDB Dataset.

Objective : Students should be able to classify movie reviews into positive reviews and "negative reviews on IMDB Dataset".

Prerequisite : Concept of classification
concept of Deep Neural network

Contents for theory :

1. what is classification
2. How Deep neural network works on classification

Theory :

What is classification :-

classification is a type of supervised learning in machine learning that involves categorizing data into predefined classes or categories based on a set of features or characteristics.

In classification, a model is trained on a labeled dataset, where each data point has a known class label. The model learns to associate the input features with the corresponding class labels and can then be used to classify new, unseen data.

The MNIST dataset contains 60,000 training images and 10,000 testing images of handwritten digits from 0 to 9. We can use a convolutional neural network (CNN) to classify the MNIST dataset.

How Deep Neural network work on classification:-

Deep Neural network can automatically extract relevant features from raw input data and map them to the correct output class.

The basic architecture of a deep neural network for classification consists of three main parts: an input layer, one or more hidden layers, and an output layer. The input layer receives the raw input data, which is usually preprocessed to a fixed size and format. The hidden layers are composed of neurons that apply linear transformations and nonlinear

activations to the input features to extract relevant patterns and representations. Finally, the output layer produces the predicted class labels, usually as a probability distribution over possible classes.

Overall, the effectiveness of deep neural networks for classification depends on the choice of architecture, hyperparameters and training procedure, as well as the quality and quantity of the training data.

IMDB Dataset:-

The IMDB dataset is a large collection of movie reviews collected from the IMDB website, which is a popular source of user-generated movie ratings and reviews.

The dataset consists of 50,000 movie reviews, split into 25,000 reviews for training and 25,000 reviews for testing. Each review is represented as a sequence of words, where each word is represented by an integer index based on its frequency in the dataset. The labels for each review are binary, with 0 indicating a negative review and 1 indicating a positive review.

The IMDB dataset is commonly used as a benchmark for sentiment analysis and text classification tasks, where the

goal is to classify the movie reviews as either positive or negative based on their text content.

Conclusion :- In this way we can classify the movie reviews by using DNN.