



Practical NO:- 5

Aim:- Movie Review analysis using DNN
(By using IMDB Dataset)

Requirements:- Install the required libraries like tensorflow matplotlib, then load ~~the~~ dataset.

Theory:-

To classify movie reviews as +ve or -ve using DNN. We use a dataset of movie reviews from the IMDB website.

How it works:-

(1) Dataset (IMDB):-

Keras provides a preprocessed dataset of 50,000 movie reviews labelled as +ve (1) or -ve (0). We use the most frequent 10,000 words.

(2) Preprocessing:-

- Reviews are converted into sequences of integers (each word becomes a number)
- sequences are padded to the same length (so the model can process them in batches)

(3) Model Architecture (CNN)

- Embedding layer:- Converts word indices to dense vectors (word representations)
- Flatten layer:- Converts the 2D output of embedding into 1D.
- Dense layer:- Hidden layer with ReLU activation to learn patterns.
- Output layer:- One neuron with sigmoid activation to output 0 or 1 (+ve or -ve)

(4) Training

- The model learns from 80% of the training data.
- we check performance on the remaining 20%. (validation)

(5) Evaluation.

- we draw accuracy & loss graphs to see how well the model is learning.
 - The model learns to understand if a review is positive or negative.
- You'll get 2 graphs.

(1) Accuracy graph - Shows how the model's accuracy improves with each epoch.

(2) Loss graph - Shows how model's error decreases with training.



* Sentiment analysis is a type of NLP technique used to determine the emotional tone behind words. It is widely used in applications like product review analysis, social media monitoring & customer feedback systems.

- In this experiment, we use DNN to analyze the sentiment of movie review from the IMDB dataset & classify them as +ve or -ve.

- Dataset:-

The IMDB (Internet movie ^{base} ~~data~~ ^{set}) dataset is a collection of 50,000 movies reviews - labelled with sentiment (positive or negative)

- It is widely used benchmark dataset in field of NLP & text classification.

Conclusion:-

We performed or built a DNN based sentiment analysis model that classifies movie reviews with good accuracy. The performance graphs help you to understand the learning behavior of model & whether it generalizes well on unseen data.

- DNN model successfully classifies movie reviews into +ve or -ve categories with good accuracy.