LAB 8 : Experiment Using LSTM

AIM: To build and implement a LSTM (Long Short-Term-Memory) model for seq prediction.

Pseudo Code: . import required libraries

. Load and preprocess the sequential dataset

- Normalize the data
- Create input-output pairs
- Reshape X into samples

• Define LSTM model:

- Initialize seq. model
- Add LSTM layer with seq. units
- Add dense output layer

• Compile the model with optimizer & loss
• Train the model using modified.
• Evaluate model performance on test data
• Predict future or test samples
• Visualize predicted v/s actual output.

Observation:

→ The training loss decreased gradually with each epoch, indicating that the model is learning the sequence pattern.

→ LSTM performs better than simple RNNs when dealing with long-term dependencies

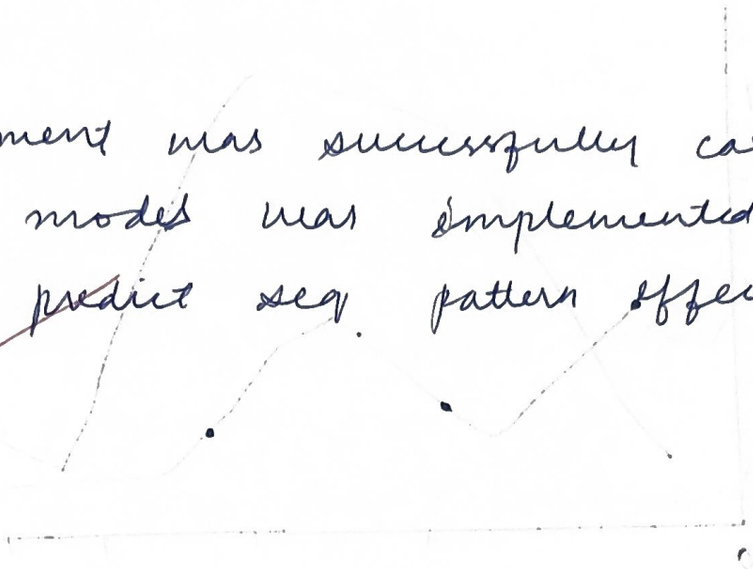
→ The predicted output closely follows the trend of actual data, demonstrating the model's ability to remember previous context.

→ However, training time is higher compared to standard RNN due to more complex computations

Result:

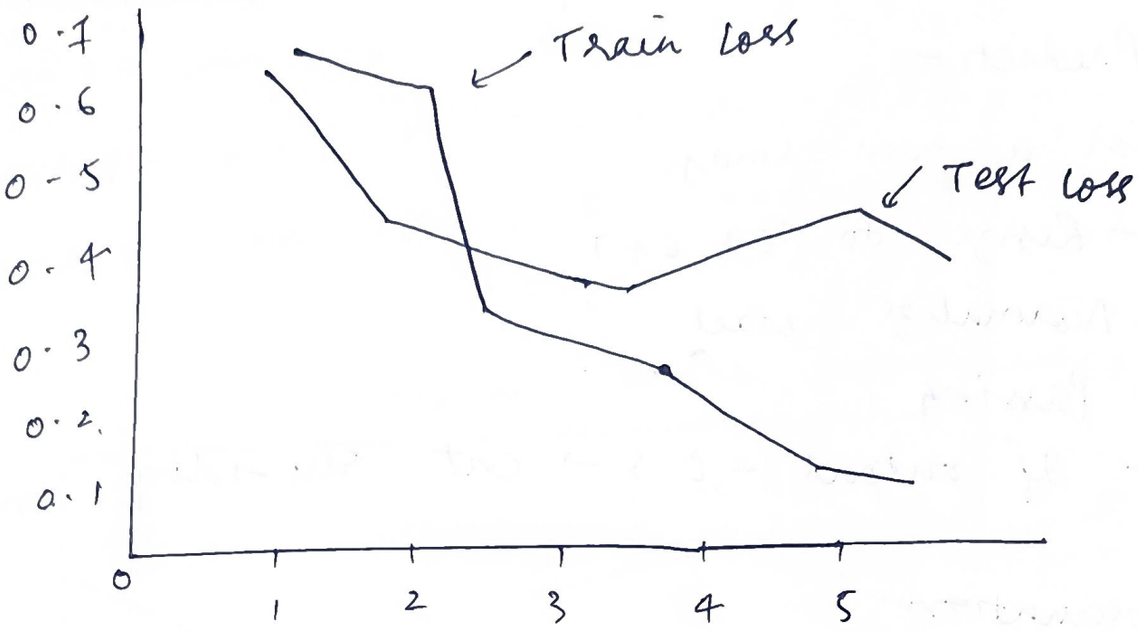
→ The experiment was successfully carried out and LSTM model was implemented to learn and predict seq. pattern effectively

7.9.25



output:

Train Test loss upon epochs



Test accuracy : 89.77%

Predictions:

Input : The movie is good
O/P : Positive (probability : 0.9903)

I/P : The movie is bad
O/P : Negative (prob : 0.0013

LSTM Architecture