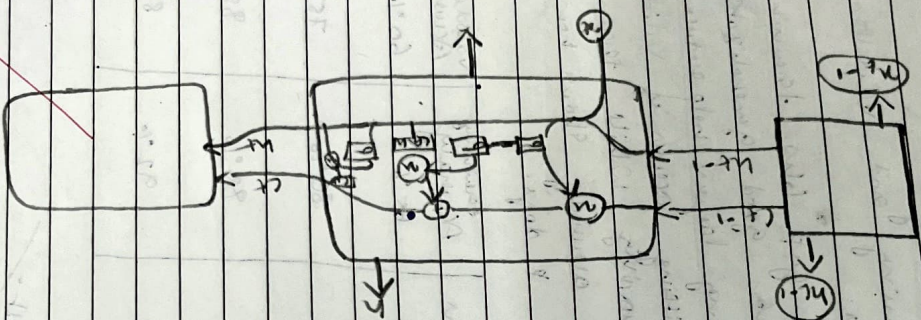


LSTM Architecture?



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LAB-8
Experiment Using LSTM

LAB-8
Experiment Using LSTM
Aim: To develop and evaluate a Long Short Term Memory (LSTM) for sequence prediction.

Objectives:

1. Prepare and prepare sequential data.
2. Build and train LSTM network.
3. Evaluate model performance using accuracy and loss metrics.

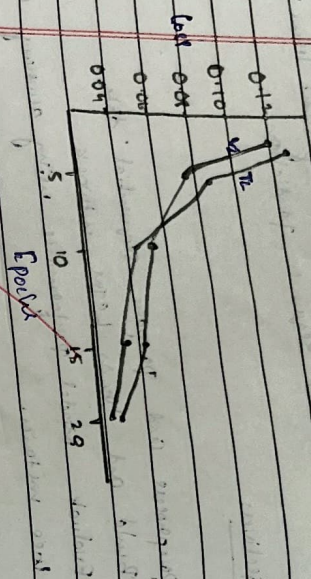
Pseudo Code:

- Load dataset
- preprocess \rightarrow reshape + scale
- Split into train test.
- Initialize LSTM model.
- Compile (optimizer = 'adam', loss = 'mse')
- Train Model
- Evaluate \rightarrow Accuracy, loss
- Plot results

Save the trained LSTM model and use it to make future prediction on unseen sequential

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LSTM Loss vs Epochs VL - Validation loss TL - Training loss



Epoch (100) Loss

Validation loss is decreasing.

Observation:

- The training and validation loss decreased steadily with each epoch indicating effective learning.
- The LSTM model successfully captured sequential dependencies in data.
- Validation loss was close to training loss, showing minor overfitting.
- The model demonstrated good generalization on unseen data.
- The performance improved as the no of epochs increased until convergence.

Observation Table:

Epoch	Training Loss	Validation Loss
1	0.125	0.118
10	0.045	0.048
20	0.035	0.035

Result:

The LSTM model achieved high accuracy with low loss, proving effective for sequence prediction tasks.