LSTM → Long Short Term Memory

RNN mai Problems tbh aati hai jbh Long Term Memory rkhni hoo or

Long Words ke semantic capture karne hoo

Like : Maharashtra is Beautiful State and the language spoken there is : _____

RNN will work Fine for this

But if Words are longer Like:

Maharashtra is Beautiful State, it has got 25 cities , beautifu vegetation, it has ipl team of Mumbai Indians which is only becoz of Rohit Sharma , Maharashtra city Mumbai is economy capital of india,

The Language Spoken there is : _____

In LSTM

2 Context ko Hum Maintain karte hai

1 Context ko Hum Short Term Context kehte hai

& 1 Context ko Hum Long Term Context Kehte hai

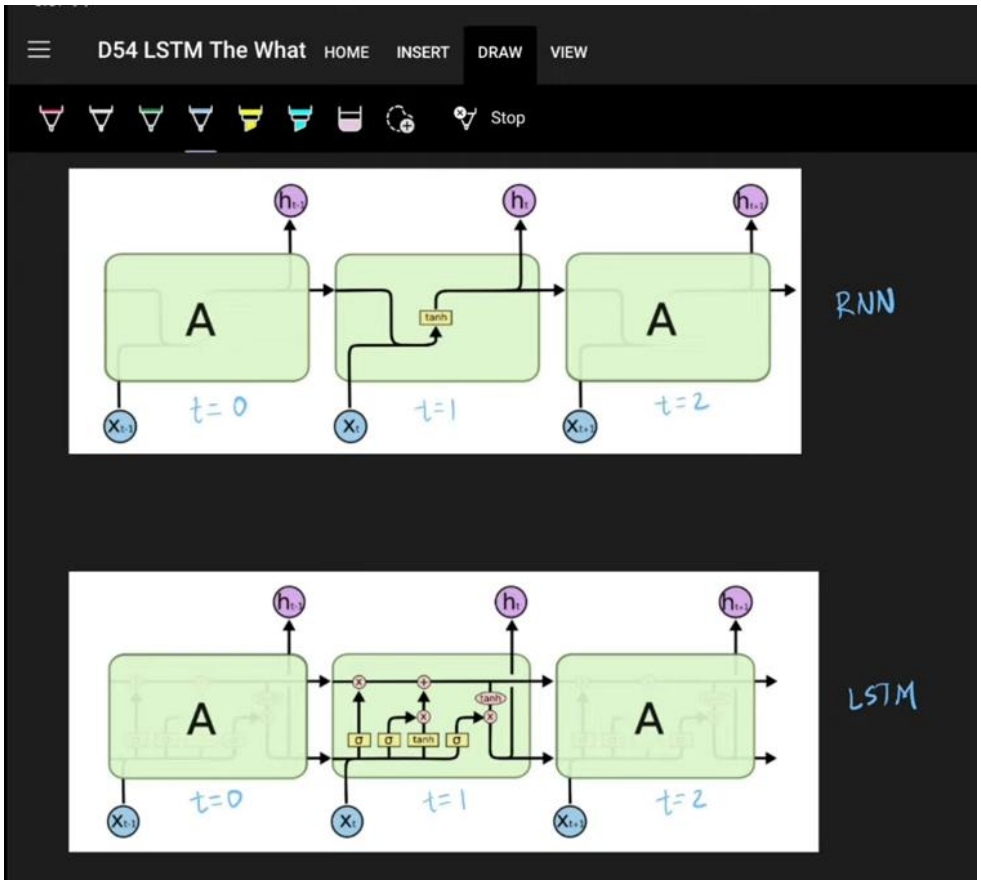
Dimag jo hai Short Term Context ke basis pe Long Term Context ka decision aata hai

RNN vs LSTM

Sbhse bada Difference

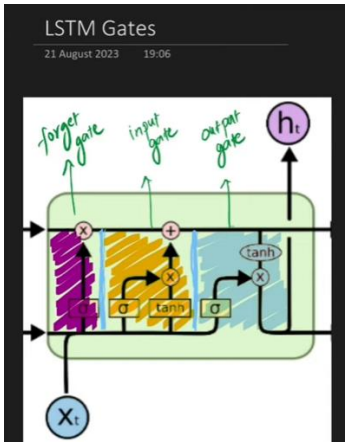
LSTN mai 2 State hai Long Term & Short Term

LSTM ka Architecture kaafi different hai as LSTM mai we try to establish a connection between Short Term & Long Term Memory



The intuition behind LSTM lies in its ability to selectively retain and update information over time. It achieves this by introducing a memory cell, a self-contained unit that can store information for long durations. The key components of an LSTM include:

1. **Cell State (Ct):** This represents the long-term memory of the network. Information can be added or removed from the cell state through a series of gates.
2. **Hidden State (ht):** This is the short-term memory or the output of the LSTM cell. It is influenced by both the input data and the cell state.
3. **Input Gate (it):** Determines how much of the new information should be added to the cell state. It takes into account the current input and the previous hidden state.
4. **Forget Gate (ft):** Decides what information from the cell state should be discarded or forgotten. It considers the current input and the previous hidden state.
5. **Output Gate (ot):** Determines the next hidden state based on the cell state. It considers the current input and the updated cell state.



Input Gate: Current input pr decide krta hai ki Long Term Memory mai kaunsa Input add karna hai.

Forget Gate: Based on Current Input & Short Term Context indono ke Basis pe Decide krta hai

Ki Long Term Memory mai se kaunsi Chize Remove karni hai.

Output Gate: Output Gate hie vo Gate hai ki based on Current Input & abhitak Long Term Memory ke base pe Output nikallkr deta hai & at very given stage Short Term Memory kobhi Create karta hai