Day 6 - NLP {Recurrent Neural N/W}

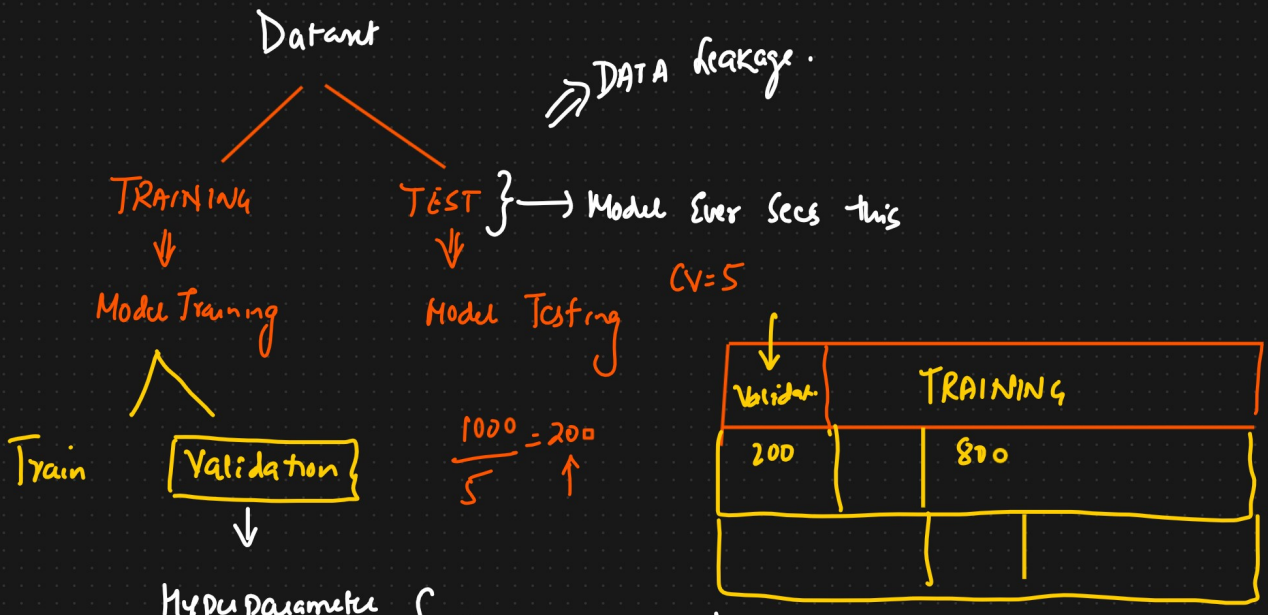
① BoW, TFIDF, Word2vec, Avg Word2Vec {Python Practical Implementation}

- CBOW
- Skip Gram

② Deep Learning → ① RNN ② LSTM RNN ③ GRU RNN ④ Bidirectional LSTM RNN ⑤ Encoders - Decoders ⑥ TRANSFORMERS ⑦ BERT

Interview Question

① Train Vs Test Vs Validation →



CROSS-VALIDATION

↓

GRIDSEARCHCV

RANDOMIZED SEARCH CV

② Why RandomForest instead of Decision Tree {Answer}.

DT → {Low Bias, High Variance}

↓

{ Low Bias Low Variance } → Random Forest }.

① Recurrent Neural N/W ⇒ Text → Vectors

Machine Learning

Word Embedding ← Word2vec, AvgWord2vec

Chatbot : Question and Answer → Sequence of words

Language Translation → Hindi → English

Text generation → A sentence → Suggestion → Completion of Sentences (Grammatically)

Gmail AutoSuggestion

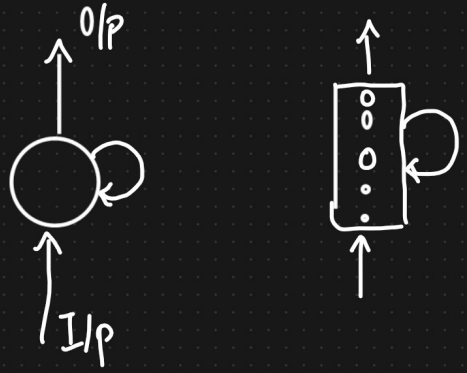
Deep Learning

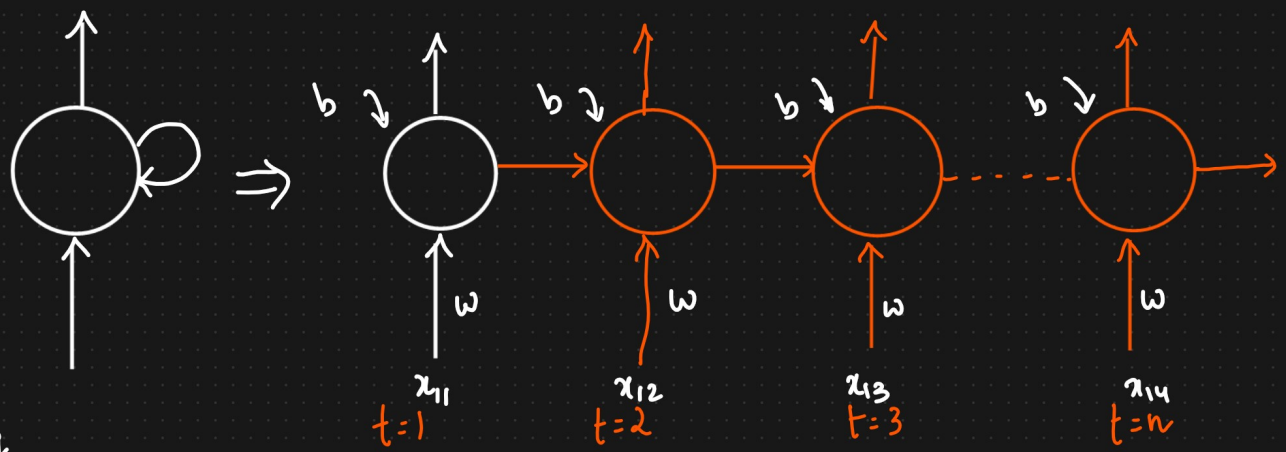
① RNN ② LSTM RNN ③ Transformers ④ BERT

Word2vec ⇒ Deep Learning

Words ⇒ Vec

① Recurrent Neural N/W





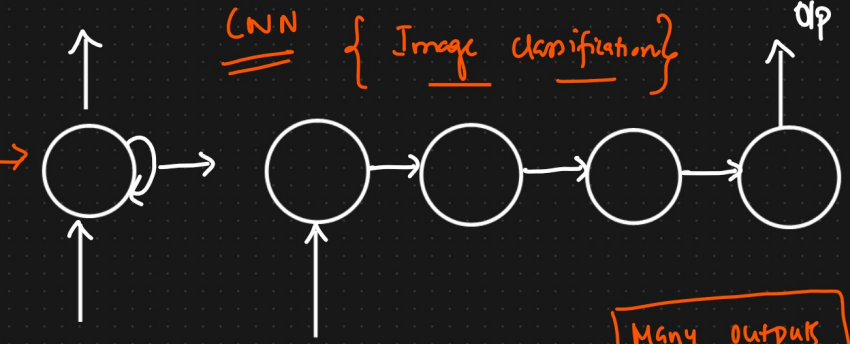
Sentiment Analysis → The food is good → Positive (O/p)

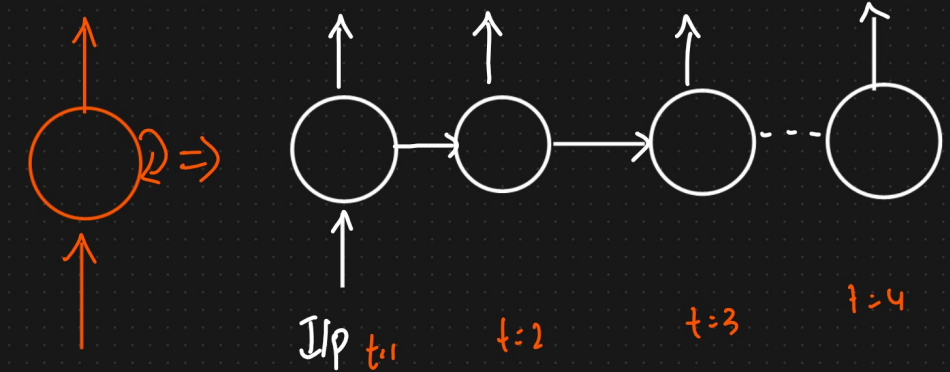
$\langle x_{11}, x_{12}, x_{13}, x_{14} \rangle$

x_{11} → Word2vec → Vectors → $d = 300$

Types of RNN

1. One to One RNN
2. One to Many RNN
3. Many to One RNN
4. Many to Many RNN



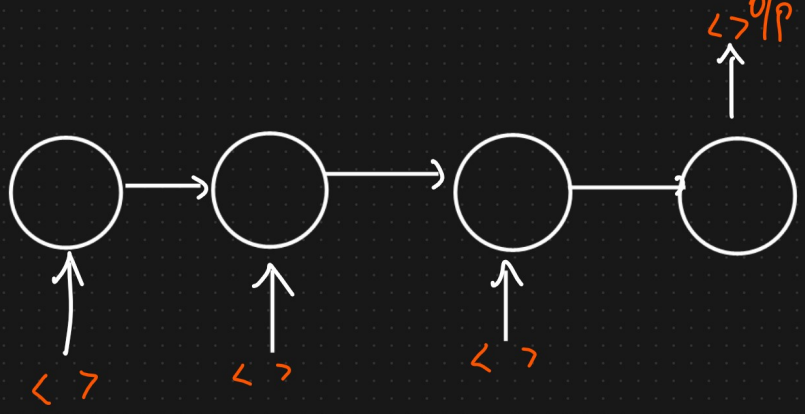


Eg: Music Generation, Text Generation

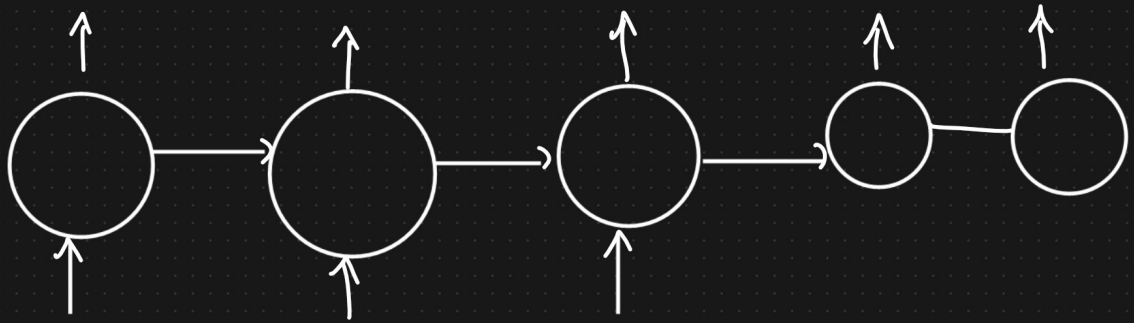
Google Search Suggestion, Movie Recommendation

③ Many to One

Sentiment Analysis



④ Many to Many



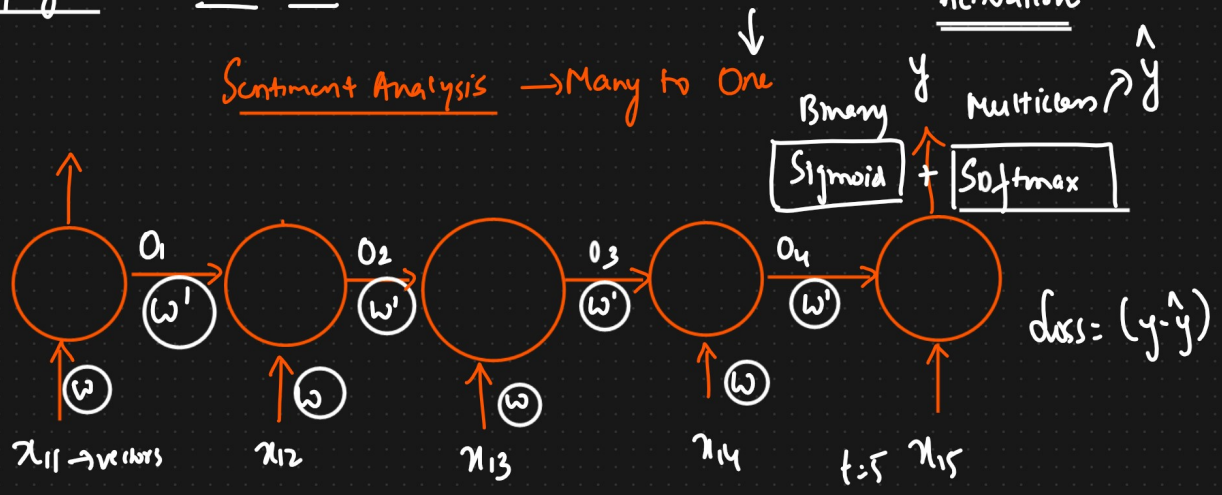
① Language Translation
② Question answers
③ Chatbots.

{ ① Forward Propogation
② Backward Propogation }

Time Series Data

① Forward Propogation In RNN

Sentiment Analysis → Many to One



t=1	t=2	t=3	t=4	O/P
The	food	is	very	good
x_{11}	x_{12}	x_{13}	x_{14}	x_{15}

Positive.

$O_1 = f(x_{11} * w)$

$O_2 = f(x_{12} * w + O_1 * w_1')$

$O_3 = f(x_{13} * w + O_2 * w')$