Page No. :
Date. : / /

Practical Assignment 4

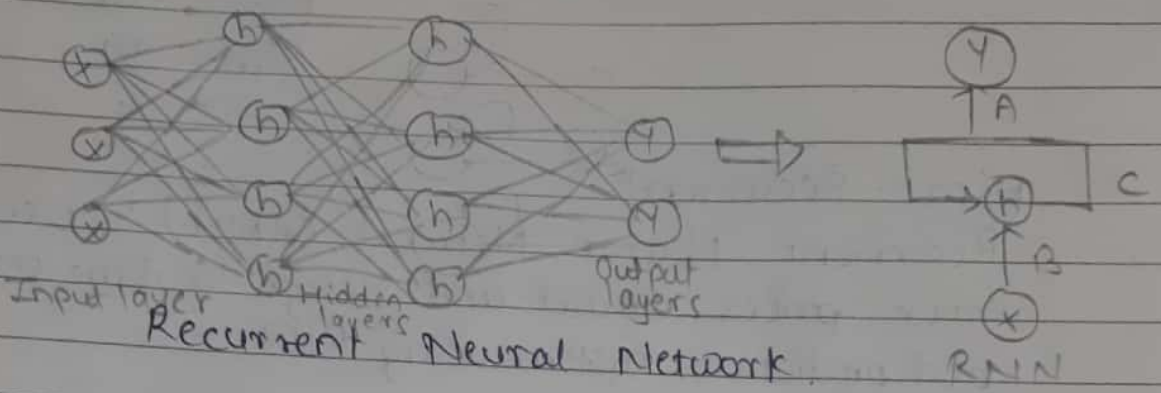
Name : Tanmay Bhagwat
Roll No : 20C011
Class : BE comp A
Sub : DL

Aim : Recurrent Neural Network (RNN) : Use the Google stock prices dataset and design a time series analysis and prediction system using RNN

Requirement :
64 bit operating systems, Python installation, Jupyter Notebook, Python Libraries, Tensorflow, Numpy and Pandas.

Theory :
Recurrent Neural Networks :
Recurrent Neural Networks (RNN) is a type of Neural Network where the output from the previous step is fed as input to the current step. In traditional neural networks, all the inputs and outputs are independent of each other. Still in cases when it is required to predict the next word of a sentence, the previous words are required and hence there is need to remember the previous words. Thus RNN came into existence, which solved this issue with the help of a hidden layer. The main and most important features of RNN is its Hidden State, which remembers some information about a sequence. The state is also referred to as Memory State since it remembers the previous input to the network. It uses the same parameters for each input as it perf performs the same task on all the inputs or

hidden layers to produce the output. This reduces the complex of parameters, unlike other neural networks.



Steps involved in RNN

1) Data Preprocessing

2) Initialize Parameters.

3) Define the RNN Architecture: Choose the type of RNN at architecture for you want to use (e.g. Vanilla RNN, LSMT, GRU)

4] Forward Propagation

5] Compute Loss.

6) Backpropogation Through Time

7) Update Parameters

8] Repeat Training.

Page No. :
Date. : / /

9] Evaluation

10] Prediction

11] Post-processing:- Depending on the specific task, decide post-processing steps such as decoding, converting probabilities to class labels, etc.

Conclusion :-

Hence we prepared a model for the Google Stock prices dataset. We also designed a time series analysis and prediction system using RNN.