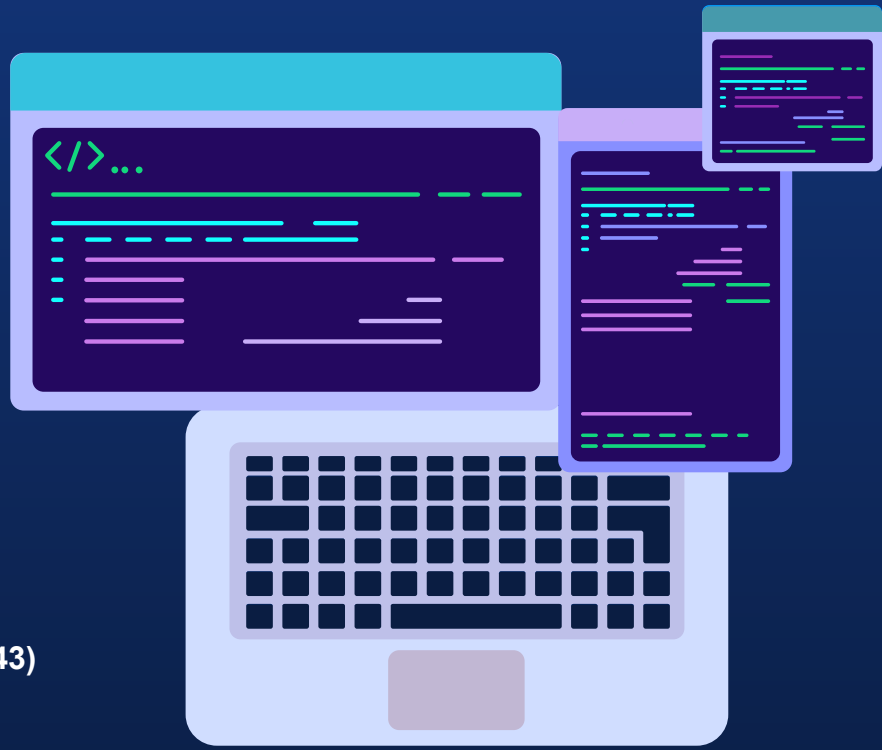
Long Short Term Memory Recurrent Neural Network



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INTRODUCTION

INTRODUCTION TO ARTIFICIAL NEURAL NETWORK WITH R

Artificial Neural Networks (ANN) are algorithms that are based on brain function and are used to predict and forecast complex patterns. The Artificial Neural Network (ANN) is a deep learning approach derived from the concept of Biological Neural Networks in the human brain. An attempt to imitate the workings of the human brain led to the invention of ANN. Although they are not identical, the workings of ANN are very similar to those of biological neural networks. Only numeric and organised data are accepted by the ANN algorithm.

While, R is an open-source programming language that is widely used as a statistical software and data analysis. R generally comes with a Command-line interface, it is used as a leading tool for machine learning, statistics and data analysis. R is not only a statistical package but also allows us to integrate with other languages. Thus, you can easily interact with many data sources and statistical packages.

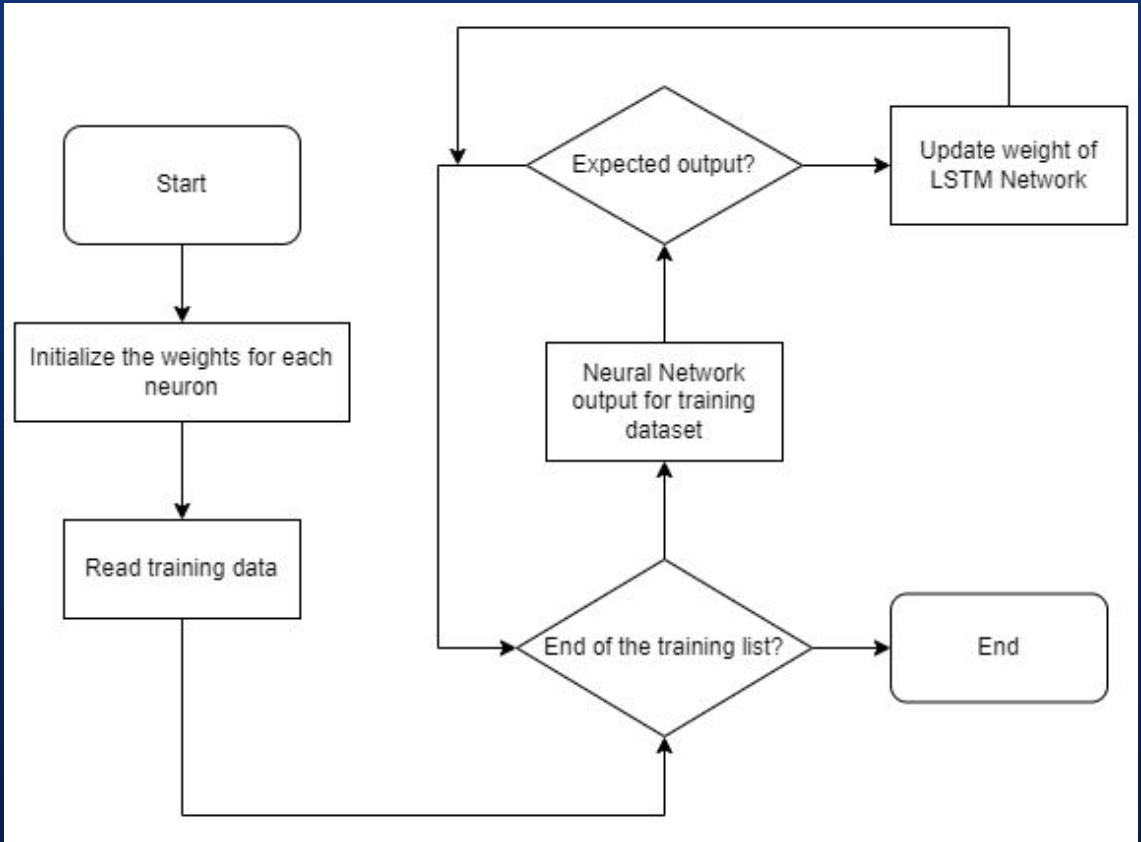
02

Detail Description about Data, Flow Chart and Learning

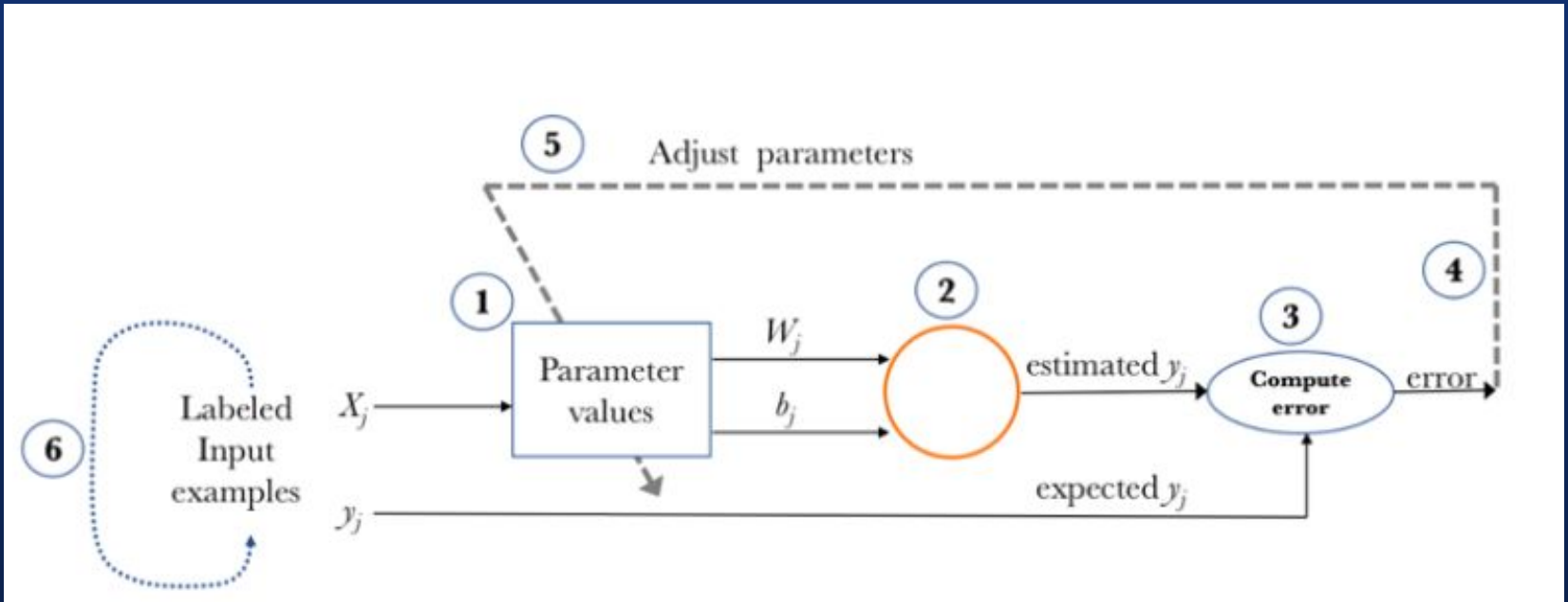
Detail Description (DATA)

- The Weather dataset is obtained from the github website https://github.com/Eligijus112/Vilnius-weather-LSTM/blob/main/data/weather.csv where its context from https://openweathermap.org/api
- The weather dataset comprises 294228 observations of 25 columns. The data was gathered every hour from 1990.01.01 to 2020.11.30.
- The data was gain near the TV tower of not so large metropolis, Vilnius. The TV tower is located with the city, so the temperature near the tower should be very similar to the temperature thoughtout the city.

FLOWCHART


Start
Initialize the weights for each neuron
Read training data
Neural Network output for training dataset
Expected output?
Update weight of LSTM Network
End of the training list?
End

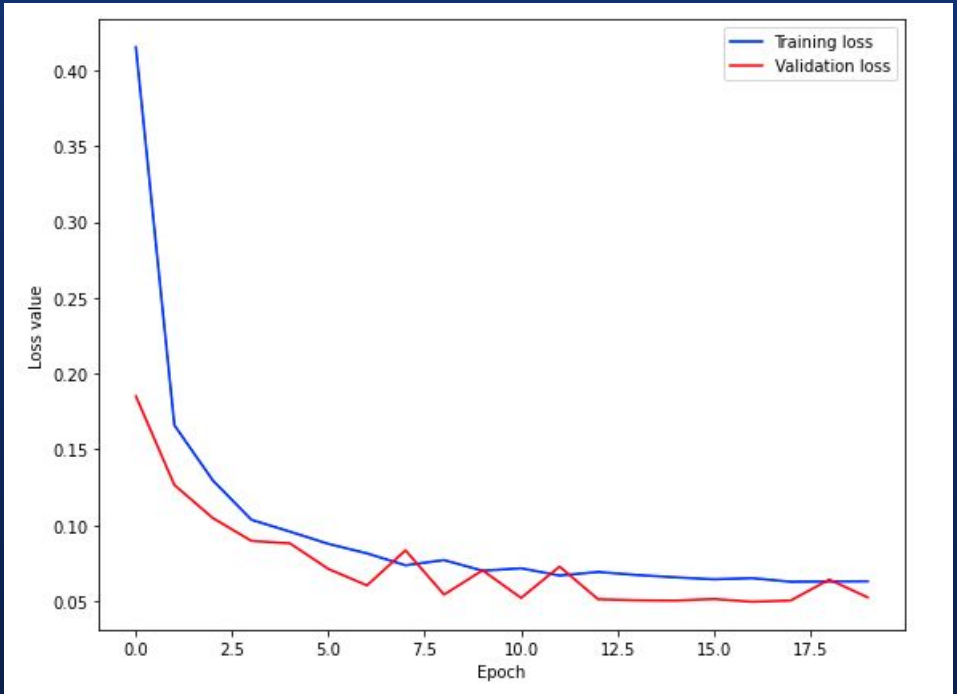
Learning Process of Neural Network



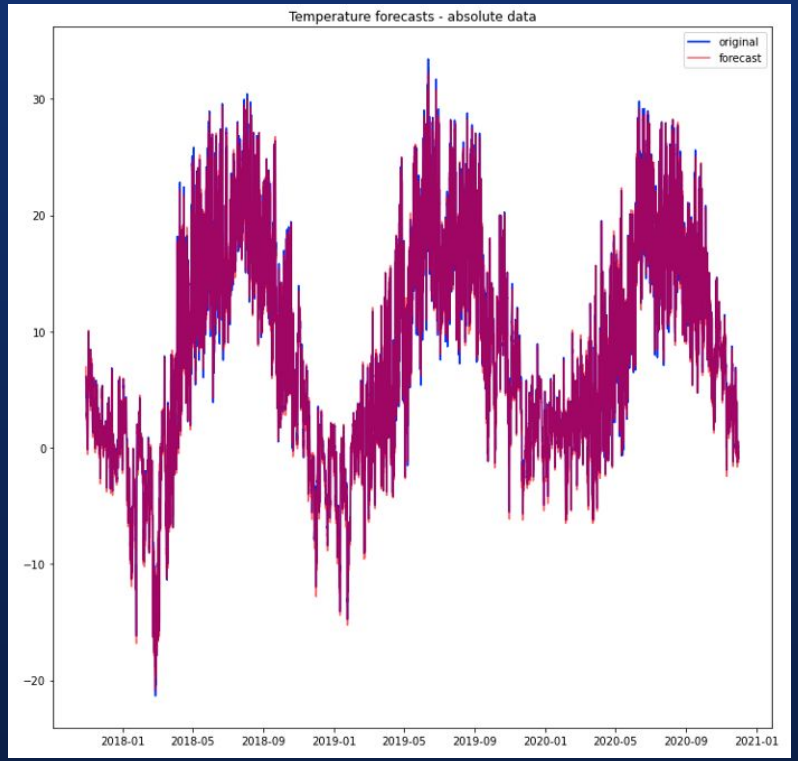
03

Explanation on Findings, Figures and Results

Explanation on Figures, Figures and Results



Explanation on Figures, Figures and Results



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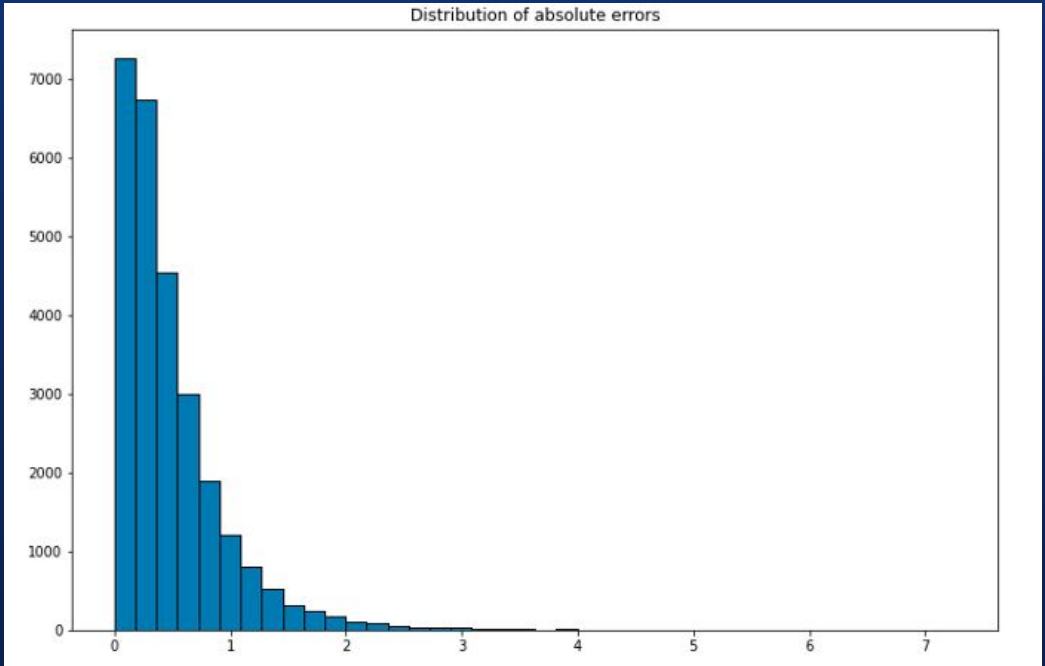

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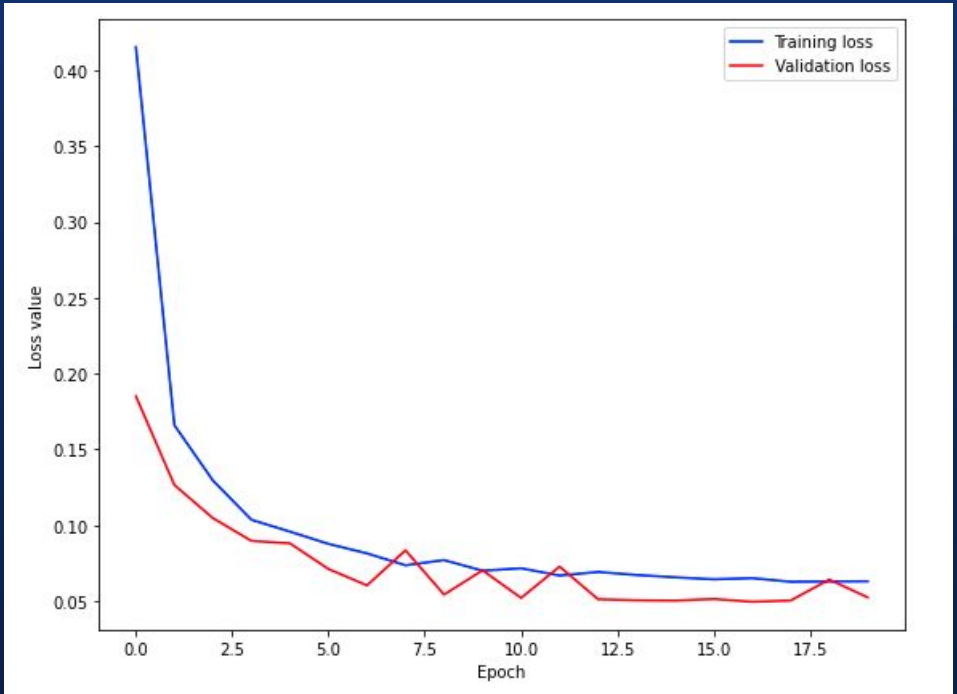

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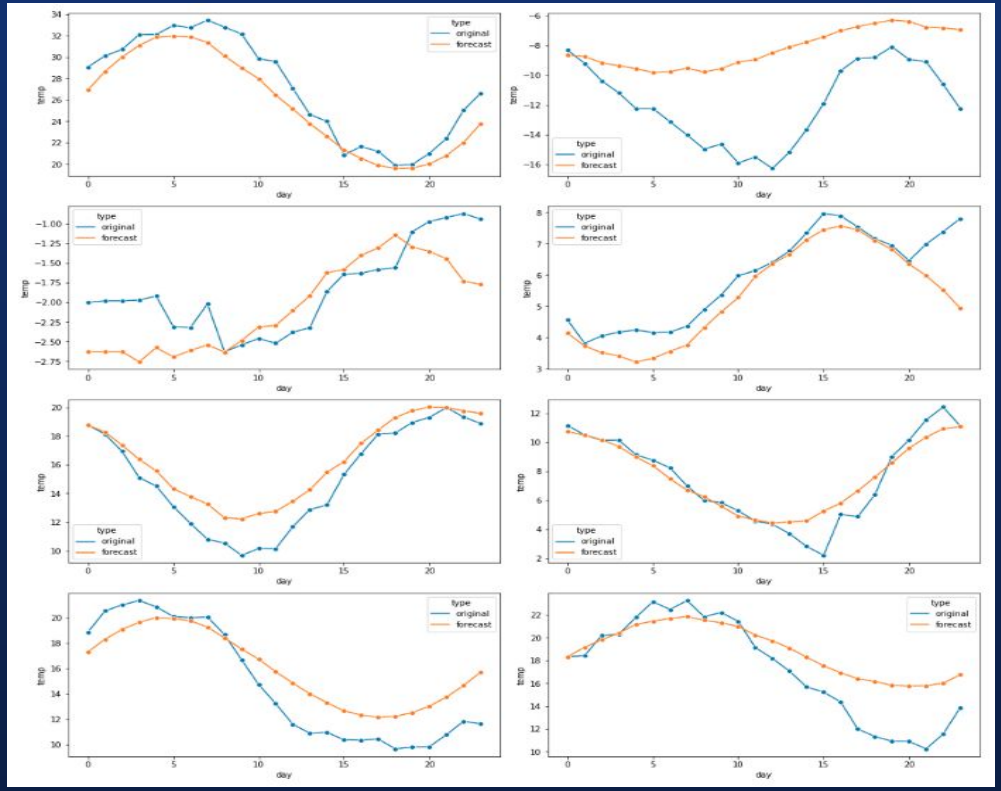

04

Conclusion

CONCLUSION

- Reading, cleaning, and augmenting the input data
- Selecting the hyperparameters for the lag and n steps ahead
- Selecting the hyperparameters for the deep learning model
- Initiating the NNMultistepModel() class
- Fitting the model
- Forecasting n_steps ahead

THAT'S ALL

THANKYOU :-D

LINK YOUTUBE

https://youtu.be/JkHrUZuB79I