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Electricity Load Forecasting Using LSTM & RNN

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Abstract

Recurrent Neural Network (RNN) based forecasting mechanisms have proved their significance to anticipate in preoperative outcomes to improve the decision making on the future course of actions. The RNN models have long been used in many application domains which needed the identification and prioritization of adverse factors. Several prediction methods are being popularly used to handle forecasting problems. This method demonstrates the capability of RNN model to forecast the electricity load of upcoming days from a city which can be considered to increase or decrease the generation of load. Our proposed method integrates a numeral of approach. In this work, we develop the project of electricity forecast which can be able to predict outcomes of total load consumed.

Keywords:

Recurrent Neural Network, Forecasting, Prioritization,LSTM

1. INTRODUCTION

There are lots of studies performed for the prediction of future forecasting of electricity load consumption using neural networks (NN). One of the most significant areas of NN is forecasting, NN algorithms have been used in this area to guide the future course of actions needed in many application areas including weather forecasting, disease forecasting, load forecasting. This Project is a Python based software used to generate predictions automatically it will help to manage preventive outcome over the time period. These prediction systems can be very helpful in decision making to handle the present scenario to guide early interventions to manage electricity generations very effectively. This study aims to provide an early forecast model for the load forecast of electricity. This project targets to develop model in order to handle the "Forecasting". LSTM is used for building the model in python environment. Anybody with a little computer knowledge can approach and deal with the software with ease; hence it can be termed user friendly.

2. LITERATURE SURVEY

The influence of economic and demographic variables on the annual electricity consumption in Italy has been investigated with the intention to develop a long-term consumption forecasting model. The time period considered for the historical data is from 1970 to 2007. Different regression models were developed, using historical electricity consumption, gross domestic product (GDP), gross domestic product per capita (GDP per capita) and population. A first part of the paper considers the estimation of GDP, price and GDP per capita elasticity's of domestic and non-domestic

electricity consumption. The domestic and non-domestic short run price elasticity's are found to be both approximately equal to −0.06, while long run elasticity's are equal to −0.24 and −0.09, respectively. On the contrary, the elasticity's of GDP and GDP per capita present higher values. In the second part of the paper, different regression models, based on co-integrated or stationary data, are presented. Different statistical tests are employed to check the validity of the proposed models. A comparison with national forecasts, based on complex econometric models, such as Markal-Time, was performed, showing that the developed regressions are congruent with the official projections, with deviations of ±1% for the best case and ±11% for the worst. These deviations are to be considered acceptable in relation to the time span taken into account

3.EXISTING SYSTEM

Traditional forecasting essentially makes predictions about future business measures, such as inventory needs or asset performance, based on prior data. Due to the fact that the past does not always predict the future, conventional forecasting methods are ineffective. Machine learning uses a variety of algorithms, each of which has a unique working structure and set of assumptions. In these intuitions, models operate on various operations in various ways and also produce results with high and low accuracy. This places numerous restrictions on the instances, fatalities, and recoveries that are possible. The main challenge is to develop a model for them such that accuracy is equal for all. We employed KNN and logistic regression in the current system, which produces less accuracy

4. PROPOSED SYSTEM

I employed a technique that could be regarded as a valuable strategy because it aids in minimizing the drawbacks of conventional forecasting. It is possible to produce the best outcomes for attributes without any overlap by providing support through the RNN. This project has the capacity to predict the future. The Python environment was used to construct this app. This application uses the Long Short Term Memory (LSTM) paradigm.

The proposed method for brain tumor detection consists of three key diagnostic tasks: pre-processing, image segmentation, and feature extraction. In the final stage, the calculated features are used for classification. Notably, the VGG-16 architecture is employed in our proposed system to enhance the accuracy of brain tumor detection. This architecture, known for its deep convolutional neural network design, enables more effective learning of intricate patterns and features in medical images, ultimately leading to improved diagnostic precision.

5. EXPERIMENTAL RESULTS

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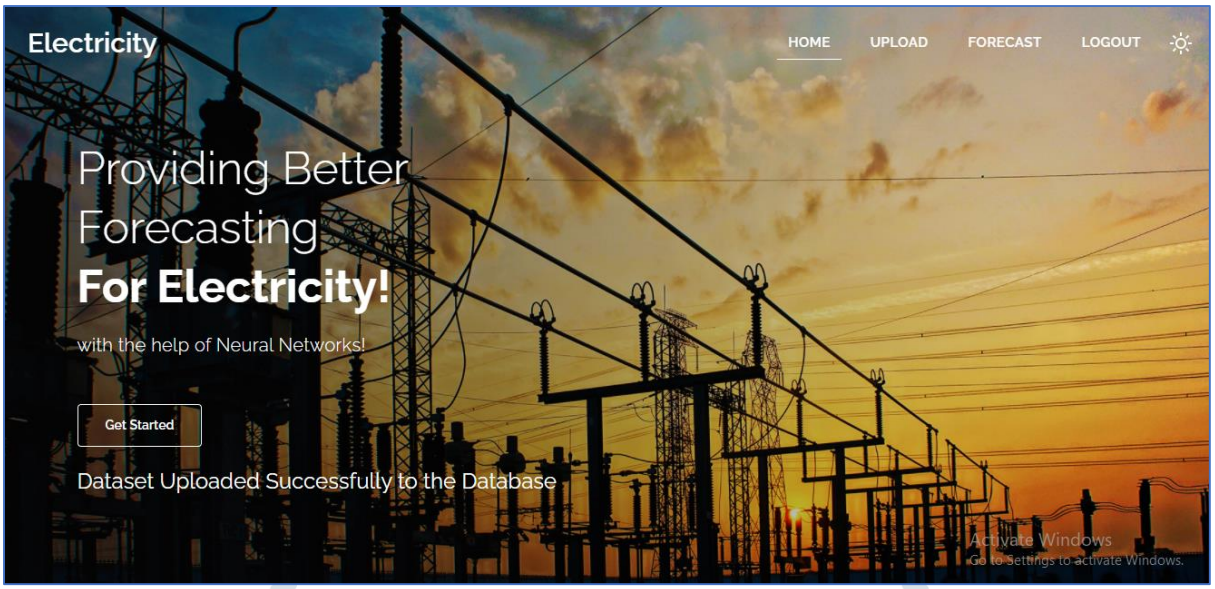

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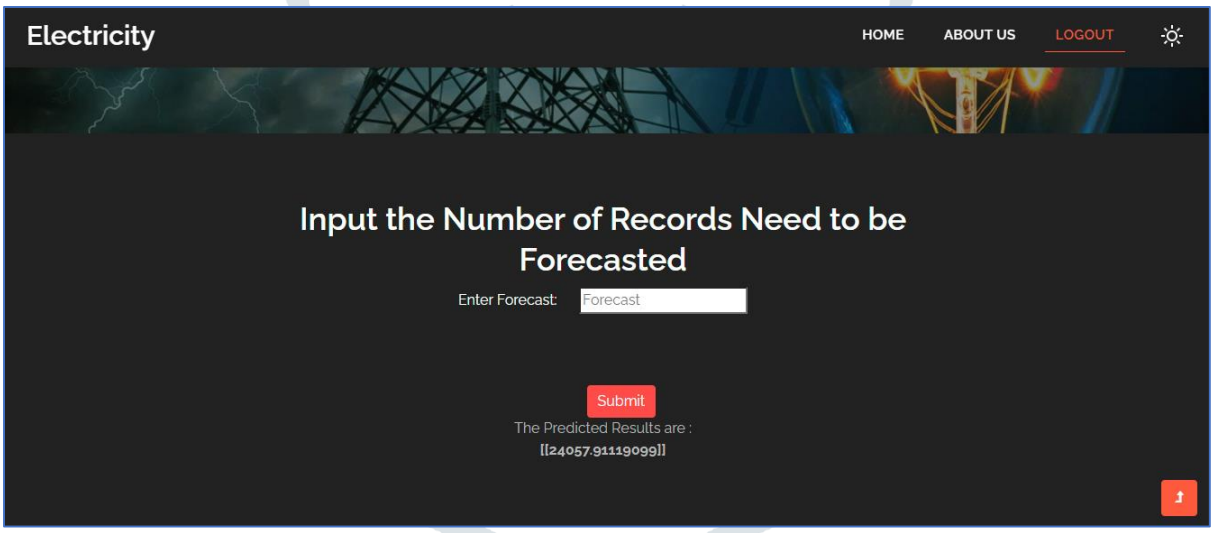

6. CONCLUSION

In this application, we have successfully created a system that predicts future records of electrical load use. This is made in a user-friendly setting utilizing Python programming and the Flask framework. In order to determine the future records, the system is likely to collect data from the user.

7. REFERENCES

[1] A. Al-Ghandoor, J. O. Jaber, I. Al-Hinti, and I. M. Mansour, "Residential past and future energy consumption: Potential savings and environmental impact," Renew. Sustain. Energy Rev., vol. 13, no. 6, pp. 1262–1274, 2009.

[2] A. G. Parlos, E. Oufi, J. Muthusami, A. D. Patton, and A. F. Atiya, "Development of an intelligent long-term electric load forecasting system," in Proceedings of International Conference on Intelligent System Application to Power Systems, pp. 288–292.

[3] J. C. Wang, "A study on the energy performance of hotel buildings in Taiwan," Energy Build., vol. 49, pp. 268–275, 2012.

[4] A. Azadeh and Z. S. Faiz, "A meta-heuristic framework for forecasting household electricity consumption," Appl. Soft Comput., vol. 11, no. 1, pp. 614–620, 2011.