AGRICULTURAL CROP RECOMMENDATION USING WEATHER DATA

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Abstract

Agriculture relies significantly on weather forecasting because it allows farmers to better plan their crop management and frame activities. To cultivate a profitable crop, farmers must be aware of humidity, sunlight, and temperature, and thorough meteorological information, including historical and current data, as well as future forecasts, is required.

In the research it developed a model that uses historical data from several weather stations in Sri Lanka to train and test which produce more accurate prediction for specific region in near future in a short amount of time then recommend the best crops that can be grow in selected region for predicted weather.

Author has utilized comprehensive algorithms, libraries and machine learning techniques to preprocess dataset, produce the future weather and recommendation system. The weather prediction has been done using the NeuralProphet algorithm, despite of using the algorithms of naïve bayes and Times series by RNN separately.

NeuralProphet algorithm is the solution for most time series analysis which Facebook internal data scientists implement. This algorithm provides a solution for most prevalent uses, who are looking to optimize the scalability and flexibility of time series predictions. This algorithm inspired with Facebook prophet and AR-Net which build in PyTorch.

In crop recommendation section author has decided not to use classification algorithms in crop recommendation and derived the idea of cross validate the crops with predicted weather factors and requested area.

Implemented model can be performed in conditions that are considerably less resource intensive. The result evaluation of the model reveals that accuracy is sufficient to employ with current conditions approaches. Furthermore, this research proves that using weather station data from numerous nearby locations is preferable than using data from only the area for which weather prediction is being done.