MSC IN IT

Machine Learning and Data Science for Decision Making in Crop Cultivation

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Declaration

I the undersigned solemnly declare that the project report "**Machine Learning and Data Science for Decision Making in Crop Cultivation**" is based on my own work carried out during the course of my study under the supervision of **Mrs. Indika Karunarathne**

I. I assert the statements made and conclusions drawn are an outcome of my research work. I further certify that
II. The work contained in the report is original and has been done by me under the general supervision of my supervisor.
III. The work has not been submitted to any other Institution for any other degree/diploma/certificate in this university or any other University of India or abroad.
IV. We have followed the guidelines provided by the university in writing the report.
V. Whenever we have used materials (data, theoretical analysis, and text) from other sources, we have given due credit to them in the text of the report and giving their details in the references.

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Student Signature

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Date

Acknowledgement

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Abstract

In many situations, farmers face lots of difficulties due to not gaining enough income for their harvest as a result of it, considerable amount of harvest is wasted because of not having enough return on investment. Although government introduced many approaches, they seem to have been unable to address the issues of crop prediction and sustainable agriculture as farmers complain that the policies created by the authorities never match with the expectations of farmers' community. Considerable amount of population still engage in agricultural sector. Therefore, their contribution to the GDP has been representing an important portion through last few decades. Therefore this research has been conducted to support farmers to make optimum decisions based on various factors such as weather, price, and potential production to make cultivations. The research is based on two basic data mining models (Price and Expected Production) to predict the price and Production for a selected crop based on a particular district. The prediction outcome is presented using a mobile application with user friendly interfaces. Price model is based on the production (MT), per capita consumption, imports and inflation with the accuracy of 77.93% and the Production model is based on the climatic conditions such as humidity, wind speed, sun hours, rainfalls and temperature with the accuracy of 65.08%. The production model is to be further developed by adding the feature of soil moisture as it is an important factor to decide which crop is to be cultivated. Furthermore, an additional model is to be added to predict the amount of fertilizer to be added based to get the optimum yield.

Keywords:-crop, price, production, model, prediction, yield, fertilizer, moisture, accuracy

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