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PREDICTION OF CROP YIELD AND COST BY FINDING BEST LEARNING USING MACHINE LEARNING APPROCH

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Abstract: Among worldwide, agriculture has the major responsibility for improving the economic contribution of the nation. However, still the most agricultural fields are under developed due to the lack of deployment of ecosystem control technologies. Due to these problems, the crop production is not improved which affects the agriculture economy. Hence a development of agricultural productivity is enhanced based on the plant yield prediction. To prevent this problem, Agricultural sectors have to predict the crop from given dataset using machine learning techniques. The analysis of dataset by supervised machine learning technique(SMLT) to capture several information's like, variable identification, uni-variate analysis, bi-variate and multi-variate analysis, missing value treatments etc. A comparative study between machine learning algorithms had been carried out in order to determine which algorithm is the most accurate in predicting the best crop. The results show that the effectiveness of the proposed machine learning algorithm technique can be compared with best accuracy with entropy calculation, precision, Recall, F1 Score, Sensitivity, Specificity.

Keywords: Machine Learning-Classification Method,Dataset,Customer Satisfaction,User-Interface

I. INTRODUCTION

In developing countries, farming is considered as the major source of revenue for many people. In modern years, the agricultural growth is engaged by several innovations, environments, techniques and civilizations. In addition, the utilization of information technology may change the condition of decision making and thus farmers may yield the best way. For decision making process, data mining techniques related to the agriculture are used. Machine learning method is a process of extracting the most significant and useful information from the huge amount of datasets. Nowadays, we used machine learning approach with developed in crop or plant yield prediction since agriculture has different data like soil data, crop data, and weather data. Plant growth prediction is proposed for monitoring the plant yield effectively through the machine learning techniques.

II. EXSISTING SYSTEM

Precision agriculture is gaining increasing attention because of the possible reduction of agricultural inputs (e.g., fertilizers and pesticides) that can be obtained by using high-tech equipment, including robots.
To focus on an agricultural robotics system that addresses the weeding problem by means of selective spraying or mechanical removal of the detected weeds. To describe a deep learning based method to allow a robot to perform an accurate weed/crop classification using a sequence of two Convolutional Neural Networks applied to RGB images.

III.PROPOSED SYSTEM

- We have to find Accuracy of the training dataset, Accuracy of the testing dataset, Specification, False Positive rate, precision and recall by comparing algorithm using python code. The following Involvement steps are,
- Data validation and preprocessing
- Data visualisation
- Using machine learning algorithm with comparing to predict more accuracy (Like Logistic Regression and Random forest classification algorithm)

PROBLEM DEFINITION :

- Agriculture is the most important sector that influences the economy of India. It contributes to 18% of India's Gross Domestic Product (GDP) and gives employment to 50% of the population of India.
- People of India are practicing Agriculture for years but the results are never satisfying due to various factors that affect the crop yield. To fulfill the needs of around 1.2 billion people, it is very important to have a good yield of

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crops. Due to factors like soil type, precipitation, seed quality, lack of technical facilities etc. the crop yield is directly influenced.

• To focuses on implementing crop yield prediction system by using Machine learning techniques by doing analysis on agriculture dataset. For evaluating performance Accuracy is used as one of the factors. The classifiers are further compared with the values of Precision, Recall and F1score. Lesser the value of error, more accurate the algorithm will work. The result is based on comparison among the classifiers.

Advantages:

- Our goal is push for assisting farmers, government using our predictions. All these publications state they have done better than their competitors but there is no article or public mention of their work being used practically to assist the farmers. If there are some genuine problems in rolling out that work to next stage, then identify those problems and try solving them.
- It is targeted to those farmers who wish to professionally manage their farm by planning, monitoring and analyzing all farming activities.

Algorithm :

- Data validation and pre-processing technique
- Exploration data analysis of visualization and training a model by given attributes
- Performance measurements of logistic regression and decision tree algorithms
- Performance measurements of Support vector classifier and Random forest
- Performance measurements of KNN and Naive Bayes
- GUI based prediction of crop yield and yield cost

Software Requirements :

Operating System : Windows / Linux
Tool : Anaconda with Jupyter Notebook

Hardware Requirements :

Processor : Pentium IV/III
Hard disk : minimum 80 GB
RAM : minimum 2 GB

Techniques Used :

Python

IV. CONCLUSION

Hence a development of agricultural productivity is enhanced based on the plant yield prediction. To prevent this problem, Agricultural sectors have to predict the crop from given dataset using machine learning techniques

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Architecture Diagram: