

EFFECT OF TEMPERATURE AND RAINFALL ON CROP YIELD USING DATA MINING

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ABSTRACT

Prediction of agriculture yield is a job that requires unification of knowledge from several areas such as data mining, statistics and agriculture. Subject of crop yield prediction has been very popular among various organization working in agriculture, producers etc. Prediction of crop yield helps in managing the storage of crops as well as it directs the transportation decisions, and risk management issues related to crops. Pattern of rainfall and temperature are dynamic due to global warming, and resulting in undergoing impingement on crop productivity. Data Mining focuses up on methodologies for extracting useful knowledge from data and there are several tools to extract knowledge that is it is a proficiency of examining the dataset such that the end results can be deduced easily and rapidly from the dataset. The knowledge gathered can be used forecast the crop yield. But farmers do not use any knowledge to cultivate the crops datasets. Data mining can be used in agriculture for decision making. In this study, we collected the data from the various organization and also through the agriculture related websites, after preprocessing and discretization of the data applied Predictive apriori algorithm for analysis of daily temperature, daily rainfall and crop yield to predict the crop yield and to analyze the effect of temperature and rainfall on the crop yield.

KEYWORDS: data mining; predictive Apriori algorithm.

1. INTRODUCTION

Truly, a great part of the work on environmental change impacts has centered on US results, however late work has progressively considered creating nations, following forecasts that the best here and now outcomes of environmental change may exist in the creating world. A little however developing writing thinks about effects in India, where the agrarian segment is a basic segment of the economy. In 2011, agribusiness represented 18.1% of India's GDP, what's more, 52% of business, contrasted with 1.2% and under 0.7% in the US, individually. Environmental change impacts on India can have expansive results, also: India is the world's second biggest maker of farming yields, and any adjustments underway because of environmental change could physically affect worldwide agrarian imports and fares. Late investigations on environmental change impacts in India venture future results under an assortment of

situations. These investigations regularly assess yield affectability coefficients from existing information, and afterward utilize environmental change expectations from outside environmental change models to extend yield changes. One downside of this approach is that these investigations are for the most part unfit to give exact standard mistakes of their last forecasts, since their outcomes rely upon the exactness of particular situations that make suspicions about future arrangements and practices. The benefit of these examinations is their capacity to tentatively survey how plants react to atmosphere alterations without other perplexing components. Be that as it may, rancher adjustments to environmental change are hard to consider in these settings.

2. EXISTING SYSTEM

Dry cultivating crops are described by low and exceptionally factor and indeterminate yields. Product disappointments are very normal. These are chiefly because of the accompanying causes. By and large, the precipitation is low and very factor which brings about questionable harvest yields. Other than its vulnerability, the dissemination of precipitation amid the harvest time frame is uneven, accepting high measure of rain, when it isn't required and absence of it when edit needs it.

3. DISADVANTAGES

- (i) The frameworks and strategies of cultivating
- (ii) The showcasing of farming items and
- (iii) The obligation of the agriculturists.

4. LITERATURE SURVEY

[1] This paper displays an examination utilizing information mining procedures for evaluating the future yield forecast in tea development with climatic change patterns saw in most recent 30 years (1977-2006). Information mining is a rising field of research in Data Technology and in farming. The present contemplate concentrate on the uses of information mining methods in tea ranches despite climatic change to help the agriculturist in taking choice for cultivating and accomplishing the normal financial return. The tea creation estimation conditions produced for the locales were approved for the future yield expectation (2007, 2009 furthermore, 2010) and were observed to be noteworthy. Consequently it is proposed that the grower/ranchers could utilize the strategy to foresee the future yield efficiency and thusly receive elective versatile measures to augment yield if the expectations fall beneath desires and business feasibility. The examples of yield creation in light of the climatic (precipitation, temperature, relative moistness, vanishing furthermore, daylight) impact over the four tea developing locales (South Bank, North Bank, Upper Assam and Cachar) of Assam were created utilizing Multiple Linear Regression (MLR) system.

[2] The point was to inspect how unique process-based yield models perform at the field scale when given a constrained arrangement of data for demonstrate adjustment and reenactment, reflecting the run of the

mill utilization of models for vast scale applications, and to exhibit the vulnerabilities identified with this sort of model application. Information utilized as a part of the recreations comprised of day by day climate measurements, data on soil properties, data on trim phenology for every cultivar, and fundamental yield and soil administration data. Our outcomes demonstrated that none of the models splendidly repeated recorded perceptions at all destinations and in all years, and none could unequivocally be named vigorous and precise as far as yield forecast crosswise over various situations and product cultivars with just least adjustment. The best execution with respect to estimation was for DAISY and DSSAT, for which the RMSE esteems were most minimal (1428 and 1603 kg ha⁻¹) and the record of understanding (0.71 and 0.74) most astounding. CROPSYST deliberately thought little of yields (MBE – 1186 kg ha⁻¹), while HERMES, STICS and WOFOST obviously overestimated them (MBE 1174, 1272 and 1213 kg ha⁻¹, separately). Gorillas, DAISY, HERMES, STICS and WOFOST outfitted high aggregate over the ground biomass gauges, while CROPSYST, DSSAT and FASSET gave low aggregate over the ground gauges.

[3] The foreseeing of farming yield is a testing and attractive errand for each country. These days, Farmers are attempting to deliver the yield due to unusual climatic changes and definitely diminish in water asset so; we are making a horticulture information. This information could be assembled, put away and dissected for helpful data. It is utilized to advance new propelled strategies and methodologies, for example, information mining that can give the data of the past outcomes to the harvest yield estimation. In this paper, we have shown to assess the harvest yield, pick the most great trim, in this way enhances the esteem and pick up of the cultivating region utilizing information mining methods.

5. PROPOSED SYSTEM

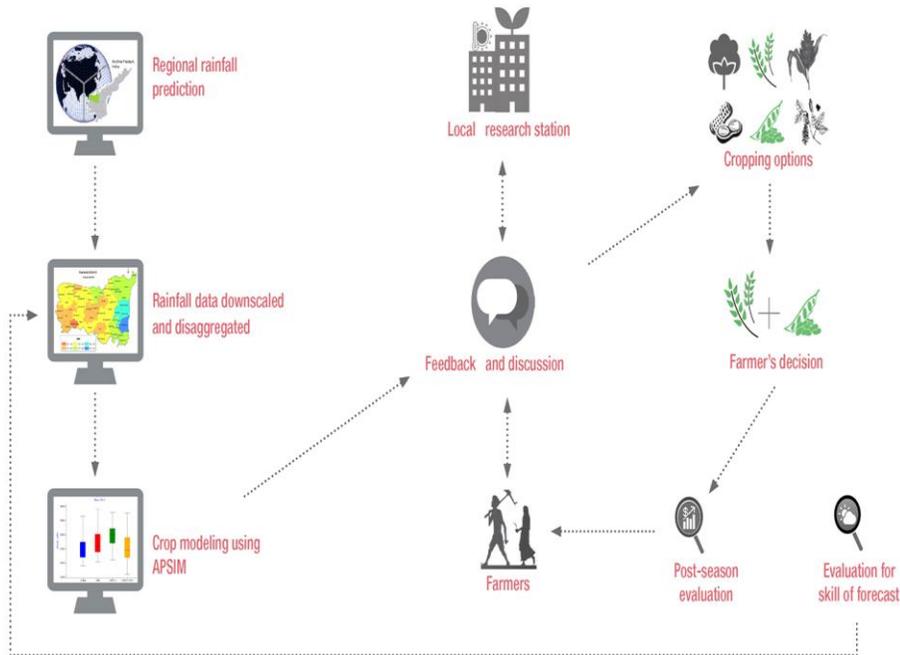
. The farmers doesn't use any data mining or knowledge discovery technique to yield the crop. Data mining approach can be used for better decision making. Data from different government organizations is collected, after preprocessing and discretization of data applied predictive APRIORI algorithm using data mining tool (WEKA) for analysis of daily temperature, daily rainfall and crop yield to predict the crop yield and to analyze the effect of temperature and rainfall on the crop yield.

6. ADVANTAGES

Crop prediction models are to estimate the agricultural production as a function of weather condition i.e daily rainfall and daily maximum temperature. It is efficiency and security policy in perturbation data.

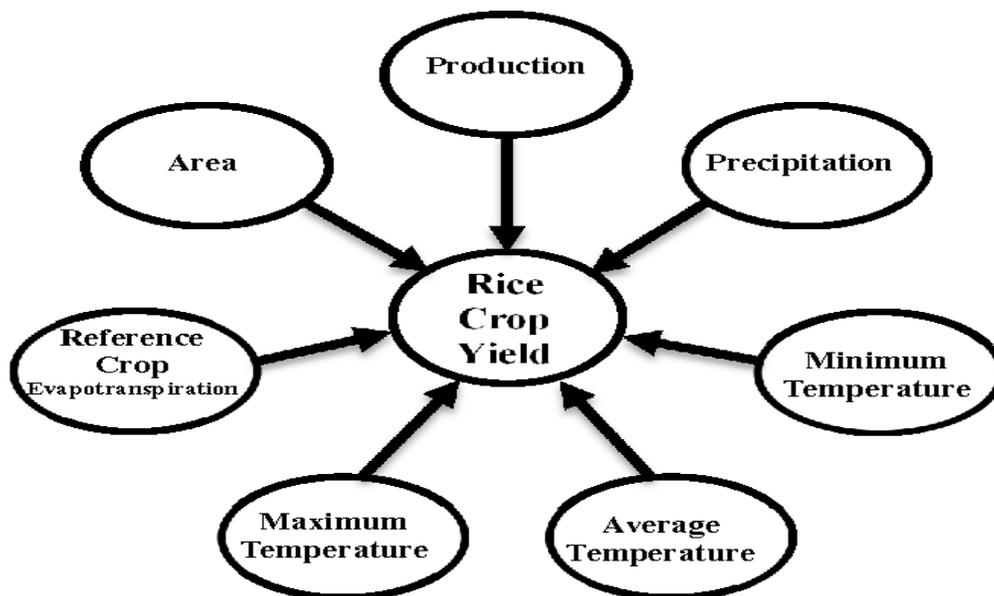
7. ARCHITECTURE DIAGRAM

Data Mining is a process of extracting hidden information from a database and transform it into an understandable structure for further use. It is the computational process of discovering patterns in large data sets involving methods at the intersection of artificial intelligence, machine learning, statistics, and database systems. The ultimate goal of data mining is prediction and predictive data mining is the most common type of data mining and one that has the most direct business applications.



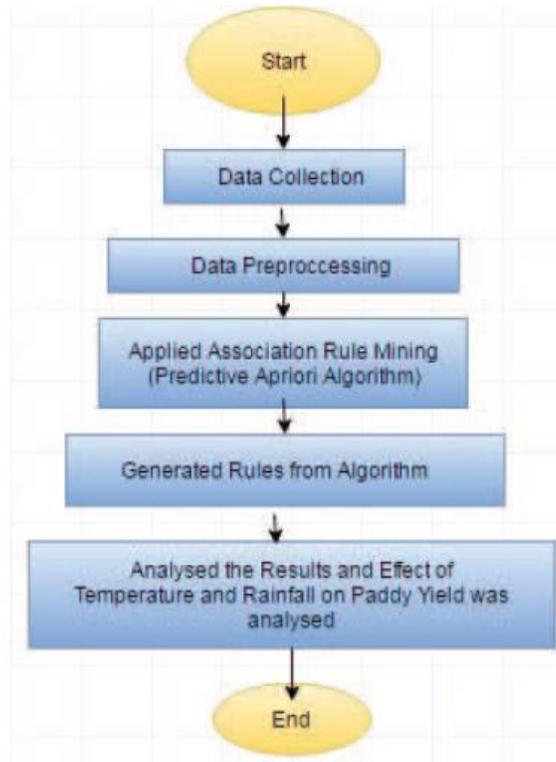
8. USECASE DIAGRAM

The main purpose of a use case diagram is to show what is the operation or functions performed for the client Roles of the actors in the system can be depicted. The user can using the data from server. Any user can crush the data in server,that server can eliminate the data and upload the data again. That user cannot login again.



9. DATAFLOW DIAGRAM

It does not show information about the timing of processes, or information about whether processes will generate or in parallel In the DFD's the level zero process is based on the login validations. The user can using the data from server. Any user can crash the data in server, that server can eliminate the data and upload the data again. That user cannot login again.



10. FUTURE ENHANCEMENT

The requirement on low in-house workload is a critical feature to fully realize the benefits of cloud computing and efficient query processing is a key measure of the quality of query services only the authorized users can query the proprietary database. Authorized users are not malicious and will not intentionally breach the confidentiality. Formally analyze the leaked query and access patterns and the possible effect on both data query confidentiality. Further improve the performance of query processing for range query service.

CONCLUSION

JSP and Servlets are gaining rapid acceptance as means to provide dynamic content on the internet. With full access to the Java platform, running from the secure in a secure manner, the application possibilities are almost limitless. When JSPs are used with enterprise JavaBeans technology, e-commerce and

database resources can be further enhanced to meet an enterprise's needs for web applications providing secure transactions in an open platform. J2EE technology as a whole makes it easy to develop, deploy and use web server applications instead of mingling with other technologies such as CGI and ASP. There are many tools for facilitating quick web software development and to easily convert existing server-side technologies to JSP and Servlets.

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