Application Of Data Mining in Agriculture

[1]Vishnudathan K H, [2]Sachin T R, [3]Rajesh A V

[1]Student, [2]Student, [3]Assistant Proffessor
[1]Computer Science, Thodupuzha, India

Abstract: Data mining was occupied by different kind of fields such as medicine, shops, education. Agriculture field is also a field to emerge data mining.In agriculture field where the famers have to make innumerable decisions every day and elaboration involves the various factors influencing them. An indispensable issue for agriculture planning intention is the exact yield estimation for numerous crops involved in the planning. The data mining technique can be uses for taking decisions related to some issues in agriculture field. Data mining permit farmers to check potentially interesting and unknown patterns in large volume of datasets. This paper discus about what are the applications of data mining and usages of those application in agriculture field to defeat the existing barriers and to pick out the further developments to enhance the performance in agriculture field.

I.INTRODUCTION

Data mining is the process of extracting beneficial and important of information from broad sets of data. Prediction of yield is very important problem in agriculture. Any farmer is concerned in how much yield is about to expect. Spatial Data Mining is the discovery of engaging patterns from large geospatial database . Now a days some farmers are using the various approach, tools and technique of farming for good production. Data mining can be used for predict the future values of agriculture process.

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II.EASE OF USE

Data mining can be a useful tool for improving agricultural practices by providing insights into various aspects of farming, such as crop yields, soil health, weather patterns, and pest infestations. However, the ease of use of data mining in agriculture depends on several factors.One important factor is the availability and quality of data. Agricultural data can come from various sources, including weather stations, sensors, satellites, and farm management systems. The data must be accurate, reliable, and accessible to ensure that data mining techniques can be applied effectively.

III. DATA MINING TECHNIQUES

Data mining techniques was divided into two groups, they are classification and clustering techniques Another classification technique, K- Nearest Neighbour don't have any learning phase, because it was use the training set everytime a classification must be accomplish. Data mining techniques are divided into two groups, they are classification and clustering techniques [8]. Classification technique was designed for classifying the unknown samples using informations provided by a set of classified sample.

IV. APPLICATIONS

There do several applications of Data Mining techniques in agriculture field. The K Nearest Neighbour (KNN) is appy for simulating day to day precipitations and more weather variables and various possible changes of the weather scenarios are analyzed using SVMs .Data mining techniques are apply to study the problems of sound recognition . For example, Fagerlund S uses SVMs for classify the sounds of birds and more different sounds. There are unit two dominant kinds of predictions: one will either try and forecast some unavailable information values or uncomplete trends, or predict a kind of label for some few information. The latter was tied to classifications. Once a classification model is constructed advised a coaching set, the kind of label was associate object may be forecast the supported attribute value of the article and therefore the attribute value of the categories . forecasting is but additional typically remark the predict of missing arithmetical values, increase or decrease trend in time joined information. The important plan is to utilize an outsized range of record values to think about likely future values.

I.DATA MINING METHODS

Data mining describe, as stated, evoke of invisible information about evaluate from large files. This is a new technique with great potentiality to assist companies minding on the most essential information in their broad data. Tools for data mining forecast future trends and behaviors, enable the business to make running decisions, based on knowledge.

V.CLASSIFICATION

Classification is the technique of finding a model that define and differentiate information categories or ideas for the aim of having the abilities to use the model to forecast category.

VI.APPLICATION OF DATA MINING IN AGRICULTURE

Modern age has bring significant changes and information technologie in various areas of human activitie have found wide application this also in agriculture. Development and introduction of new information technologies are enable to global networking, provide agriculture the label of 'IT agriculture'. Information technology progressively provide encouragement in systematic approach to solve the agricultural problems. Access to the right information enable the preparation of accurate reports, for instance about using protective equipment, count of work hours of the machine on a specific crop, or the number of hired season work effort. simultaneously it is easy to keep track of work and verify interchange of information. Agriculture is bountiful with distinct information which conditions the necessity to use the data mining.

1. RELATIONSHIP BETWEEN SPRAYS AND FRUIT DEFECTS

- Fruit defects are frequently recorded.it was be done manually or amongst computer vision sprays are legal in many contries and at the very slightest record the date of spray and product name .
- Spraying may cause defect for different fruit.fungidal sprays are also used to prevent rots from the fruits . It is called that some spray will cause russeting on fruit. Now much of this knowledge come anecdotally. Some attempt have been in regards to the use of data mining in horticulture.

2. PREDICTION OF PROBLEMATIC WINE FERMENTATION

- The fermentation procedure of wine impacts the production of wine related industry as well as the quantity of the wine. Data science techniques are used the technique such as k-mean algorithm, and classification technique based on the concept biclustering was used to study about the process of fermentation to predict problematic wine fermentation.
- This methods are different from technique where classify of differ kinds of wine is performed.

3. DETECTION OF DISEASES FROM SOUNDS ISSUED BY ANIMALS

- The detection of diseases in farm can positively effect the productivity of the farm by diminishing the contamination to other animals, the quick detection of the diseases can allow the farmer to treat and isolate the animal which has diseases Sounds from pig ,like coughs can be analyze for detect the disease .
- A computational system was in under development which is able to monitor sounds from pig by using a microphone installed in the farm and this is able to discriminate among the different sounds that can be detected.

4. SORTING OF APPLES BY WATERCORES

- Going to market for buying apple ,apples are checked and the defect showing apples are remove.There are some invisble defects that spoil the apple flavour and look .
- Example of invisible defect is an internal apple disorder that will affect the longevity of the fruit called watercore. Apple with less or mild watercore are sweeter but apples with moderate to severe degree of watercore cannot be store for any long time , few fruits with severe watercore could spoil a whole batch of apples.
- So for this reason, computational system was making which takes x-rays photogrphs of the frit while they run onconveyor belts, and it is able to analyz the taken photo and estimate the probability that the fruit contain watercores.

VII. THE SCOPE OF DATA MINING

The name data mining was derived from the parallel between searching for the valuable business knowledge in a large database. Questions that traditionally enforced extensive hands-on investigation not able to be response directly from the data immediately. A typical instance of a forecast problem is focus marketing. Data mining use the data on past general mailings to identifies the target most like as not to make best use of return on funding in finality mailings.

VIII. ARTIFICIAL NEURAL NETWORK

Non-linear prognosticate prototype that learn via training and resembles the biological neural networks in structure .Artificial Neural Networks (ANN) networks during which each node represents corporal cell and each link represents the method two corporal cell act. Every corporal cell performs straightforward tasks, where the network representing the work of all its neurons is ready to perform the additional complex tasks. A neural network is associate attached set of input or output units everywhere in association includes a weight related to its .The process of categorization by ANN may be broadly speaking outlined as ensue: • Run a illustration from the coaching set, by giving its aspect values as input. • Contrast output with the expected output from coaching set. • If the output doesn't match, return layers and modify the area unit weight and biases of node.

IX. NEAREST NEIGHBOUR METHOD

A technique that classify every data in a dataset based on a association of the classes of the k record(s) analogous to it in a anterior dataset. It is called the nearest Neighbour technique.

X. DEFINITION OF THE TERM DATA MINING AND KNOWLEDGE DISCOVERY

Data mining in marketing was (Foss and Stone, 2001) extraction of formerly unknown, it is easy to understand and adequate details from large data storage and their use for key business to support them are carried out, formulating advisable and strategic marketing actions and measuring their success.

XI. CONCLUSION

In this paper some valid data mining techniques rested embrace in order to estimate crop yield evaluation with existing data. The application that use by the K-Means approach, use only the basic algorithm, while many more improvements are available. Methods for data mining are under research. Agriculture is the valuable application area especially in the evolving countries like India. Use of information technology in agriculture can hook the scenario of managerial and farmers can yield in better way. Agricultural organizations and their management try day to day to find details in large databases for business decision construction.

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