



INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATIONS AND ROBOTICS

ISSN 2320-7345

APPLICATION OF DATA MINING IN AGRICULTURE

K.Bharatha Krishnan ¹, S.S.Suganya MCA., M.PHIL, ²

¹II M.Sc Computer Science, Dr..SNS Rajalakshmi College of Arts & Science, Coimbatore.

²Asst.Professor Department of Computer Science, Dr.SNS Rajalakshmi College of Arts & Science, Coimbatore.

Abstract: - Data Mining is an emergent research field in Agriculture crop harvest analysis. In this paper our focus is on the applications of Data Mining techniques in agricultural field. Data mining is used to get the needed information from large database. Now a day's data mining concept and techniques used to resolve the agriculture problems. We discussed about how data mining techniques are applied in agriculture field. Today, agricultural organizations work with large amounts of data. Process and retrieval of significant data in this amplexness of agricultural information is fundamental

KEY WORDS: Data mining, agriculture, K-Nearest Neighbor, Artificial Neural Networks, support vector Machines.

INTRODUCTION

Data mining the process of extracting useful and important of information from large sets of data. Data mining in agriculture field is a relatively novel research field. Yield prediction is a very important agricultural problem. Any farmer is interested in how much yield is about to expect. Spatial Data Mining is the discovery of interesting patterns from large geospatial databases. Data mining in agriculture field is a relatively novel research field. Now a daze a very few farmers are using the various methods, tools and technique of farming for good production. Data mining can be used for forecasting the future values of agricultural processes.

ESSENCE OF APPROACH

Basic Facts:

Data mining has interest a great attention in the information industry and society as a unit in recent years, due to large availability of giant amount of data. the imminent need for turning such data into useful information and knowledge. The information and knowledge gained can be used for application of arrangement from market analysis, fake detection, to production control, disaster management and science exploration. Data processing may be held as a result of the natural evolution of data technology. The information system trade has supported organic process path within the development of varied functional

DATA MINING TECHNIQUES

Data mining techniques are mainly divided in two groups, classification and clustering techniques. Another classification technique, K- Nearest Neighbour, does not have any learning phase, because it uses the training set every time a classification must be performed. Data mining techniques are mainly divided in two groups, classification and clustering techniques [8]. Classification techniques are designed for classifying unknown samples using information provided by a set of classified samples.

APPLICATIONS

There are several applications of Data Mining techniques in the field of agriculture. The K Nearest Neighbour (KNN) is applied for simulating daily precipitations and other weather variables [15], and different possible changes of the weather scenarios are analyzed using SVMs [16]. Data mining techniques are applied to study sound recognition problems. For instance, Fagerlund S [17] uses SVMs to classify the sound of birds and other different sounds. There are two major kinds of predictions: one will either try and predict some inaccessible information values or unfinished trends, or predict a category label for a few information. The latter is tied to classification. Once a classification model is constructed supported a coaching set, the category label of associate object may be predicted supported the attribute values of the article and therefore the attribute values of the categories [15]. Prediction is but additional typically remarked the forecast of missing numerical values, or increase/ decrease trends in time connected information. The foremost plan is to use an outsized range of past values to think about probable future values.

DATA MINING METHODS

Data mining represents, as stated, extraction of hidden information about estimation from large files. This is a new technology with great potential to assist companies focusing on the most important information in their large data. Tools for data mining predict future trends and behaviors, enabling business to make active decisions, based on knowledge.

CLASSIFICATION

Classification is that the method of finding a model that describes and distinguishes information categories or ideas for the aim of having the ability to use the model to predict category.

APPLICATION OF DATA MINING IN AGRICULTURE

Modern age has brought significant changes and information technologies in different areas of human activities have found wide application thus also in agriculture. Development and introduction of new information technologies which enable global networking, give agriculture the label of 'IT agriculture'. Information technologies increasingly provide assistance in systematic approach to solving agricultural problems. Access to the right information enables preparation of accurate reports, for example about using protective equipment, number of work hours of the machine on a specific crop, or a number of hired season work force. At the same time it is easier to keep track of work and verify exchange of information. Agriculture is plentiful with diverse information which conditions the necessity to use the data mining.

CLUSTERING:

The sentence of frequent item sets is done by Cluster Analysis. Clustering is the process of grouping the data into classes or clusters so that objects within a cluster have high similarity in comparison to one another, but very dissimilar to objects in other clusters. Dissimilarities are assessed based on the attribute values describing the objects one such clustering method is partitioning method, in which it creates an initial set of k partitions, where parameter k is the number of partitions to construct; then it uses an iterative relocation technique that attempts to improve the partitioning by moving objects from one group to another. It is the most well-known commonly used centric based technique that takes the input parameter, k , and partitions a set of n objects into k clusters so that the resulting intracluster similarity is but intercluster similarity is low. Clustering similarity is measured in view to the mean value of the objects in cluster. This can be viewed cluster's centroid or center of gravity. Clustering analyses information objects while not consulting a notable category label. The unattended learning technique of bunch may be a helpful methodology for ascertaining trends and patterns in information, once there aren't any pre-defined categories

DATA MINING IN AGRICULTURE

Data mining in agriculture is a very current research proposition. It consists in the application of data mining techniques to agriculture. Current technologies are nowadays able to provide a lot of information on agricultural-related activities, which can then be an examined in order to find important data. Related, but not equivalent term is precision agriculture. Naive Bayes Data Mining Technique issued to classify soils that analyse large soil profile experimental datasets. Decision tree algorithm in data mining is used for predicting soil fertility. By using clustering techniques (Based on Partitioning Algorithms and Hierarchical algorithms) writer inspect the current usage and details of agriculture land disappeared in the past seven years.

THE SCOPE OF DATA MINING

Data mining derives its name from the parallel between searching for valuable business information in a large database. Questions that traditionally required extensive hands-on investigation cannot be answered directly from the data quickly. A typical example of a predictive problem is focus marketing. Data mining uses data on past public mailings to identify the targets most like as not to make best use of return on funding in future mailings.

ARTIFICIAL NEURAL NETWORKS:

Non-linear predictive prototype that learns via training and resembles biological neural networks in structure. Artificial Neural Networks (ANN) networks during which every node represents somatic cell and every link represents the method 2 somatic cell act. Every somatic cell performs straightforward tasks, whereas the network representing of the work of all its neurons is ready to perform the additional complicated tasks [3]. A neural network is associate interconnected set of input/output units wherever every association includes a weight related to its [2]. The process of classification by ANN may be broadly speaking outlined as follows:

- Run a sample from the coaching set, by giving its attribute values as input.
- Compare output with the expected output from coaching set.
- If output doesn't match, return layer to layer and modify area unit weights and biases of nodes.
- Run consecutive sample and method a similar.

NEAREST NEIGHBOUR METHOD:

A technique that classifies each data in a dataset based on a combination of the classes of the k record(s) most similar to it in a former dataset. Sometimes called the nearest Neighbour technique.

DEFINITION OF THE TERM DATA MINING AND KNOWLEDGE DISCOVERY

Simple definition of data mining in marketing is (Foss and Stone, 2001): extraction of previously unknown, understandable and adequate information from large data storages and their use for key business decisions in order to support them are carried out, formulating tactical and strategic marketing initiatives and measuring their success.

RESULT ANALYSIS

Multiple Linear Regression (MLR) is method used to represent the linear relationship between a dependent variable and one or more independent variable(s). The dependent variable is sometimes termed as predict ant i.e. Rainfall. By this one can conclude that the years belong to the clusters have witnessed abnormal climatic conditions. In spite of the regions which are being affected the production is almost double to that of the Area of Sowing in this region. These phenomena may not be similar to all the districts. It depends on the region which is being affected by the natural calamity.

CONCLUSIONS

In this paper certain data mining techniques rested adopted in order to estimate crop yield analysis with existing data. The applications that use the K-Means approach, utilize only the basic algorithm, while many other improvements are available. Association rule mining from spatial data mining is a topic of much importance and many applications. Methods of data mining are under research. In this paper certain Data Mining techniques rested adopted in order to estimate crop yield analysis with existing data. Agriculture is the most important application area particularly in the evolving countries like India. Use of information technology in agriculture can hang the scenario of decision-making and farmers can yield in better way. Agricultural organizations and their management try every day to find information (knowledge) in large databases for business decision construction.

REFERENCES

- [1] D Ramesh¹, B Vishnu Vardhan² Associate Professor of CSE, JNTUH College of Engineering , Karimnagar Dist., Andhra Pradesh, India¹ Professor of CSE, JNTUH College of Engineering, Karimnagar Dist., Andhra Pradesh, India²
- [2] D.Rajesh AP-SITE, VIT University, Vellore-14
- [3] D Ramesh , B Vishnu Vardhan Associate Professor of CSE, JNTUH College of Engineering , Karimnagar Dist., Andhra Pradesh, India¹ Professor of CSE, JNTUH College of Engineering, Karimnagar Dist., Andhra Pradesh, India
- [4] N.Neelaveni M.Phil Research Scholar, Department of computer Science Sree Saraswathi Thyagaraja College, Pollachi, TN, India.
- [5] Mr.Omkar B.Bhaleareo, Computer science and engineering department Walchand institute of technology, solapur India.