A Look at What the Next Big Things Will Be in Data Mining

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ABSTRACT

It is one of the most popular ways to get data from different sources and put it in order in data mining. When data mining is put into practice, it comes with a lot of problems. Multifaceted algorithms can be used to find different patterns and trends, spot changes, and guess how likely it is that different things will happen. It depends on where the data comes from, but in data mining, the information can be shown in both physical and digital forms.Datamining is the process of automatically finding patterns and trends in big amounts of data. Smart Data Discovery is the next step in this process.This paper gives more examples of how data mining can be used and also talks about trends in data mining that will help with future study.

Keywords: Data mining, what the future holds for data mining, and how it can be used.

INTRODUCTION

Data mining is the process of looking for hidden patterns in large amounts of data that can be categorized into useful facts from different points of view. This data is stored in common areas, like data warehouses, so that it can be analyzed in a way that makes business decisions easier and meets other information needs that will ultimately lower costs and raise costs. It's also called Knowledge Discovery and Data Discovery.

The keyphases involved in a data mining process are:

- Citation, transform and load data into a data warehouse
- Supply and accomplish data in a multidimensional databases
- To Provide data access to business specialists using application software
- Existing analyzed data in easily reasonable forms, such as graphs

The most important part of data mining is getting data that is useful for business. There are three types of business data: financial, non-operational, and information. Patterns and links between data elements give organizations useful knowledge that could lead to more sales. Data mining gives governments that care a lot about customers a clear picture of the goods they sell, their prices, the competition, and the types of people who buy them.

The next step in data mining is to choose a method that will help you make a data mining model. Finding patterns in a set of data is what the algorithm does in general, and the results are used to define constraints. Classification algorithms and regression algorithms are the most popular types of algorithms used in data mining. They find connections between pieces of data.

The Data Mining Process

Figure 1-1demonstrates the stages, and the iterative nature, of a data mining project. The progression flow shows that a data mining

development does not stop when a certain solution is positioned. The outcomes of data mining generate new commercial questions, which in turn can be used to develop more focused models.
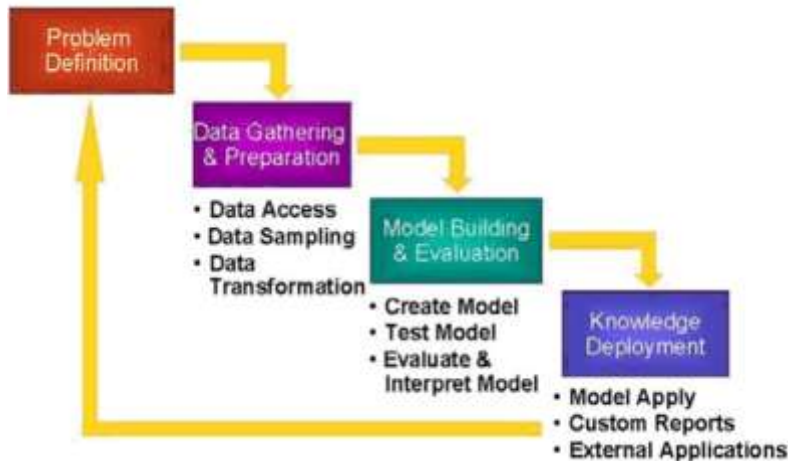
Figure 1.1 The Data Mining Process

Problem Definition

This initial stage of a data mining developmentemphases on accepting the project purposes and necessities. When you have specified the project from a professional perspective, you can express it as a data mining problem and progressaninitial implementation plan.

Data Gathering and Preparation

The data gatheringstage involves data collection and exploration. You might decide to eliminate some of the data or add additional data. This is also the time to classify data importance problems and to test for patterns in the data. Data preparation tasks are likely to be performed multiple times, and not in any arranged order. These tasks include table, case, and attribute selection as well as data cleansing and transformation. Considerate data preparation can ominously improve the information that can be discovered through data mining.

Model Building and Evaluation

In this stage, you select and apply various demonstrating techniques and standardize the parameters to optimal values. If the algorithm requires data transformations, you will need to step back to the earlierstage to implement them. In primary model building, it often makes sense to work with a reduced set of data, since the final entry table might contain

thousands or millions of cases.

Knowledge Deployment

Knowledge deployment is the use of data mining within a target situation. In the deployment stage, vision and actionable information can be derived from data.It includescombination of data mining models within presentations or counting the abstraction of model details, data warehouse infrastructure, or query and reporting tools.

FUTURE TRENDS IN DATA MINING

Some of the important data mining trends for the upcoming include –

1.Multimedia Data Mining

This is one of the moderntechniques which is gathering up because of the increasing ability to capture useful data exactly. It includes the mining of data from diverse kinds of multimedia bases such as audio, text, hypertext, video, images, etc. and the data is transformed into anarithmetical representation in diverse formats. This technique can be used in grouping and arrangements, executioncomparison checks, and also to recognize associations.

2.Ubiquitous Data Mining

This techniqueincludes the mining of data from mobile devices to get facts about individuals. In spite of takingsometests in

this type such as complexity, privacy, cost, etc. This technique has a lot of chances to be vast in various businessesspecifically in learning human-computer interactions.

3.Distributed Data Mining

This type of data mining is fastattractiveness as it contains the mining of vast amount of information stored in diverse company places or at diversesocieties. Extremelyrefined algorithms are used to extract data from diverseplaces and provide proper visions and intelligence based upon them.

4.Spatial and Geographic Data Mining

This is different trending type of data mining which comprisesmining information from ecological, astronomical, and geographical data which also comprises images taken from external space. This kind of data mining can exposeseveralfeatures such as distance and topology which is largely used in geographical information systems and other navigation applications.

5.Time Series and Sequence Data Mining

The mainpresentation of this kind of data mining is learning of repeated and periodic trends. This practice is also supportive in studying even arbitrary events which occur outward the normal series of events. This technique is mainly being use by

marketing companies to access buyer's buying configurations and their actions.

DATA MINING APPLICATIONS

Future Healthcare

Data mining grips great possible to advance health systems. It practices data and analytics to recognize best observes that progress care and decrease costs. Investigators use data mining methods like multi-dimensional databases, machine learning, soft computing, data visualization and statistics. Mining can be used to expect the capacity of patients in every class. Procedures are advanced that make sure that the patients havesuitable care at the exact place and at the exact time. Data mining can also help healthcare insurers to perceive fraud and misuse.

Education

There is a new evolving field, called Educational Data Mining, anxieties with evolvingapproaches that learn knowledge from data originating from learning Environments. The goals of EDM are identified as predicting students' future learning performance, learning the effects of educational maintenance, and progressinglogical knowledge about education. Data mining can be used by an institute to take exactconclusions and also to

predict the outcomes of the student. With the results the institute can concentration on what to impart and how to teach. Learning pattern of the students can be captured and used to progressmethods to teach them.

Manufacturing Engineering

Knowledge is the best strengthanindustrial enterprise would hold. Data mining tools can be very beneficial to determine patterns in multifariousengineering process. Data mining can be used in system-level scheming to extract the associations between product architecture, product selection, and buyer needs data. It can also be used to forecast the product development span time, cost, and dependencies among other tasks.

Fraud Detection

Billions of dollars have been gone to the action of frauds. Old methods of fraud finding are time consuming and complex. Data mining supports in providing expressive patterns and revolving data into facts. Any information that is legal and useful is knowledge. A perfect fraud detection system wouldguard information of all the users. A supervised method containsgathering of sample records. These records are categorized fraudulent or non-fraudulent. A model is constructed using this data and the

process is made to categorize whether the record is fraudulent or not.

Customer Segmentation

Traditional marketplaceinvestigation may help us to fragment customers but data mining goes in deep and growth of marketefficiency. Data mining aids in bring into line the customers into a separate segment and can modify the desires according to the consumers. Market is always about holding the customers. Data mining permits to find a segment of customers based on susceptibility and the commercial could offer them with distinctproposals and improvefulfillment.

Financial Banking

With electronic banking universallymassivevolume of data is hypothetical to be generated with new dealings. Data mining can pay to explaining business difficulties in banking and funding by finding patterns, connections, and associations in business information and market prices that are not directly apparent to managers because the volume data is also large or is made too quickly to screen by specialists. The managers may find these information for better segmenting, targeting, acquiring, retaining and preserving a profitable customer.

Research Analysis

The past shows that we have perceivedradical changes in investigation. Data mining is supportive in data cleaning, data pre-processing and assimilation of databases. The investigators can find any analogous data from the database that might bring any modification in the investigation. Identification of any co-occurring classifications and the correlation between any activities can be known. Data visualization and visual data mining deliver us with a rich view of the data.

Criminal Investigation

Criminology is a way of trying to figure out how crimes happen. In reality, crime analysis involves looking into and finding crimes and the people who commit them. Given the large number of crime records and the trouble in making connections between them, criminology is a good area for using data mining methods. Crime records that are written in text can be turned into word processing files. The crime matching process can be done with these details.

Conclusions

In this study, I took a quick look at the different trends and uses of data mining from the beginning to the present.This review focuses on the interesting and skilled parts of data mining. There aren't many names in this paper, but the ones that are there are among the most forgotten. This paper gives a researcher's new point of view on how data mining can be used in social well-being.

Applied GIS

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