

Data Mining - Systems

Introduction

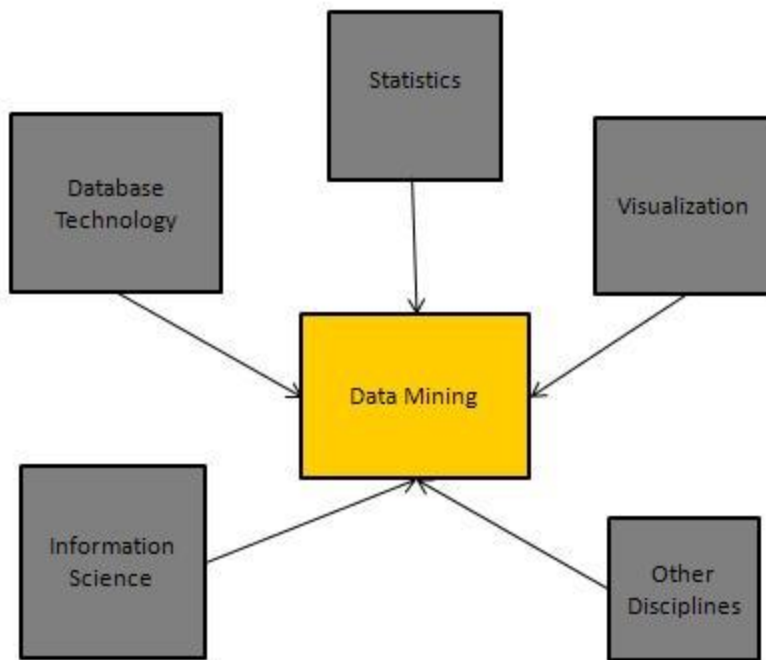
There is a large variety of Data Mining Systems available. Data mining System may integrate techniques from the following:

- Spatial Data Analysis
- Information Retrieval
- Pattern Recognition
- Image Analysis
- Signal Processing
- Computer Graphics
- Web Technology
- Business
- Bioinformatics

Data Mining System Classification

The data mining system can be classified according to the following criteria:

- Database Technology
- Statistics
- Machine Learning
- Information Science
- Visualization
- Other Disciplines



Some Other Classification Criteria:

- Classification according to kind of databases mined
- Classification according to kind of knowledge mined
- Classification according to kinds of techniques utilized
- Classification according to applications adapted

CLASSIFICATION ACCORDING TO KIND OF DATABASES MINED

We can classify the data mining system according to kind of databases mined. Database system can be classified according to different criteria such as data models, types of data etc. And the data mining system can be classified accordingly. For example if we classify the database according to data model then we may have a relational, transactional, object- relational, or data warehouse mining system.

CLASSIFICATION ACCORDING TO KIND OF KNOWLEDGE MINED

We can classify the data mining system according to kind of knowledge mined. It is means data mining system are classified on the basis of functionalities such as:

- Characterization
- Discrimination
- Association and Correlation Analysis

- Classification
- Prediction
- Clustering
- Outlier Analysis
- Evolution Analysis

CLASSIFICATION ACCORDING TO KINDS OF TECHNIQUES UTILIZED

We can classify the data mining system according to kind of techniques used. We can describe these techniques according to degree of user interaction involved or the methods of analysis employed.

CLASSIFICATION ACCORDING TO APPLICATIONS ADAPTED

We can classify the data mining system according to application adapted. These applications are as follows:

- Finance
- Telecommunications
- DNA
- Stock Markets
- E-mail

Integrating Data Mining System with a Database or Data Warehouse System

The data mining system needs to be integrated with database or the data warehouse system. If the data mining system is not integrated with any database or data warehouse system then there will be no system to communicate with. This scheme is known as non-coupling scheme. In this scheme the main focus is put on data mining design and for developing efficient and effective algorithms for mining the available data sets.

Here is the list of Integration Schemes:

- **No Coupling** - In this scheme the Data Mining system does not utilize any of the database or data warehouse functions. It then fetches the data from a particular source and process that data using some data mining algorithms. The data mining result is stored in other file.
- **Loose Coupling** - In this scheme the data mining system may use some of the functions of database and data warehouse system. It then fetches the data from data repository managed by these systems and perform data mining on that data. It then stores the mining result either in a file or in a designated place in a database or data warehouse.
- **Semi-tight Coupling** - In this scheme the data mining system is along with the making the efficient implementation of data mining primitives can be provided in database or data warehouse systems.
- **Tight coupling** - In this coupling scheme data mining system is smoothly integrated into database or data warehouse system. The data mining subsystem is treated as one functional component of an information system.

Source:

http://www.tutorialspoint.com/data_mining/dm_systems.htm