

#### 1. Classification:

This analysis is used to retrieve important and relevant information about data, and metadata. This data mining method helps to classify data in different classes.

#### 2. Clustering:

Clustering analysis is a data mining technique to identify data that are like each other. This process helps to understand the differences and similarities between the data.

#### 3. Regression:

Regression analysis is the data mining method of identifying and analyzing the relationship between variables. It is used to identify the likelihood of a specific variable, given the presence of other variables.

#### 4. Association Rules:

This data mining technique helps to find the association between two or more items. It discovers a hidden pattern in the data set.

#### 5. Outlier detection:

This type of data mining technique refers to observation of data items in the dataset which do not match an expected pattern or expected behavior. This technique can be used in a variety of domains, such as intrusion, detection, fraud or fault detection, etc. Outlier detection is also called Outlier Analysis or Outlier mining.

#### 6. Sequential Patterns:

This data mining technique helps to discover or identify similar patterns or trends in transaction data for certain period.

## 7. Prediction:

Prediction has used a combination of the other data mining techniques like trends, sequential patterns, clustering, classification, etc. It analyzes past events or instances in a right sequence for predicting a future event.

### Challenges of Implementation of Data mine:

Skilled Experts are needed to formulate the data mining queries.

Overfitting: Due to small size training database, a model may not fit future states.

Data mining needs large databases which sometimes are difficult to manage

Business practices may need to be modified to determine to use the information uncovered.

If the data set is not diverse, data mining results may not be accurate.

Integration information needed from heterogeneous databases and global information systems could be complex

### Data mining Examples:

#### Example 1:

Consider a marketing head of telecom service provides who wants to increase revenues of long distance services. For high ROI on his sales and marketing efforts customer profiling is important. He has a vast data pool of customer information like age, gender, income, credit history, etc. But its impossible to determine characteristics of people who prefer long distance calls with manual analysis. Using data mining techniques, he may uncover patterns between high long distance call users and their characteristics.

For example, he might learn that his best customers are married females between the age of 45 and 54 who make more than \$80,000 per year. Marketing efforts can be targeted to such demographic.

#### Example 2:

A bank wants to search new ways to increase revenues from its credit card operations. They want to

check whether usage would double if fees were halved.

Bank has multiple years of record on average credit card balances, payment amounts, credit limit usage, and other key parameters. They create a model to check the impact of the proposed new business policy. The data results show that cutting fees in half for a targetted customer base could increase revenues by \$10 million.