



**VIDYABHARTI TRUST COLLEGE OF  
BUSINESS, COMPUTER-SCIENCE AND RESEARCH**  
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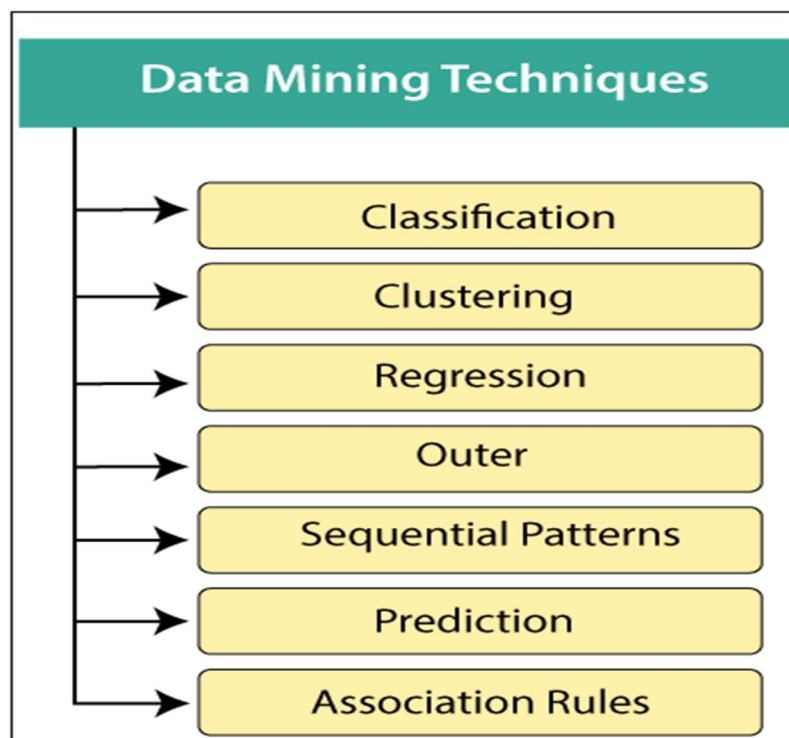
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## DATA MINING TECHNIQUES

Data mining includes the utilization of refined data analysis tools to find previously unknown, valid patterns and relationships in huge data sets. These tools can incorporate statistical models, machine learning techniques, and mathematical algorithms, such as neural networks or decision trees. Thus, data mining incorporates analysis and prediction.

Depending on various methods and technologies from the intersection of machine learning, database management, and statistics, professionals in data mining have devoted their careers to better understanding how to process and make conclusions from the huge amount of data, but what are the methods they use to make it happen?

In recent data mining projects, various major data mining techniques have been developed and used, including association, classification, clustering, prediction, sequential patterns, and regression.



## 1. Classification:

This technique is used to obtain important and relevant information about data and metadata. This data mining technique helps to classify data in different classes.

Data mining techniques can be classified by different criteria, as follows:

i. **Classification of Data mining frameworks as per the type of data sources mined:**

This classification is as per the type of data handled. For example, multimedia, spatial data, text data, time-series data, World Wide Web, and so on..

ii. **Classification of data mining frameworks as per the database involved:**

This classification based on the data model involved. For example. Object-oriented database, transactional database, relational database, and so on..

iii. **Classification of data mining frameworks as per the kind of knowledge discovered:**

This classification depends on the types of knowledge discovered or data mining functionalities. For example, discrimination, classification, clustering, characterization, etc. some frameworks tend to be extensive frameworks offering a few data mining functionalities together..

iv. **Classification of data mining frameworks according to data mining techniques used:**

This classification is as per the data analysis approach utilized, such as neural networks, machine learning, genetic algorithms, visualization, statistics, data warehouse-oriented or database-oriented, etc. The classification can also take into account, the level of user interaction involved in the data mining procedure, such as query-driven systems, autonomous systems, or interactive exploratory systems.

## 2. Clustering:

Clustering is a division of information into groups of connected objects. Describing the data by a few clusters mainly loses certain confine details, but

accomplishes improvement. It models data by its clusters. Data modeling puts clustering from a historical point of view rooted in statistics, mathematics, and numerical analysis. From a machine learning point of view, clusters relate to hidden patterns, the search for clusters is unsupervised learning, and the subsequent framework represents a data concept. From a practical point of view, clustering plays an extraordinary job in data mining applications. For example, scientific data exploration, text mining, information retrieval, spatial database applications, CRM, Web analysis, computational biology, medical diagnostics, and much more.

In other words, we can say that Clustering analysis is a data mining technique to identify similar data. This technique helps to recognize the differences and similarities between the data. Clustering is very similar to the classification, but it involves grouping chunks of data together based on their similarities.

### **3. Regression:**

Regression analysis is the data mining process is used to identify and analyze the relationship between variables because of the presence of the other factor. It is used to define the probability of the specific variable. Regression, primarily a form of planning and modeling. For example, we might use it to project certain costs, depending on other factors such as availability, consumer demand, and competition. Primarily it gives the exact relationship between two or more variables in the given data set.

### **4. Association Rules:**

This data mining technique helps to discover a link between two or more items. It finds a hidden pattern in the data set.

Association rules are if-then statements that support to show the probability of interactions between data items within large data sets in different types of databases. Association rule mining has several applications and is commonly used to help sales correlations in data or medical data sets.

The way the algorithm works is that you have various data, For example, a list of grocery items that you have been buying for the last six months. It calculates a percentage of items being purchased together.

These are three major measurements technique:

- **Lift:**  
This measurement technique measures the accuracy of the confidence over how often item B is purchased.  
 **$(\text{Confidence}) / (\text{item B}) / (\text{Entire dataset})$**
- **Support:**  
This measurement technique measures how often multiple items are purchased and compared it to the overall dataset.  
 **$(\text{Item A} + \text{Item B}) / (\text{Entire dataset})$**
- **Confidence:**  
This measurement technique measures how often item B is purchased when item A is purchased as well.  
 **$(\text{Item A} + \text{Item B}) / (\text{Item A})$**

## 5. Outer detection:

This type of data mining technique relates to the observation of data items in the data set, which do not match an expected pattern or expected behavior. This technique may be used in various domains like intrusion, detection, fraud detection, etc. It is also known as Outlier Analysis or Outlier mining. The outlier is a data point that diverges too much from the rest of the dataset. The majority of the real-world datasets have an outlier. Outlier detection plays a significant role in the data mining field. Outlier detection is valuable in numerous fields like network interruption identification, credit or debit card fraud detection, detecting outlying in wireless sensor network data, etc.

## 6. Sequential Patterns:

The sequential pattern is a data mining technique specialized for **evaluating sequential data** to discover sequential patterns. It comprises of finding

interesting subsequences in a set of sequences, where the stake of a sequence can be measured in terms of different criteria like length, occurrence frequency, etc.

In other words, this technique of data mining helps to discover or recognize similar patterns in transaction data over some time.

## **7. Prediction:**

Prediction used a combination of other data mining techniques such as trends, clustering, classification, etc. It analyzes past events or instances in the right sequence to predict a future event.

**CHIRAG DEVENDRABHAI MEHTA**

**ASST. PROFESSOR**

## COMPARISION BETWEEN ANGULARJS, NODEJS AND REACTJS

Angular Js	Node Js	React Js
Uses MVVC pattern	Event driven architecture	Uses Controller View pattern
Designed for single page application development	For highly concurrent server side design	Best for building scalable network applications
Open source java script framework.	Run time environment	Open source java script library.
Used for front end tasks	It's a Javascript run time	Can create view in client side and server side.

**MAKWANA AELISHA VANISHKUMAR**

**20BCA36**

## KEY AREAS OF MACHINE LEARNING

When beginning your educational path, it's important to first understand how to learn ML. We've broken the learning process into four areas of knowledge, with each area providing a foundational piece of the ML puzzle. To help you on your path, we've identified books, videos, and online courses that will uplevel your abilities, and prepare you to use ML for your projects. Start with our guided curriculums designed to increase your knowledge, or choose your own path by exploring our resource library.

- **Coding skills:** Building ML models involves much more than just knowing ML concepts—it requires coding in order to do the data management, parameter tuning, and parsing results needed to test and optimize your model.
- **Math and stats:** ML is a math heavy discipline, so if you plan to modify ML models or build new ones from scratch, familiarity with the underlying math concepts is crucial to the process.
- **ML theory:** Knowing the basics of ML theory will give you a foundation to build on, and help you troubleshoot when something goes wrong.
- **Build your own projects:** Getting hands on experience with ML is the best way to put your knowledge to the test, so don't be afraid to dive in early with a simple colab or tutorial to get some practice.

**GOSWAMI DEVGIRI GANESHGIRI**

**20BCA26**



## **TOP 05 ANDROID APP OF THE MONTH MARCH 2022**

1. Priorities
2. Elo Audio
3. Actuflow
4. Big Hunter
5. NothingButWallpapers

**MISTRY MADANBHAI GANESHBHAI**

**20BCA44**

## **TOP IOS APP OF THE MONTH MARCH 2022**

1. Pixelmator Photo
2. GoodLinks
3. EpocCam
4. BookPlayer
5. Book Track

**PATEL VRUSHANGI MEHULBHAI**

**19BCA106**



**MISTRY UNNATI BHARATBHAI**

**19BCA43**