

1. DESCRIBE IN DETAIL ABOUT RAID AND TERTIARY STORAGE:

Redundant Array of Independent Disk [RAID]

Combines multiple small, inexpensive disk drives into a array of Disk Drives which yields performance more than that of a single large Expensive Drive [SLED]. RAID Is also Called Redundant Array of Inexpensive Disks.

Storing the same data in Different disks increases the fault-tolerance.

The Array of mean Time Between Failure [MTBF] = MTBF of an Individual drive which is divided By the number of drives in the array. Because of this reason ,the MTBF of an array of drives are two low of many application requirement.

TYPES OF RAID: The Various types of RAID are explained below:

- RAID -0
- RAID -1
- RAID -2
- RAID -3
- RAID -4
- RAID -5 .

*RAID-0 :-

RAID Level-0 is not redundant , since no redundant information is stored performance is very good . But the Failure of any disks in the array results in data loss . A single Record is divided into strips typically 512 Bytes and is stored across all disks . The record can be accessed quickly By reading all disks at the same time Called as Striping .

*RAID-1 :-

RAID Level-1 provides redundancy by writing all Data into two or more drives . The performance is faster on Reads and slower on writes Compared to a single drive . If anyone drives fails , no data is lost . This method is Called Mirroring .

*RAID-2 :

RAID Level-2 is used For hammering error correction Codes and is used with drives which do not have Built-in error Detection .

* RAID-3 :

Raid Level-3 stripes data at a Byte-level across Several drives , which parity stored on one drive . Byte-level striping hardware supports efficient Use .

* RAID-4 :

Level-4 that stripes the data at a Block level across several drives , with parity stored on one drive . Parity Information allows recovery from the failure of any single drive . The performance of the level-4 array is good for reads .

Writes, however , require that parity data be updated each time . Because only one drive in the array stores redundant data . The cost per megabytes is low .

* RAID-5 - RAID Level-5 is similiar to level-4 . But Distributes Parity among the drives . This Can speed Writes in the Multiprocessing system . The performance For read is lower than a level-4 . The cost per megabytes is the same as level-4 .

Given below is the Summary of all types of RAID :

LEVELS	SUMMARY.
RAID - 0	It is the Fastest and most efficient array type BUT offers no Fault Tolerance
RAID - 1	It is array of choice for a critical Fault tolerance environment
RAID - 2	It is used today ECC is embedded in almost all modern disks
RAID - 3	It is used in single environment which access long sequential record to speed up data transfer
RAID - 4	It offers no advantages over RAID-5 and does not support multiple simultaneous write operation.
RAID - 5	It is Best choice in multi-user environment. However, at least three Drive Required of

• Tertiary storage:

It is the storage type that is external from the computer system. It has slowest speed. But is capable of storing a large amount of data. It is also known as OFFline storage. Tertiary storage is generally used for data backup. There are following storage devices available.

* Optical storage :

An optical storage can store megabytes or giga bytes of data. A Compact Disk (CD) can store 700 megabytes of data with playtime of around 80 min. On the other hand, Digital Video disk or DVD can store 4.7 or 8.5 gigabytes of data on each side of the disk.

* TAPE STORAGE :

It is the cheapest storage medium than disks. Generally the tapes used for archiving or backlog up the data. It provides slow access to data as it access data sequentially from the start. Thus tape storage is also known as Sequential-access storage.

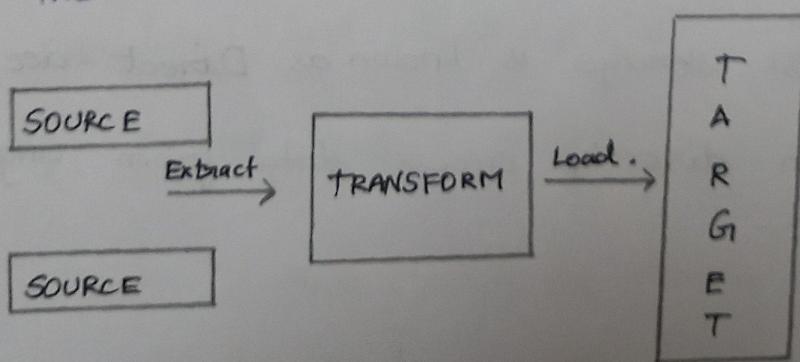
Disk storage is known as Direct-access storage as we can directly access data from any location on the disk.

2. Write a Detail note of DATA WAREHOUSING and MINING;

DATA WAREHOUSING:

DATA Warehouse refers to the process of Compiling and organizing into one common database. A Data Warehousing is Created to Support management system.

A DATA WAREHOUSE Refer to place where data can be stored for useful mining. It is like a quick computer system with exceptionally huge data storage capacity. Data from the Various organisation system are copied to the warehouse, where it can be Fetched and Conformed to Delete errors. Here advanced request can be made against the warehouse storage of Data.



Data warehouse and database both are relative system , But both are made to serve different purpose . A data Warehouse is built to store a huge amount of historical data and empower fast request over all the Data, Typically using Online Analytical Processing (OLAP) . A Database is made to store Current Transaction and allow quick access to specific Transaction for ongoing Business processes . Commonly known as Online Transaction processing (OTP) .

The Important Features of Data Warehousing .

1. Subject oriented :

A data Warehouse is subject oriented . It provides useful data about a subject instead of the Company ongoing operation and these subject can be customer , supplier , marketing , product , promotion . etc .

A data Warehouse usually focuses on modelling and analysis of Data that helps the business organisation to make sure to Data driven Decision.

2. Time Variant :

The different data present in the data warehouse provides information for a specific period.

3. Integrated :

A Data Warehouse is built by joining data from heterogeneous sources, such as social database level document.

4. Non - Volatile :

It means once data entered into the warehouse cannot be changed.

ADVANTAGES OF DATA WAREHOUSE :

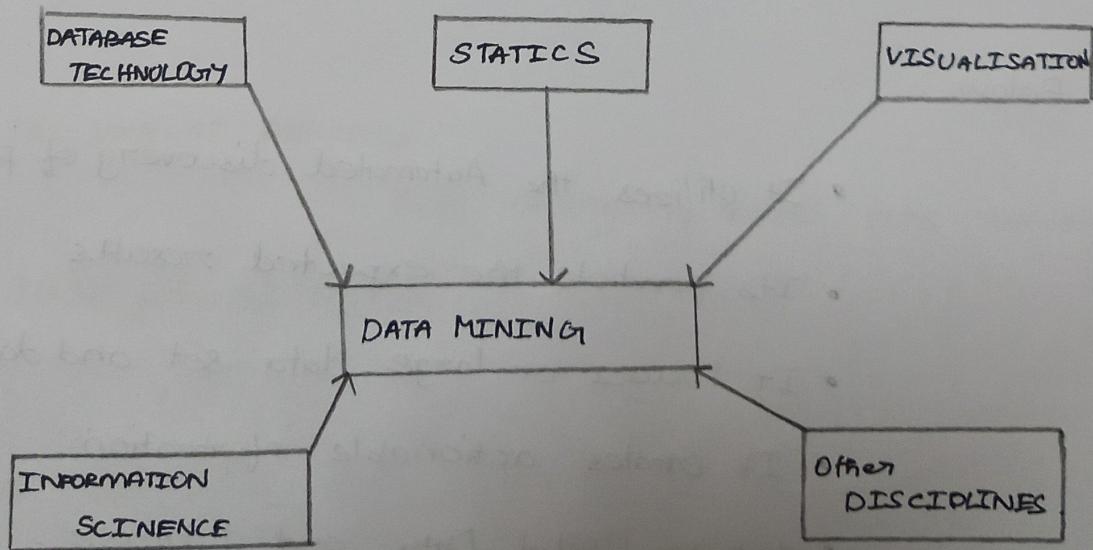
- More accurate Data access
- Improved productivity and performance
- Cost-efficient
- Consistent and quality Data.

DATA MINING :

Data mining refers to the analysis of Data .

It is the computer - supported process of analysing huge set of Data. that have either been compiled By Computer system or have Been Download into the computer . In the data mining process , the Computer analyzes the data extract useful information From it.

It looks hidden pattern within the data set and Try to predict Future behaviour . Data mining is primarily Used to discover and indicate relationship among the data sets .



Data mining aims to enable business organisation to view business behaviours, trends relationship that allow the business to make Data-Driven decisions. It also known as Knowledge Discover in Database (KDD). Data mining tools utilize , AI , statistics , database and machine learning languages to Discover the relationship between the data. Data mining tools can support Business -related question that Traditionally time-consuming to resolve any issue .

Important Features of DATA MINING :

The Important Features of DATA MINING
are given Below :

- It utilizes the Automated discovery of pattern
- It predicts the expected results
- It Focuses on large data set and database
- It creates actionable information .
- Extract Useful Data and database .

ADVANTAGES OF DATA MINING:

i.) MARKET ANALYSIS :

DATA MINING Can predict the market that helps the business to make the decision. For example, it Predicts who is keen to purchase what type of products.

ii.) FRAUD DETECTION :

Data mining methods can help which Cellular Phone Calls, insurance claim, credit or debit card purchase are going to be Fraudulent.

iii.) FINANCIAL MARKET ANALYSIS :

Data mining techniques are widely used to help Model financial method.

iv.) TREND ANALYSIS :

Analysis the Current existing trend in the marketplace is a strategic Benefit Because it helps in cost reduction and manufacturing process as per market demand.

* Difference between Data mining & DATA WAREHOUSING.

DATA MINING .	DATA WAREHOUSING .
Business enterprises carry data mining with help of engineers DATA MINING uses pattern recognition techniques to identify pattern	DATA WAREHOUSING Is entirely carried out By the engineers Data Warehousing is the process of extracting and storing data allows Reporting
Companies can benefit from this analytical tool By equipping suitable and accessible knowledge - Based data data mining techniques are cost efficient as Compared to other Data Application .	DATA WAREHOUSE stores a huge amount of historical data that helps users to analyse different Periods . The Responsibility of the data Warehouse is to Simplify type of DATA
In DATA Mining, data is analysed repeatedly .	In, data Warehousing data is stored periodically .