**VAISHALI BOKADIYA**

**DAY 2 ASSESSMENT**

**DATA WAREHOUSING AND SQL**

**DATA WAREHOUSE:**

Subject oriented, integrated, time variant, non-volatile collection of data that supports management decision making by presenting a coherent picture of business conditions at a single point of time.

**FEATURES OF DATA WAREHOUSE:**

* Subject oriented: Data is organized according to the subject. It is mainly focused on modelling and analysis of data.
* Integrated: It integrates data from various heterogeneous sources (formats) and maintains consistency among different sources.
* Time variant: Provides historical information of a longer period of time, example: past 8-10 years.
* Non Volatile: Data in the warehouse can neither be updated nor deleted.

**ONLINE TRANSACTION PROCESSING (OLTP):**

OLTPrefers to a class of systems that facilitate and manage transaction oriented applications, typically for data entry and retrieval transaction processing.

**BENEFITS OF OLTP:**

* Simplicity: OLTP systems make things simpler.
* Efficiency: OLTP systems provides accurate data.
* Data integrity: OLTP systems maintain data integrity
* Fast query processing: OLTP systems provide fast query processing in multiple access environment.

**PITFALLS OF OLTP:**

* Resultant data is not suitable for data analysis.
* OLTP requires instant update.
* For single transaction, we need to query multiple tables by using joins.

**ONLINE ANALYTICAL PROCESSING (OLAP):**

OLAP is software for performing multidimensional analysis which includes relational reporting and data mining.

An OLAP CUBE is a multi-dimensional array of data which enables users to analyse data in fast, and easy to use manner.

OLAP data is typically stored in a Star Schema***,*** which is a combination of dimensions and fact tables.

OLAP servers receive data from the data warehouse, then transform it into user understandable format and supply it for analytical use.

OLAP Server are of two types:

* ROLAP (Relational OLAP): performs dynamic multi-dimensional analysis of data stored in a relational databaserather than in a multi-dimensional database
* MOLAP (Multi-dimensional OLAP): It provides multi-dimensional analysis of data. It enables user to access the information by slicing and dicing.Itputs data in a cube structure.

**RDBMS:**

A Database Management System in which data is stored in tables, fields and records is known as a Relational Database Management System. Some examples of RDBMS are MySQL, SQL server, Oracle, Teradata etc.

**MYSQL:**

MySQL is an open-source relational database management system. It is a widely used RDBMS.

**FEATURES OF MYSQL:**

* It is open source.
* It is ideal for both small and large applications.
* It is portable.
* It is fast.
* It is reliable.
* It is scalable.
* It is easy to use.

**MAJOR COMPONENTS OF SQL:**

* Data Definition Language (DDL):
  + It enables user to design and define the structure of the database.
  + It includes commands like CREATE, DROP, ALTER, RENAME etc.
* Data Manipulation Language (DML):
  + It enables user to update, delete and retrieve data from the database.
  + It includes commands like SELECT, INSERT, UPDATE, DELETE etc.
* Data Control Language (DCL):
  + It enables user to control the security of the database.
  + It includes commands like GRANT and REVOKE