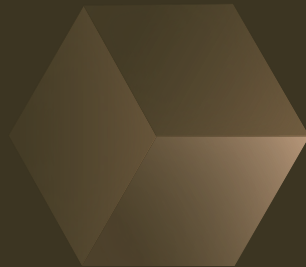


Basics of Database



Overview

- What is a database?
- Purpose of database?
- Types of Database
- Things you can do with RDBMS
- Data Models
- Basic terminologies



What is a database?

Database is a collection of organized data, information and records.

It contains the information about one enterprise. It maintains any information that may be necessary to the decision-making process involved in the management of that organization.

Advantages of DBMS


- The advantages provided by a DBMS are:
 - Reduced redundancy
 - Controlled data inconsistency
 - Shared data
 - Standardized data
 - Secured data
 - Integrated data





Purpose of Database

Database is information that a person needs in his personal, business, social life. The power and purpose of information is not only in collecting and finding them but more importantly in using them.



In a typical file system, it become very tedious to read, write, search, manipulate or update records.

Kinds of Database

STRUCTURED DATABASE

It is also called the structured data in which a record or file of information arranged in uniform format. These databases are usually storage of information with similar entries such as a list of persons born in a country, a medical database of patients' data, an inventory database of a company and many others.

FREE-FORM DATABASE

It is a loose collection of information, such as those you will find on the world wide web. A collection of your documents in the computer made from several programs can be considered as free-form database.



Types of Databases

OPERATIONAL DATABASE

It is a dynamic database that is used by any organization in its day-to-day operation. They are used to collect data, maintain, modify, and delete data. Also known as transactional database.

ANALYTICAL DATABASE

It is a static database, where data is rarely modified. This database is often used to store and track historical data to make long term projections and analysis. More referenced in big data domain.



On the left side of the slide, there are several decorative 3D geometric shapes: a cone at the top, a small sphere in the middle, and a large curved shape at the bottom, all in a light beige color.

Things you can do with RDBMS

Create a database


Information storage

Information retrieval

Information management

Information analysis

Print and share information

On the left side of the slide, there are several 3D geometric shapes: a sphere, a cube, and a large torus (donut shape), all rendered in a dark, metallic brown color with highlights and shadows.

Relational data
collected at one
place

Individual Schemas
created in one
database

Different views and
tables are created
in one or various
schemas based on
rights given

Relational Databases

Schemas

Tables

A collection of 3D-rendered geometric shapes in a light beige color, including a cone in the top left, a small sphere in the middle left, and a thick curved band in the bottom left.

Data

It is a number or value found and stored in the database.
Data is static because it remains the same until it is modified by a process.

Three decorative geometric shapes in a light brown color: a cone in the top left, a small sphere in the middle left, and a thick curved line in the bottom left.


Information

It is a data that has been processed thereby making it relevant and meaningful to the person viewing it.
Information is dynamic because it changes relative to the data stored in the database and it could be processed in many ways.



Null handling

It is used to represent a value that is unknown or missing. A null value is neither a zero nor a blank.



Table

Table also called Relation

Primary Key Domain
Ex: NOT NULL

© guru99.com

CustomerID	CustomerName	Status
1	Google	Active
2	Amazon	Active
3	Apple	Inactive

Tuple OR Row
Total # of rows is **Cardinality**

Column OR Attributes
Total # of column is **Degree**

It is the main structure in the relational database. It is composed of attributes (fields) and domain (records). A table almost always represents a subject that can be an object (person, place or thing) or an event.

Record

Table also called Relation

Primary Key Domain
Ex: NOT NULL

© guru99.com

CustomerID	CustomerName	Status
1	Google	Active
2	Amazon	Active
3	Apple	Inactive

Tuple OR Row
Total # of rows is **Cardinality**

Column OR Attributes
Total # of column is **Degree**

It refers to a specific person, place, thing or event. Record is also known as the "tuple" in the relational database terminology. It pertains to structure in the database table representing a unique instance of a subject.

Three decorative 3D shapes are positioned on the left side of the slide: a cone at the top, a small sphere in the middle, and a thick, curved ring at the bottom. All are rendered in a metallic, bronze-like finish with soft shadows.

View

It is also known as a virtual table. It is called a virtual table since it does not hold data on its own; rather it gets data from the table which it is based. And since it comes from other tables it is composed of several fields coming from one or more tables.

Decorative elements on the left side of the slide: a gold cone at the top, a small gold sphere in the middle, and a gold ring at the bottom.

Relationship

They exist when two or more tables have connection or association.