क्या आप Theory से परेशान है?

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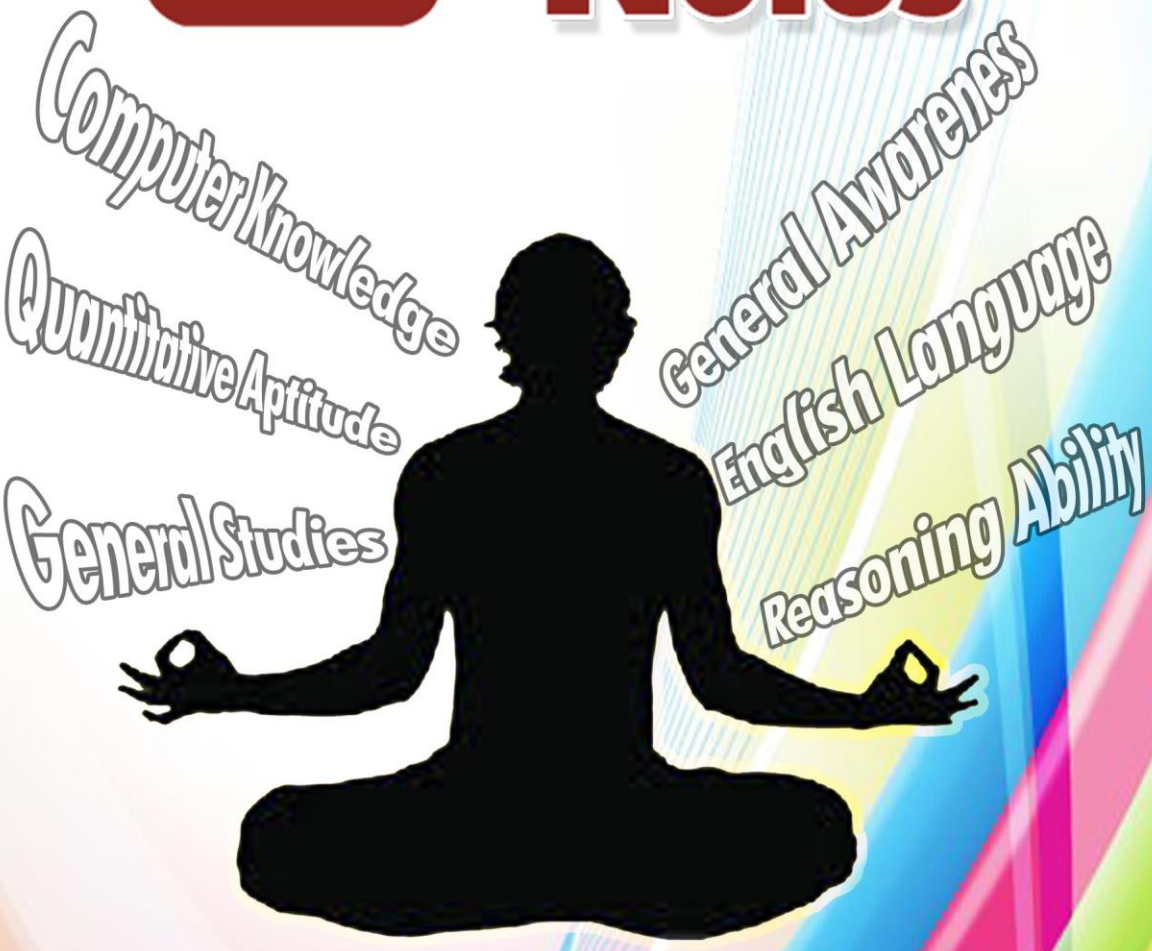

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Computer Knowledge

Topic : DBMS

FILE SYSTEM

A collection of records or documents dealing with one organization, person, area or subject.

DRAW BACK OF FILE SYSTEM

Redundancy refers duplication of data in a record.

Data Inconsistency exists when different and conflicting format of the same data appear in different places.

Difficulty in Accessing Data Need to write a new program to carry out each new task.

Data Isolation means multiple files and formats

Integrity Problems refers to maintaining and assuring the accuracy and consistency of data.

DBMS

A database management system (DBMS) is a computer software application that interacts with the user, other applications, and the database itself to capture and analyze data.

Example - fox pro, MS access etc.

RDBMS

A relational database management system (RDBMS) is a database management system (DBMS) that is based on the relational model.

Example – oracle

LEVELS OF DBMS

Physical level Physical representation of the DB on the computer. **Logical level** the logical structure of the entire database as seen by DBA.

View level DB presents the data to the user. The data can be customized according to the need.

Data independence it refers to the immunity of user applications to changes made in the definition and organization of data.

Schema Design of a database is called the schema.

Physical schema the design of a database at physical level is called **physical schema**, how the data stored in blocks of storage is described at this level.

Logical schema Design of database at logical level is called **logical schema**, programmers and database administrator's work at this level

Instance the data stored in database at a particular moment of time is called instance of database.

DATA MODELS

It define how data is connected to each other and how they are processed and stored inside the system.

Types of data models

- Object-Oriented Model
- Hierarchical Model
- Network Model
- E R Model
- Relational Model

Object-Oriented Model

In this model data is represented in terms of object and class.

- **UML (Unified modeling language)** it describes a set of diagrams and symbols that can be used to graphically model a system.

Hierarchical Model

Trees of records: A hierarchical database model is a data model in which the data is organized into a tree-like structure. It support one-to-many relationships.

Limitation this model does not support **many to many** relationship.

Network Model

Similar to the hierarchical database with the implementation of **many-to-many** relationships

E-R MODEL (ENTITY RELATIONSHIP MODEL)

It is a way of graphically representing the logical relationships of entities (or objects) in order to create a database.

Entities it can be any real world thing like Object, Concept or event (subject)

(Example customer, student, car etc.)

Entity set it is a set of entities that shares same properties.

Weak entity set entity set that does not have primary key is referred as weak entity set.

Attributes a Characteristic of an entity.

- Attributes type Simple and composite attributes.
- Single-valued and multi-valued attributes
  E.g. multivalued attribute: phone-numbers
- **Derived attributes** can be computed from other attributes. E.g. Age, given date of birth

Relationships

- **One to One**
- **One to Many**
- **Many to One**
- **Many to Many**

Degree of Relationship Set

It refers to number of entity set that participate in a relationship set.

Binary: Relationship set that involve two entity sets.
Ternary: Relationship sets may involve more than two entity sets.

Design schema

Generalization

It is a bottom-up approach in which two lower level entities combine to form a higher level entity.

Specialization

It is opposite to Generalization. It is a top-down approach in which one higher level entity can be broken down into two lower level entity.

Aggregation

It is a process when relation between two entities is treated as a single entity.

Relational Model

Data stored in tables that are associated by shared attributes.

- **Entity** Object, Concept or event (subject)
- **Attribute** a Characteristic of an entity
- **Tuple** represents a record
- **Degree** total number of attributes
- **Cardinality** total number of tuples