![]--- DONT DELETE QUESTIONS ---

> Start Questions with ##

> GO in view mode to easily find questions, there is Table of content there.

> CSE 2 ppl please add dsa questions that were asked here: https://demo.hedgedoc.org/46EmlKTBRH6jKkNHyc3AsQ?edit#

What is DMBS

The database is a collection of inter-related data which is used to retrieve, insert and delete the data efficiently. It is also used to organize the data in the form of a table, schema, views, and reports, etc.

What is composite attribute

An attribute composed of many other attributes is called composite attribute. For example Address attribute of student entity consist of street, area, city, state.

Multivalue attribute

An attribute which is having more than one value can consider as a multivalued attribute. For example phone_no of student.

What is ER model

An Entity–relationship model (ER model) describes the structure of a database with the help of a diagram, which is known as Entity Relationship Diagram (ER Diagram). An ER model is a design or blueprint of a database that can later be implemented as a database.

What is full form of ACID.

- A = Atomicity :- either the operation should be performed completely or should not be executed at all.

- **C = Consistency** :- it means after successful transaction data should be consistence. For example on case of bank system after transaction the sum should remain same both the sides.

- I = Isolation :- multiple transactions can occur concurrently without leading to the inconsistency of database state.

- **D = Durability** :- after the successful transaction the data is stored in database and it will not lost if any system failure occurs.

3 Level of Data Abstraction

- Physical Level - It is the lowest level of abstraction. It describes how data are stored.

- Conceptual Level - It is the next higher level of abstraction. It describes what data are stored in the database and what the relationship among those data is.

- View Level - It is the highest level of data abstraction. It describes only part of the entire database.

Types of keys:

- Candidate Key

- A candidate key is an attribute or set of an attribute which can uniquely identify a tuple.

- Primary Key

- The primary key is selected from one of the candidate keys and becomes the identifying key of a table. It can uniquely identify any data row of the table.

- Super Key

- Super key is a set of an attribute which can uniquely identify a tuple. Super key is a superset of a candidate key.

- **Composite Key**

- The composite key can be a combination of primary and candidate key. This is the combination of one or more columns which can uniquely identify the records in a table.

- **Secondary Key**

- Only one of the candidate keys is selected as the primary key. The rest of them are known as secondary keys.

- **Foreign Key**

- Foreign keys are the column of the table which is used to point to the primary key of another table.

- **unique key**

- A unique key is a set of one or more than one columns of a table that uniquely identify a record in a database table.

Cardinality in a Relation

Cardinality refers to the relationship between two tables.

If asked in terms of relation:

- **One to one** :- a relationship between person and passport table is one to one because a person can have only one passport and a passport can be assigned to only one person.

- **One to many** :- relationship between customer and order table is one to many because a customer can place many orders but a order can be placed by a single customer alone.

- **Many to many** :- between students and classes. A student can register for many classes, and a class can include many students

Else:

- High cardinality -> More unique data

- Less cardinality -> More duplicate data

Why dbms

Proper database management systems help increase organizational accessibility to data, which in turn helps the end users share the data quickly and effectively across the organization.

Difference Between primary key and unique key

Primary key: Primary key is the column that is used to uniquely identify each tuple of the table.

Unique key: Unique key is constraint that is used to uniquely identify a tuple in table.

Difference between strong entity and weak entity

A weak entity cannot be used independently as it is dependent on a strong entity type known as its owner entity. Also, the relationship that connects the weak entity to its owner identity is called the identifying relationship.

A strong entity is complete by itself and is not dependent on any other entity type. It possess a primary key which describes each instance in the strong entity set uniquely. That means any element in the strong entity set can be uniquely identified.

Deadlock in DBMS

A deadlock is a condition where two or more transactions are waiting indefinitely for one another to give up locks.

excel vs dbms

Database is actually very similar to Excel workbook. Databases store data in table (worksheet) and tables have records (rows) and fields (columns). But worksheet in an Excel workbook can only store one million rows.

Disadvantage of File-oriented system:

https://tutorialink.com/dbms/advantage-and-disadvantages-of-file-oriented-system.dbms

Data Redundancy: It is possible that the same information may be duplicated in different files. this leads to data redundancy results in memory wastage.

Data Inconsistency: Because of data redundancy, it is possible that data may not be in consistent state.

Difficulty in Accessing Data: Accessing data is not convenient and efficient in file processing system.

Limited Data Sharing:

Integrity Problems: ...

Atomicity Problems: ...

Concurrent Access Anomalies: ...

Security Problems:

Database should be accessible to users in limited way.

Each user should be allowed to access data concerning his requirements only.