

Cs403 Midterm Current papers fall 2023 By Masters

Mcqs basics they mostly cardinality value they

Short

Record Data base 3 types

Ek table di thi jispr condition lagyi thi usko find karna tha

Long

SxM find karna tha or uske 2 relation batane thay

Key type ko choose karne par ek note likhna tha..

CS403 MCQs very easy

Short Questions:

1. What is the main difference between an equi-join and a natural join?
Equi-join and natural join both are same but the difference is that the common attributes of natural join appears only once.
2. What are the two main divisions of a traditional file system?
3. Identify the following statement as valid or invalid?

Long Questions:

1. In an ER diagram, what is the main constraint used for a foreign key?
Briefly explain the steps involved in converting an ER diagram into relational tables.

Ans:

In an ER diagram, the main constraint used for a foreign key is **referential integrity**.

1. Identify Entities and Attributes:

Each entity in the ER diagram becomes a table.

List all attributes (characteristics) of each entity as columns in the corresponding table.

2. Define Primary Keys:

Each table needs a primary key to uniquely identify each record. Choose a unique attribute or combination of attributes for each table.

3. Analyze Relationships:

Examine relationships between entities (e.g., one-to-one, one-to-many, many-to-many).

4. Implement Foreign Keys:

For each relationship involving two entities:

Child table gets a foreign key column referencing the parent table's primary key.

This ensures valid data and prevents orphaned records.

5. Handle Many-to-Many Relationships:

Create a separate "junction" table with foreign keys to both parent tables.

This table stores the many-to-many associations.

6. Normalize Tables:

Eliminate redundant data and dependencies to improve data integrity and efficiency.

There are various normalization levels (3NF, BCNF, etc.) to guide this process.

7. Refine and Verify:

Review the resulting tables for clarity, consistency, and adherence to database principles.

Test the schema with sample data to ensure proper data storage and retrieval.

2. Given ER of a Student or Department relation, how would you construct a cross-matrix for it identify report and attributes yourself? Diagram is missing!!!

3. Analyze the provided Diagram and draw cross matrix. Diagram is missing!!!but for concept

Cross matrix: This is a tool available in the data dictionary and helps us in finding entities of the database and their associations. **Check page#65,66,115,116**

Cs403

Mcqs : from handouts and RM topper files (Boht easy thy mcqs)

Short question :

- 1) ***what is the minimum cardinality for each entity of the given relationship between customer and item .***

Concept : The minimum cardinality show us that how many instance of one entity can be placed in another relation at least.

- 2) ***aik diagram di hoi thi us mai sa mistakes find krni thi***

- 3) ***ERD diagram between two entitie .***

Long questions :

- 1) ***Label each entity of universal system with maximum cardinalit .***

- 2) ***kuch conditions di hoi thi un conditions ko use krty howy context level DFD draw krni thi.***

Cs403 paper

Msqs conceptual thy Sary handouts sy thy

Short

1:DFD diagram given thi usmein incorrect entities btaani thi

2: true false wali statement thi

Long

1.Mapping Karni thi entities ki konsi appropriate suit karti hai

2: candidate key alternative key secondary key sy question tha

Mcqs zaiyda vu topper wali files thy

Short

Procedural and non Procedural

Ak column match karny thy

01. write the 3 properties of relation

1. Relational algebra operations work on one or more relations to define another relation leaving the original intact.
2. Allows expressions to be nested, just as in arithmetic. This property is called closure.
3. There are five basic operations in relational algebra: Selection, Projection, Cartesian product, Union, and Set Difference.
4. These perform most of the data retrieval operations needed.
5. It also has Join, Intersection, and Division operations, which can be expressed in terms of 5 basic operations.

02. Write the 3 types of multiple users of environment.

Multi-user Types:

- Teleprocessing
- File Servers
- Client-Server

01. Draw a E-R Model on

student : stdId, stdName, stdAdress(composite = streetNo, houseNo), DOB(Derived = Age), Hobbies (Multiple values)

E-R Model for Student

Entities:

Student

Attributes:

stdId: Integer (Primary Key)

stdName: String

streetNo: String

houseNo: String

DOB: Date (Derived from Age)

Age: Integer (Calculated from DOB)

Hobbies: String (Multiple values, comma-separated or stored in a separate table)

Relationships:

N-ary Relationship: Represents the "Has" relationship between a Student and their Hobbies. **(Use Ms paint and draw)**

02. Diagram is given with mistakes, and we can draw a correct solution diagram (correct mistakes)

03. Draw a cross-relation diagramon.

Loan Application system which can take 3 reports and 7 attributes (reports and attributes are not given)

Q4: Database development phase

Preliminary Stage:

Preliminary Stage, which is based on the proper study of the system.

Requirement Analysis:

Detailed study of the system is started to find out the requirements of each section.

Database Design:

Third stage in the database development process is the database design. This is the phase where the logical design of the database is created and different

schemas for
the database are created logically.

Physical Design:

This is the phase where we transform our logical design into a Physical design by
implementing the designed database onto a specific DBMS.

Implementation:

This phase is specific to writing the application programs needed to carry out different
activities according to use requirements.

Maintenance of the Database System:

Maintenance means to fine tune the system and check that the designed applications
systems are fulfilling the purpose for which they are meant.

Advantages of Databases

Data Independence

Data and programs are independent of each other, so change in one has no or
minimum effect on other. Data and its structure is stored in the database where as
application programs manipulating this data are stored separately, the
change in one
does not unnecessarily effect other.

Data Sharing:

The data for different applications or subsystems is placed at the same place. This
introduces the major benefit of data sharing. That is, data that is
common among
different applications need not to be stored repeatedly.

Controlled Redundancy:

Means that we do not need to duplicate data unnecessarily; we do
duplicate data in

the databases, however, this duplication is deliberate and controlled.

Better Data Integrity:

Very important feature; means the validity of the data being entered in the database.

Since the data is being placed at a central place and being managed by the DBMS, so

it provides a very conducive to check or ensure that the data being entered into the

database is actually valid. Integrity of data is very important, since all the processing

and the information produced in return are based on the data.

3.(COURSE 2-COURS1) calculate **page#154**

4. Difference between Candidate key and primary key

Candidate key

A super key for which no subset is a super key is called a candidate key, or the minimal super key is the candidate key.

Primary Key

A candidate key chosen by the database designer to act as key is the primary key. An entity type may have more than one candidate keys.

1. Select and project usage.

The Select Operation:

The select operation is performed to select certain rows or tuples of a table, Greek letter sigma (σ) is used to denote the selection.

The Project Operator:

The Select operation works horizontally on the table on the other hand the Project

operator operates on a single table vertically, that is, it produces a vertical subset of the table. Projection is denoted by a Greek letter (λ).

Mcqs files sy thy Kuch or zyaida handouts Sy thy

Questions

(Short)a. In three architecture level which level defines the structure of database

Internal schema or view defines the structures of the data and other data related activities in the database.

b. which level is responsible for presenting data as desired by the end user in three level architecture.

External View (Level, Schema or Model):

This level is explicitly an end user level and presents data as desired by the users of the database. As it is known that the database users are classified on two grounds

- o Section of the organization
- o Nature of Job of the users

(Long)2 Draw an ERD of "Rent a land management system" as the mention information the five entities are:- 1 property, domestic, commercial, agreement, Renter a) commercial and domestic are types of property b) Any property that Is to be rented out has a rent agreement c) Every renter obtain a property by signing rent agreement **Rent-a-Land Management System**

ERD

Entity-Relationship Diagram (ERD) for the "Rent-a-land management system" based on the information provided:

Entities:

Property:

Attributes:

PropertyID (Primary Key)

Type (e.g., House, Apartment, Land)

Subtype (Domestic or Commercial)

Address

Size (Area)

Description

Amenities

Price

Availability (Yes/No)

Domestic:

Inherits attributes from Property

Additional Attributes (optional):

Number of Bedrooms

Number of Bathrooms

Furnished (Yes/No)

Commercial:

Inherits attributes from Property

Additional Attributes (optional):

Business Type

Building Area

Agreement:

Attributes:

AgreementID (Primary Key)

Start Date

End Date

Rent Amount

Security Deposit

Terms and Conditions

Renter:

Attributes:

RenterID (Primary Key)

Name

Contact Information

Occupation

Credit Score

Relationships:

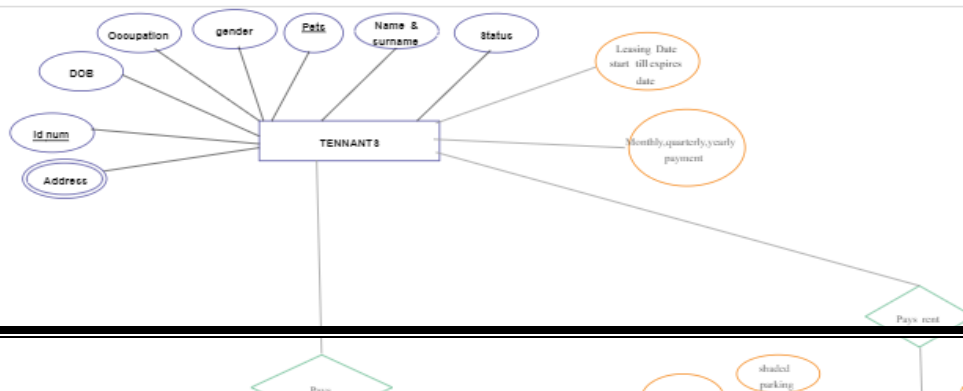
Has_Subtype: One Property has one Subtype (Domestic or Commercial)
[Inheritance]

Has_Agreement: One Property has one Agreement

Signs: One Renter signs one Agreement

Rents: One Agreement rents one Property

Diagram:



Imp

(Conceptual schema will have all the details of the products of the company,

The conceptual schema actually manages all such relationship and maps these relationships among the member entities.

Conceptual schema is also responsible for holding the authorization and authentication information, means that only those people can make use of the database whom we have allowed to make these changes)

3 Write down the names of two schema mapping which use in three level architecture (short)

Internal or Physical View / Schema

This is the level of the database which is responsible for the storage of data on the storage media and places the data in such a format that it is only readable by the DBMS.

Inter Schema Mapping:

The mechanism through which the records or data at one level is related to the changed format of the same data at another level is

known as mapping. When we associate one form of data at the external level with the same data in another form is known as the external/conceptual mapping of the data.

(Long) ERD having two entities student and course there is many to many relationship between in these two entities Student attributes:- stu-id , stu-name Course attributes:- course- I'd , Course-name

Map the above said entities into a relation

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