L4 : Relational Model Practice Questions

1-Tut : MCQ - 1

Send Feedback

Match the ER diagram components to their representation in the relational model

a. Entity	1. Foreign key
b. Attribute	2. Relation
c. Relationship between entities	3. Columns

Options

This problem has only one correct answer

a1 b2 c3
a2 b3 c1
a2 b1 c3
a3 b1 c2

Correct Answer : B

Solution Description

An entity in ER diagram is represented by a relation or a table in relational model, similarly attributes of an entity are denoted by columns or fields of the table. Relationships between entities are shown by using foreign keys in relational models

2-Tut : MCQ -2 (Relational Model)

Send Feedback

In a relational model, which of the following indicates the cardinality:

Options

This problem has only one correct answer

Number of attributes
Number of keys
Number of tuples
Number of relations

Correct Answer : C

Solution Description

In relational model, cardinality refers to the number of tuples present in a relation or table

3-Tut : MCQ - 3

Send Feedback

Which of the following is true:

Options

This problem has only one correct answer

A relation and table are the same.
An attribute and a column in relation means the same.
None of the above
A and B both

Correct Answer : D

Solution Description

For design purpose, table and relation means the same. Although, technically a relation does not have duplicate value but a table can contain duplicate. Similarly, the attributes and the column are the same.

4-Tut : MCQ - 4

Send Feedback

For the given relation Book, what is the degree:

Book_name	Book_code	Book_Price	Author_name	Publish_date
Physics-1	011	180	Dr. Raj Nag	21-03-1996
Chemistry-1	021	200	Dr. Kiran Sethi	25-2-2001
Maths-1	031	175	Vipul Sen	1-6-2006

Options

This problem has only one correct answer

3
5
15
10

Correct Answer : B

Solution Description

In relational model, degree refers to the number of attributes present in the relation

5-Tut : MCQ - 5

Send Feedback

Which of the following is not a property of the table:

Options

This problem has only one correct answer

Every column should have unique name
An attribute can have multiple values for a row
Column values should be of same type
Sequence of rows is insignificant

Correct Answer : B

Solution Description

A relation should contain atomic values, so multiple values for an attribute should be avoided

6-Tut : **MCQ - 6**

Send Feedback

Match the components of relational model which are same:

a. Tuples	1. Relation
b. Column	2. Field
c. Table	3. Rows/Record

Options

This problem has only one correct answer

a2 b1 c3
a3 b2 c1
a1 b3 c2
a3 b1 c2

Correct Answer : B

Solution Description

A Tuples in the Relational model is represented by a row, also known as records. Similarly, columns are denoted by fields of the table also called attributes. The table is similar to relation in the relational model.

7-Tut : **MCQ - 7**

Send Feedback

There is a set of permitted values for each attribute of a relation. These are known as:

Options

This problem has only one correct answer

Schema
Instance
Domain
Relation

Correct Answer : C

Solution Description

Domain is a set of permitted values, The value of attributes should be in the domain.

8-Tut : **MCQ - 8**

Send Feedback

A null value of an attribute indicates which of the following:

Options

This problem has only one correct answer

Zero
Infinite
Error
Unknown

Correct Answer : D

Solution Description

NULL value implies that the value for that particular attribute is unknown, this is not same as 0 or error.

9-Tut : **MCQ - 9**

Send Feedback

Which of the following is true:

Options

This problem has only one correct answer

A candidate key is a minimal super key.
Candidate keys which do not become primary keys are called alternate keys.
Any candidate key can become a Primary key.
All of the above

Correct Answer : D

Solution Description

A candidate key is a minimal subset of super keys. It contains no redundant attribute. Hence, it is selected from the set of super keys given that those selected keys DO NOT have any redundant attributes. Candidate Key value should not be null. Any candidate key can be selected to be a primary key according to preference. The candidate keys that are not selected as the primary key are called the alternate keys.

10-Tut : **MCQ - 10 (Primary Key)**

Send Feedback

A primary key should be:

Options

This problem has only one correct answer

Null
Not null

Unique
Unique and not Null

Correct Answer : D

Solution Description

A primary key is a unique identifier that helps us to identify each and every tuple uniquely.
No two rows have the same value for the primary key Attribute and the primary key cannot be null.
The primary key in the table cannot be changed.

It is selected out of all the candidate keys by the database admin.

11-Tut : MCQ - 11

Send Feedback

Which of the following is true:

Options

This problem has only one correct answer

We can have multiple candidate keys
We can have multiple primary keys
The value of primary key can be same for 2 tuples
Alternate key and primary key are the same.

Correct Answer : A

Solution Description

A relation can have multiple candidate keys, out of which ,one is selected as a primary key and the remaining ones are called alternate keys

12-Tut : MCQ - 12

Send Feedback

A primary key with the help of foreign key creates a parent child relationship between the tables that connect them.

Options

This problem has only one correct answer

True
False

Correct Answer : A

Solution Description

A primary key is of a relation is linked with the foreign key, so that the referential constraint is set up between the two relations; hence it creates a parent-child relationship between the tables that connects them.

13-Tut : MCQ - 13 (CRUD Operations)

Send Feedback

What does R refers to in CRUD operations:

Options

This problem has only one correct answer

Replicate
Read
Redundant
Replace

Correct Answer : B

Solution Description

For the persistent storage in DBMS, four basic operations that are known as CRUD operations are as follows:

1. 'C' in CRUD stands for Create. It is accomplished using INSERT statement in SQL.

2. 'R' in CRUD stands for Read. It is accomplished using the SELECT statement in SQL.

3. 'U' in CRUD stands for Update. It is accomplished using UPDATE statements in SQL.

4. 'D' in CRUD stands for Delete. It is accomplished using the DELETE statement in SQL.

14-Tut : **MCQ - 14**

Send Feedback

Entity integrity states that primary key should be:

Options

This problem has only one correct answer

Null
Not null
Null and Not null
zero

Correct Answer : B

Solution Description

Entity Integrity Constraint puts constraints on Primary key i.e. primary should be unique and does not have NULL value.

15-Tut : **MCQ - 15**

Send Feedback

Referential integrity constraint states that foreign key should have a matching primary key or it must be not Null.

Options

This problem has only one correct answer

True
False

Correct Answer : B

Solution Description

A foreign key should have the matching primary key for its each value in the parent table or it should be NULL.

16-Tut : **MCQ - 16**

Send Feedback

In following table which integrity constraint is being violated:

Book_name	Book_code	Book_price	Author_name	Publish_date
Physics-1	011	180	Dr. Raj Nag	21-03-1996
Chemistry-1	021	200	Dr. Kiran Sethi	25-2-2001
Maths-1	031	175	Vipul Sen	1-6-2006
Grammar-1	021	150	Dr. Jay	11-6-2020

Options

This problem has only one correct answer

Referential Integrity constraint
Key constraint
Domain constraint
Entity Integrity constraint

Correct Answer : B

17-Tut : **MCQ - 17**

Send Feedback

For an attribute “Adhaar Number” which is defined as integer type, which constraint would be violated if we enter the PAN (has numbers and alphabets) in it

Options

This problem has only one correct answer

Entity Integrity constraint
Key constraint
Domain constraint
Referential Integrity constraint

Correct Answer : C

Solution Description

The domain integrity constraints restrict the value in the particular attributes. It defines which values should be considered valid for a particular attribute and which values would be invalid. Therefore, if we want to take email as

input in an attribute, then we can use domain constraints to ensure that email is valid. In this question, a similar situation is present as the Aadhar number is defined as an integer, which means the values entered in this attribute should contain digits only. On the other hand, the PAN number contains both digits and alphabets. This will result in the violation of domain integrity constraints and show Invalid status to the user.

18-Tut : MCQ - 18

Send Feedback

Which of the following is not a key constraint:

Options

This problem has only one correct answer

Check
Not Null
Unique
None of the above

Correct Answer : D

Solution Description

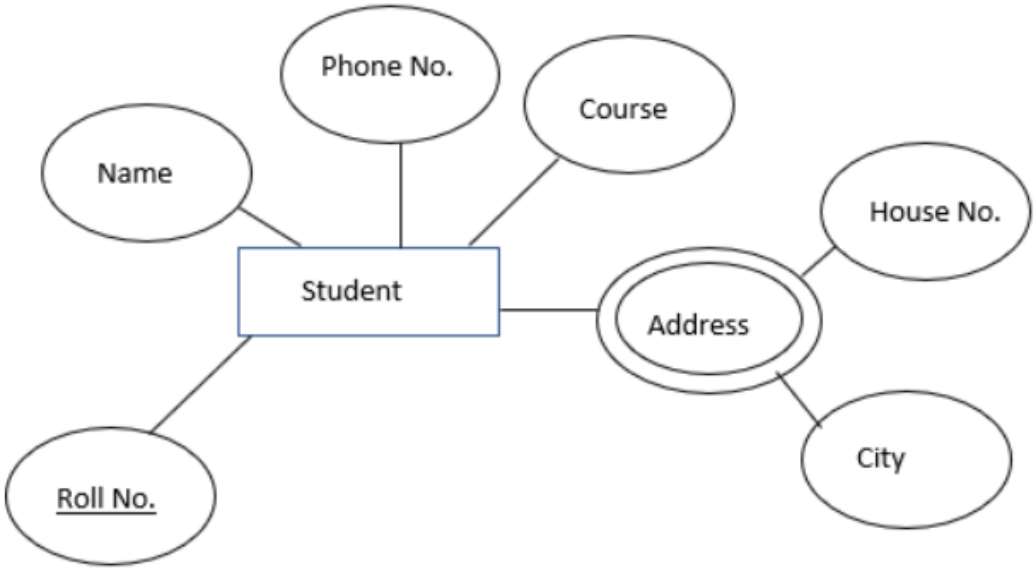
The six types of key constraints present in the Database management system are:-
1. NOT NULL: This constraint will restrict the user from not having a NULL value. It ensures that every element in the database has a value.
2. UNIQUE: It helps us to ensure that all the values consisting in a column are different from each other. Is is a part of the primary constraint
3. DEFAULT: it is used to set the default value to the column. The default value is added to the columns if no value is specified for them.
4. CHECK: It is one of the integrity constraints in DBMS. It keeps the check that integrity of data is maintained before and after the completion of the process
5. PRIMARY KEY: This is an attribute or set of attributes that can uniquely identify each entity in the entity set. The primary key must contain unique as well as not null values.

6. FOREIGN KEY: Whenever there is some relationship between two entities there must be some common attribute between them. This common attribute must be the primary key of an entity set and will become the foreign key of another entity set. This key will prevent every action which can result in loss of connection between tables.

19-Tut : MCQ - 19

Send Feedback

Which of the following relational database schemas is a correct representation for the following ER diagram:



Options

This problem has only one correct answer

Student(Name, Phone no., Course, Roll No., House no., City)
Student(Name, Phone no., Course, Roll No.) Address(House no., City, Roll no.)
Student(Name, Phone no., Course, Roll No., Address, House no., City, Roll no.)
All of the above

Correct Answer : B

Solution Description

In the following ER diagram, The rectangle in the ER diagram represents entity sets, whereas the ellipse represents attributes. Double ellipses represent multi-valued attributes. The rules for conversion of ER diagram to the relational schema are:
1. Every strong entity set can be converted into a relational schema by having the entity set name as the relation schema name.
2. Attributes of the entity sets are attributes in the relational schema.
3. For each multi-valued attribute, we have to create a separate table, and we should include the primary key of the strong entity set (parent entity set) as a foreign key attribute.

By Applying the information given above, we can say that the Entity student has five attributes, i.e. Name, Roll No., Phone No., Course and Address. Out of these five attributes, address is a multi-valued attribute and Name, Roll No. , Phone No., and Course is single-valued attributes.
So, the relation 'Student' will have the fields: Nam, Phone No., Course, RollNo. The address is further divided into two single-valued attributes, i.e. House No. and City.

So, a new relation 'Address' would be created having fileds:House No. and City and a Foreign Key RollNo. To connect to "Students" relation.

20-Tut : MCQ - 20 (Relational Algebra)

Send Feedback

Relational algebra is :

Options

This problem has only one correct answer

Non procedural query language
High level language
Procedural query language
None of the above

Correct Answer : C

Solution Description

Relational Algebra is a procedural query language in which the user specifies the set of operations to be performed sequentially to get the desired output.

21-Tut : **MCQ - 21**

Send Feedback

Which of the following is true for selection operator:

Options

This problem has only one correct answer

It displays the specified columns
It selects the specified columns
It modifies the specified columns
It deletes the specified columns

Correct Answer : B

Solution Description

Selection operator is used to select some attributes or some tuples from the table. Example σ Cust_Name="Indu" (Customer) It will select a customer whose name is Indu but it'll not display. Note: This Select is DIFFERENT from MySQL SELECT.

22-Tut : **MCQ - 22**

Send Feedback

Which of the following should be used to list down all the names of the Book whose Book_price is less than 100 from the relation 'Book':

Options

This problem has only one correct answer

σBook_name, Book_price<100(Book))
ΠBook_name(σBook_price<100(Book))
σBook_name(σBook_price<100(Book))
ΠBook_price<100(Book))

Correct Answer : B

Solution Description

To list down all the names of the Book whose Book_price is less than 100 from the relation ‘Book’, we can use the projection operator(π) on the book_name attribute which is used to display the output. Then use the Selection operator(σ) on the book price attribute to fulfill the condition present in the question. The selection operator will get the desired data.

23-Tut : MCQ - 23

Send Feedback

What will be the result if set difference operator is applied as B-A on relations A and B

Options

This problem has only one correct answer

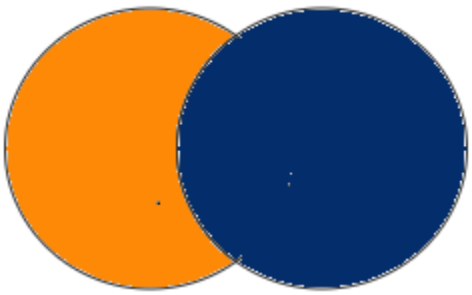
All rows of relation B
All rows of relation B which are present in relation A
All rows of relation B which are not present in relation A
All rows common to relation B and relation A

Correct Answer : C

Solution Description

The set difference operator is an operator which takes the two sets as an input and returns the values that are present in the first set but absent in the second set. When the set difference operator is applied as B-A on relations A and B, the result will contain all rows of relation B which are not present in relation A.

$$A - B$$



24-Tut : MCQ - 24

Send Feedback

Relation A

Sno	Auhtor_ Name
1	A
2	B
3	C

Relation B

Id	City	State
4	Agra	UP
5	Bhopal	MP
6	Imphal	Manipur

What would be the result from cartesian product of Relation A and B (A X B)

Options

This problem has only one correct answer

The relation having 2 attributes and 6 tuples
The relation having 5 attributes and 6 tuples
The relation having 5 attributes and 9 tuples
The relation having 2 attributes and 9 tuples

Correct Answer : C

Solution Description

The cartesian product is an operation used to combine each row in a given table with each row of another table. It is also known as the cross product. It means the product of the number of rows and the sum of the number of columns. So the Solution will be the cross product of A and B. As A has three rows and two columns, B has three rows and three columns. So Solution must be nine rows, and five columns as Columns and rows represent attributes and tuples. The answer must be 'c'.

25-Tut : **MCQ - 25**

Send Feedback

Which of the following would rename the "class" attribute to "course" in a relation called University

a. $\rho_{\text{class-> course}}(\text{University})$

b. $\sigma_{class = course}(\text{University})$

c. $\prod_{\text{class, } course}(\text{University})$

Options

This problem has only one correct answer

a
b
c
None of the above

Correct Answer : A

Solution Description

A rename operator, denoted by 'ρ', will be used to rename the "class" attribute to "course" in a relation called University.

1- Practice Assignment

Send Feedback

With the help of ER Diagram designed in the previous module convert the Online delivery system and online doctor consultation system into relational models.

(Hint: identify the tables, attributes, relationships between tables, primary key and foreign key for the tables)