Lesson Plan

DBMS

Index-Part-1

Index-Part-2

9. Database Optimization
10. SQL queries Assessment

1.Introduction to DBMS [13 mcqs]

1. Data can be used to make decisions only if:-**It can be processed into information**
2. **Which of the following is Data:**Web page,Image shot from phone,Fingerprint
3. Anything which stores only unstructured data can be called a Database.-**False**
4. Which of the following is not True:-**Database and Database management system (DBMS) are the same**
5. Which of the following is the purpose of DBMS:-**Creation of database,Manipulation of data,Retrieving data from database**
6. File based systems faces data integrity issues because:-**Duplicate files may have different values**
7. What does same data being saved in multiple locations called-Redundancy
8. In File based systems it is easy to maintain concurrency control when multiple users are updating the same file:-**False**
9. File System in which each teacher of a college is maintaining their separate files concerning the same subjects taught in the course would lead to :-**High Data Redundancy**
10. If your laptop has the application like MS Access which is fetching data from some other system then it is an example of which type of architecture : **2 tier**
11. In a software architecture which of the following is responsible for computing the result and returning it:**Server**
12. What do you mean by Data Sharing in DBMS:-**Share information visible to everyone**
13. What is/are the drawback(s) of using DBMS:-**Requires training,Complex to use,It is costly**

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2. DataModels [15 mcqs]

1. Which of the following statements are correct regarding the data models?:-**Conceptual data model represents high level view of the data**

2. **When asked to design a high level conceptual data model, the very first step is __requirment analysis_____.**
3. **Which one of the following is an example of the object-based logical model? Entity Relation model**
4. **Which of the following is true for conceptual model:-Independent of both H/w & S/w**
5. **Which of the following model tells how data will be on the disk?Physical Data Model**
6. **Data modelling helps in achieving abstraction in DBMS.:-True**
7. **Which of the following data models describes the database at the highest level ?Conceptual DataModel**
8. **Which one of the following is a popular Representational Model?Relational Model**
9. **Database schema is part of which design process:-Logical Design**
10. **In 3 tier architecture, which of the following deals with the physical storage of data?Internal Schema**
11. **Which of the following shows only the relevant data to users and hides the rest?External Schema**
12. **Which of the following describes the design of a database and the relationship between data ?Conceptual schema**
13. **Which of the following changes whenever we modify any data?Database Instance**
14. **Which of the following is/are true with reference to 'view' in DBMS?**
15. **1. A 'view' is a special stored procedure executed when a certain event occurs.**
    2. A 'view' is a virtual table, which occurs after executing a pre-compiled query. ONly 2 is true

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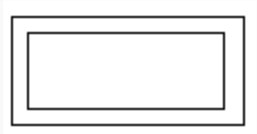
3. ER-Models [24 mcqs]

1. ER diagram represents which of the following data models::Conceptual
2. **ER diagrams are usually created after we design the databases.**State whether it's True/False? False
3. Why do we use ER diagrams?It acts as a blueprint for designing the database,It helps in the identification of entities, attributes, relationships between various entities,It can be translated into relational models
4. **Entities, attributes and relationships are the three important components of ER Diagram.**State whether it's True/False? True
5. For an entity Book, which attribute can be made the primary key?:Book_Code
6. Which of the following is true for entity?It can be related to another entity,It has a key attribute.,It can have one or many attributes
7. Any entity which does not has its own primary key is known as:-Weak Entity

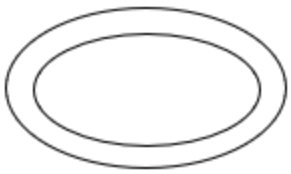
8. How is a weak entity represented: -

a.

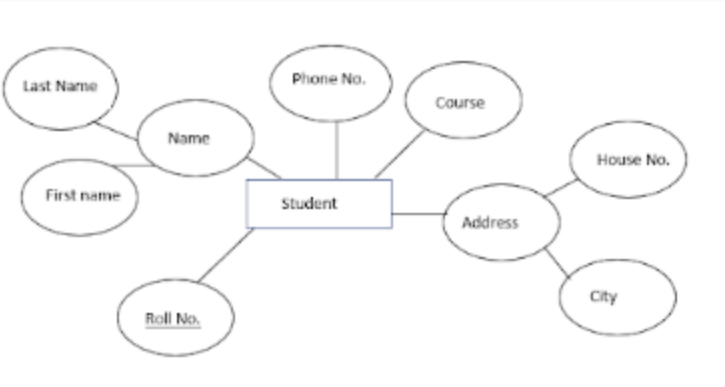


9. An entity can be:=related to many other entities
10. For Library Management System, the Book_code, Book_name, Author_name, Book_price are all an examples of :-Attributes
11. In a library management system a student can borrow maximum of 3 books in a semester, so in ER diagram the “Book_name” attribute should be represented as :

c.

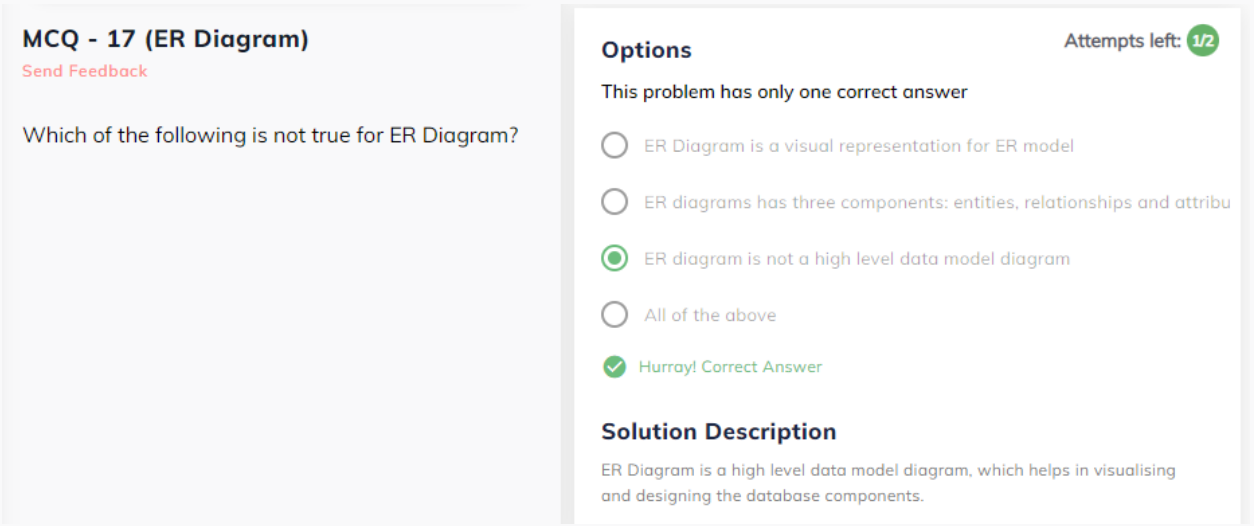


For the following Student entity, identify the composite attributes:



12. Name,Address
13. A student can book a maximum of three books but each book can be booked by only one student, so the relationship between student and book is:1:N onetomany
14. Which of the following is used to represent the relationship in an E-R diagram:Diamond
15. Each student gets only one login ID for the online library system. So, the relationship between student and login ID is:1:1
16. Which of the following is considered best-practices for creating ER Diagram? Naming every entity , attribute and relationship

17. Which of the following is not true for ER Diagram?



18. Which of the following is a type of abstraction in which entities with relationships come together to form higher level entity?Aggregation
19. If textbook, magazine, journal, encyclopedia entities are derived from the Book entity , then it is an example of:Specialization
20. Which is true for Generalisation:Bottom Up approach
21. The process of designating sub groupings within the entity set is called as _____.Specialization
22. There is a library system, which has a "Category" of "Book". A book *belongs* to a category and a "student" can make an inquiry on a specific "Book" as well as a "Category". It is an example of::Aggregation

23.

Practice Assignment - 1

Send Feedback

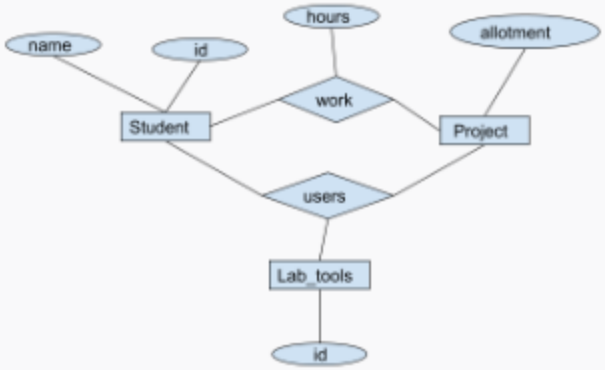
Given above is an ER-Diagram, apply Generalization on Mentee and Member to form a new ER-diagram (Hint: both are Person)

Practice Assignment - 2

Send Feedback

Consider a Database with information about student who work on a particular project and use a number of lab tools doing that work. Relationships 'work' and 'uses' , could be combined into a single set. However, they shouldn't be, as this would obscure the logical structure of this scheme.

What could be an apt way to represent relationships among relationships?



24.

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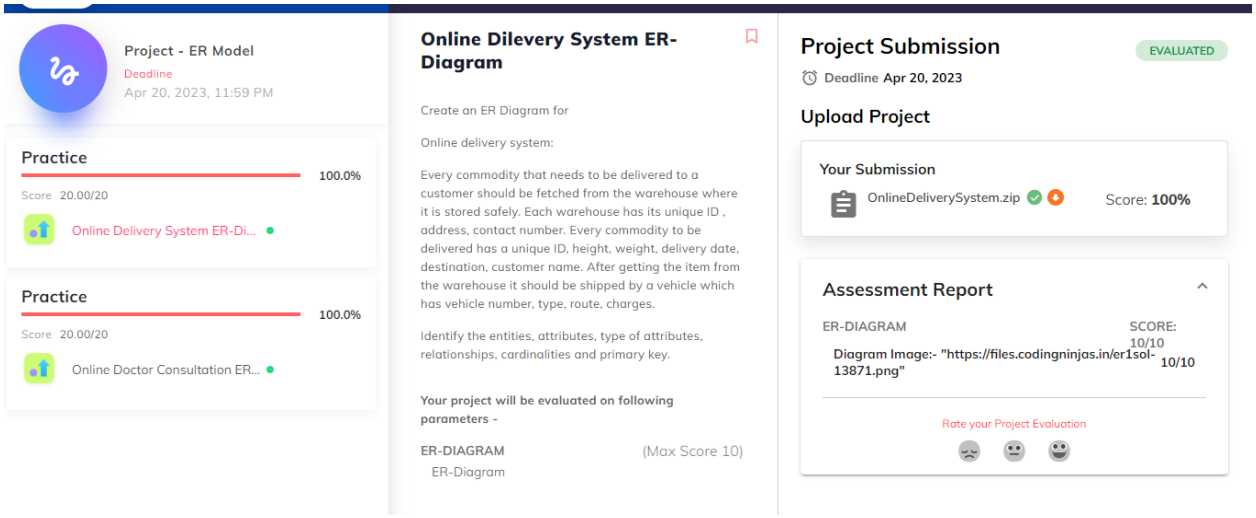
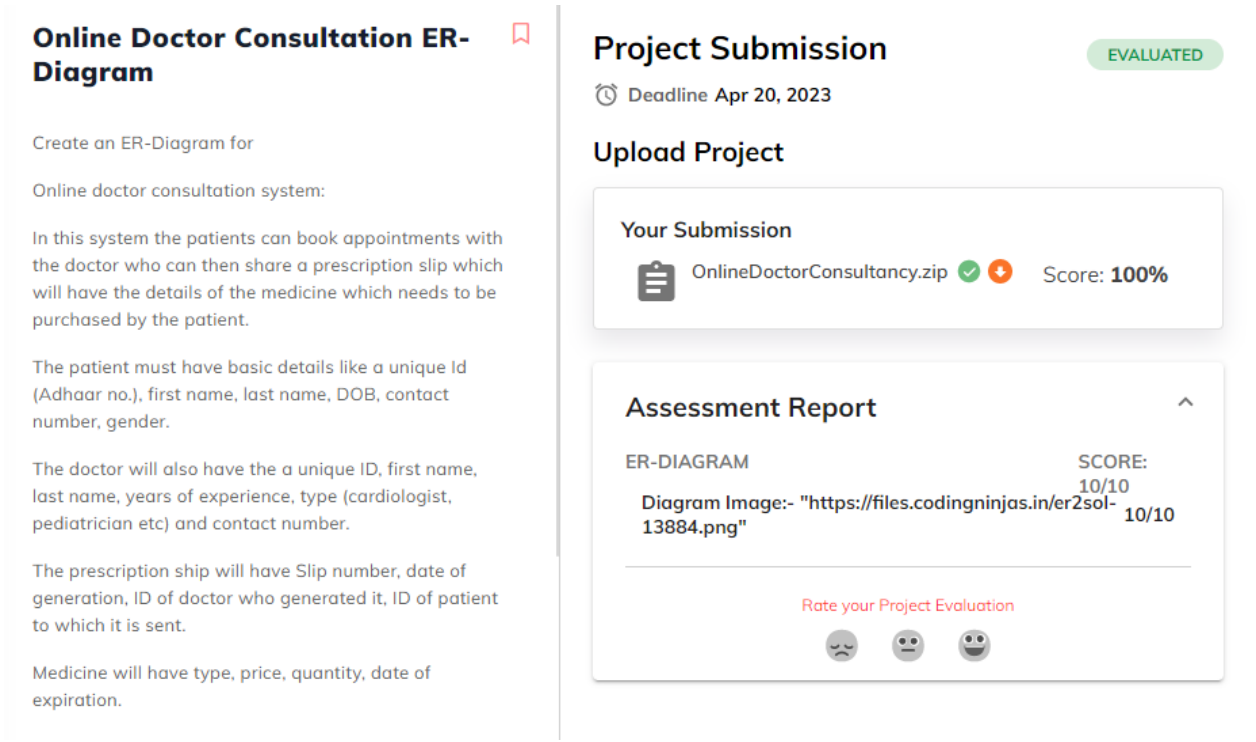
4. Project ER Model [2]





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5. Relational Model [26]

1. 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

This problem has only one cor

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

Hurray! Correct Answer

2. In a relational model, which of the following indicates the cardinality:Number of Tuples
3. Which of the following is true:-A relation and table are the same.,An attribute and a column in relation means the same.
4. 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

- 3
- 5
- 15

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

Options Attempts left: 0/2

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

The solution to this problem has been viewed

Solution Description

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

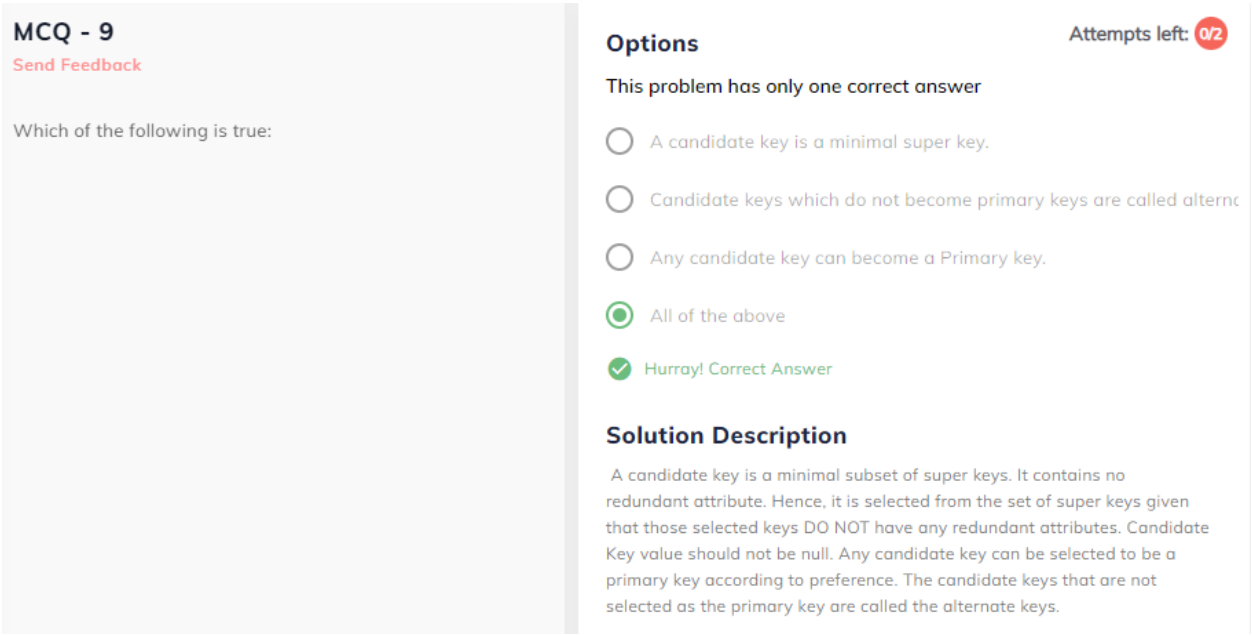
6. Match the components of relational model which are same:

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

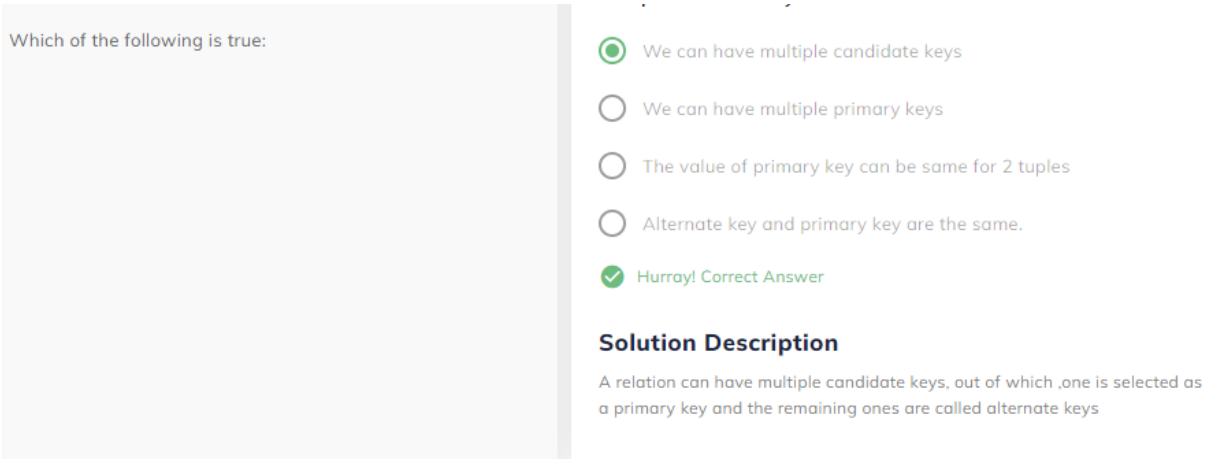
- ○ a2 b1 c3
- ◉ a3 b2 c1
- ○ a1 b3 c2
- ○ a3 b1 c2

✓ Hurray! Correct Answer

7. There is a set of permitted values for each attribute of a relation. These are known as:Domain
8. A null value of an attribute indicates which of the following:unknown

9. 

10. A primary key should be:Unique and Not null

11. 

12. A primary key with the help of foreign key creates a parent child relationship between the tables that connect them.:True
13. What does R refers to in CRUD operations:Read
14. Entity integrity states that primary key should be:Not null
15. Referential integrity constraint states that foreign key should have a matching primary key or it must be not Null:-.False

16. 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

Note: Book_code is the primary key.

- ○ Referential Integrity constraint
- ◉ Entity Integrity constraint
- ○ Domain constraint
- ○ None of the above

Hurray! Correct Answer

Solution Description

The Book_code column has 021 value twice for two different books. So, it violates the Entity Integrity Constraint since every table should have a primary key to identify each row uniquely and in this table the primary key is not unique.

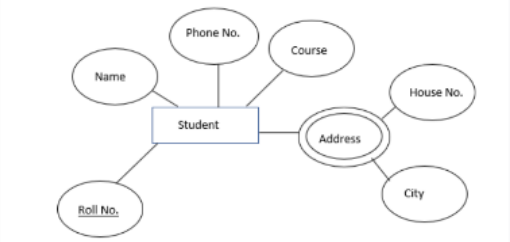
17. For an attribute “Adhaar Number” which is defined as integer type, which constraint would be violated if we enter the PAN (has numbers and alphabets) in it:-Domain Constraint

18. Which of the following is not a key constraint:

- ○ Check
- ○ Not Null
- ○ Unique
- ◉ None of the above

Hurray! Correct Answer

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



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

Hurray! Correct Answer

Solution Description

In the following ER diagram, The rectangle in the ER diagram represents entity sets, whereas the ellipse represents attributes. Double ellipses

20. Relational algebra is :Procedural query language

21. Which of the following is true for selection operator:

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

Hurray! Correct Answer

22. 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':

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

Hurray! Correct Answer

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. What will be the result if set difference operator is applied as B-A on relations A and B?--All rows of relation B which are not present in relation A

24. 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)

You have max 2 attempts to score in this question.

Options Attempts left: 0/2

This problem has only one correct answer

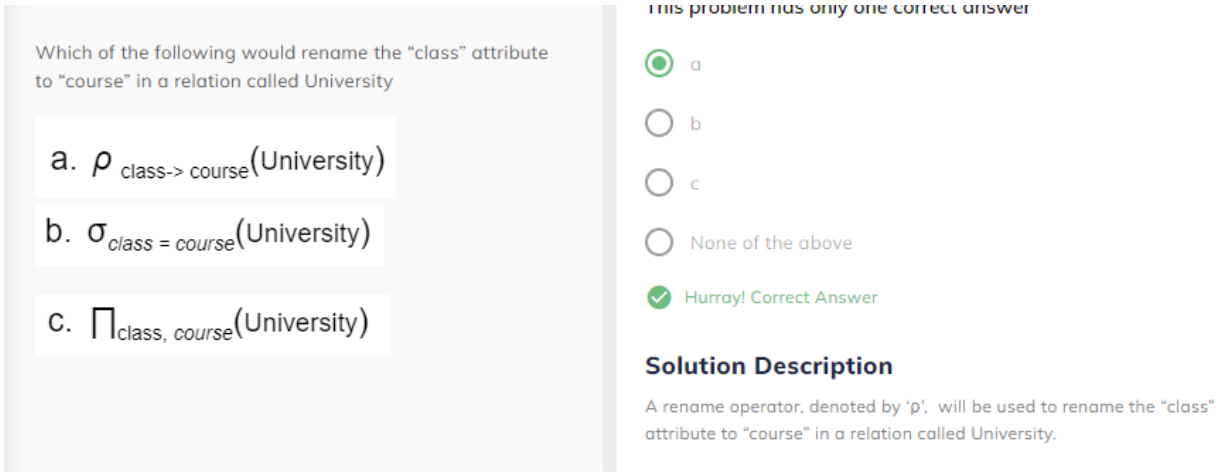
- The relation having 2 attributes and 6 tuples
- The relation having 5 attributes and 6 tuples
- The relation having 5 attributes and 9 tuples
- The relation having 2 attributes and 9 tuples

Hurray! Correct Answer

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.



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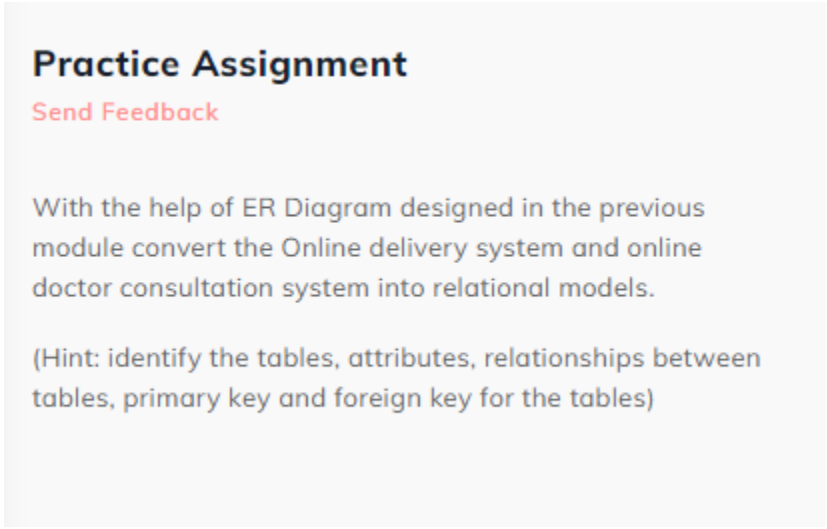

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6. Project Movie Store

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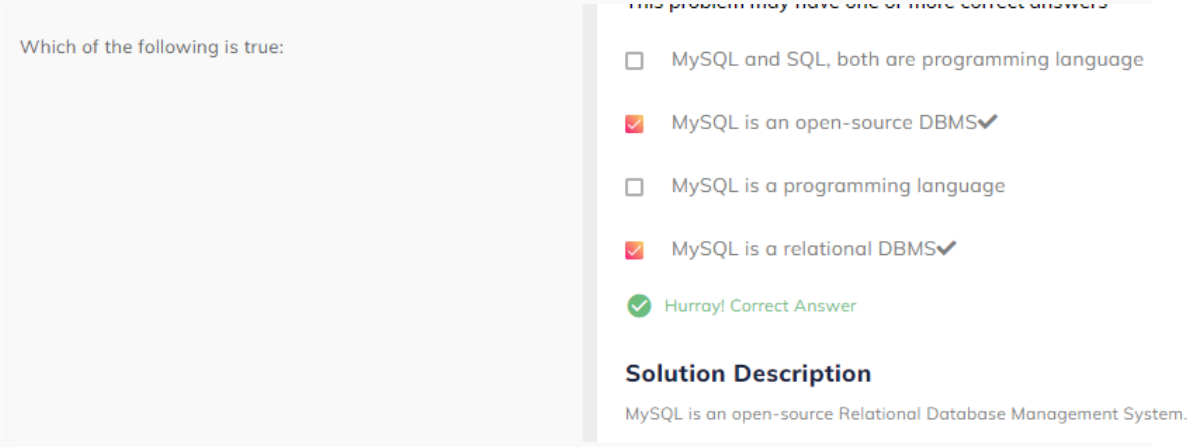
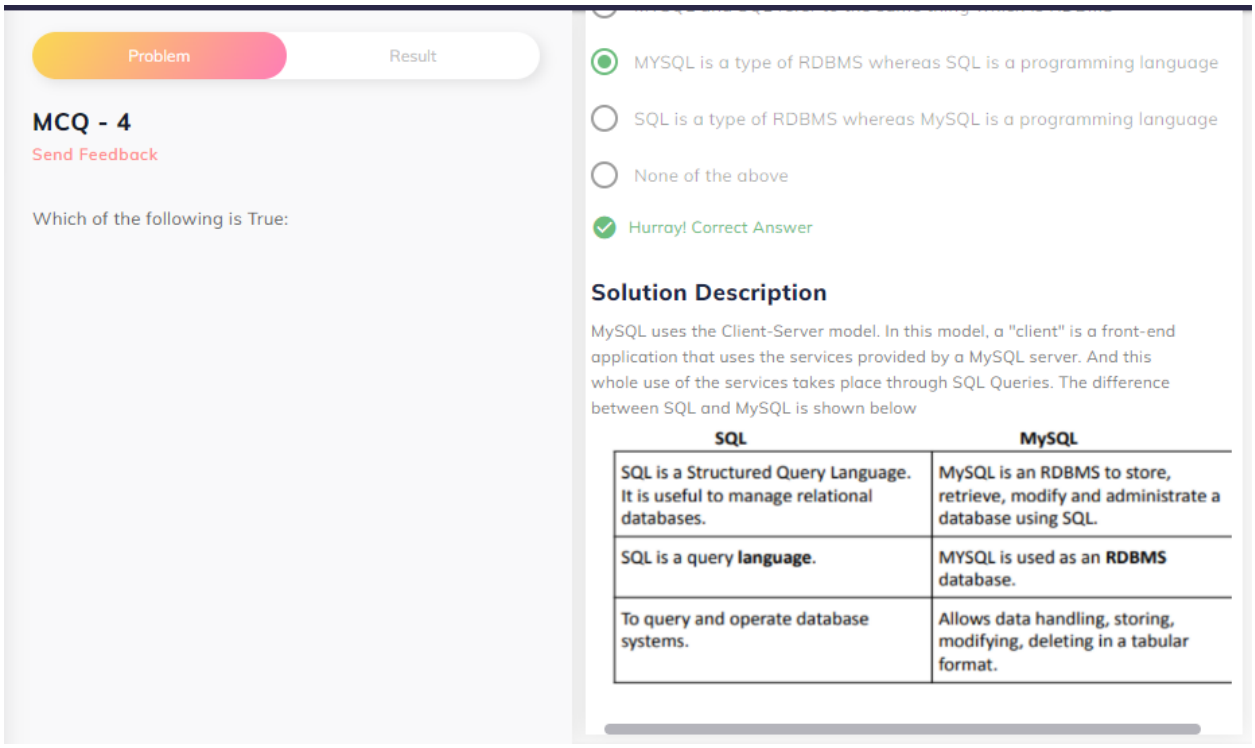
7. Introduction to SQL[4Mcqs]

1. What is the full form of CRUD operations? CREATE READ UPDATE DELETE
2. Which of the following is true for SQL:sql is a programming langSQL or Structured query language is a programming language that can be used to manipulate,retrieve, delete and store data into RDBMS.
3. 

4. 

5.

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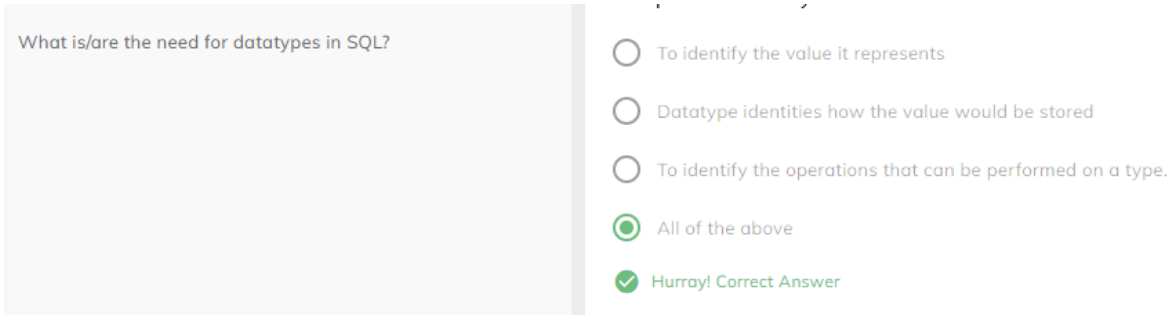
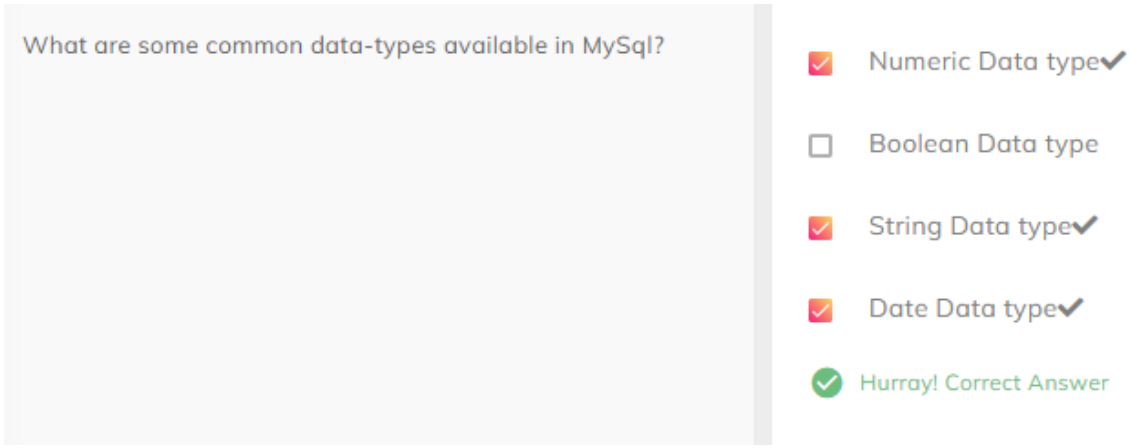
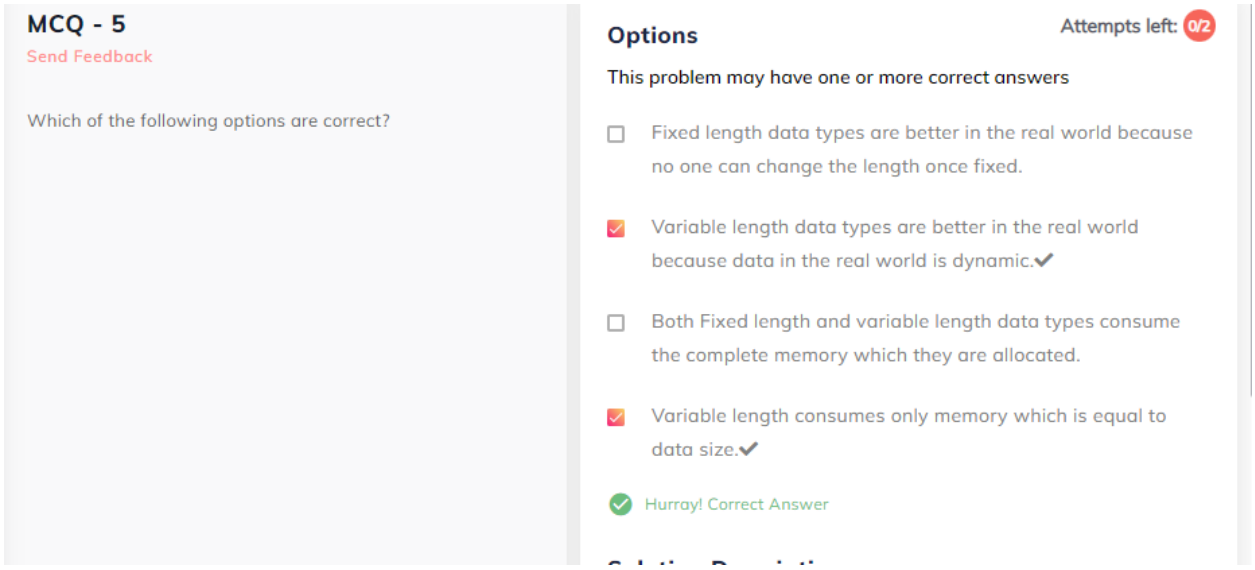
8. SQL Datatypes[25Mcqs]

1. Data Type for strings can be stored as:Fixed and variable length

2. 

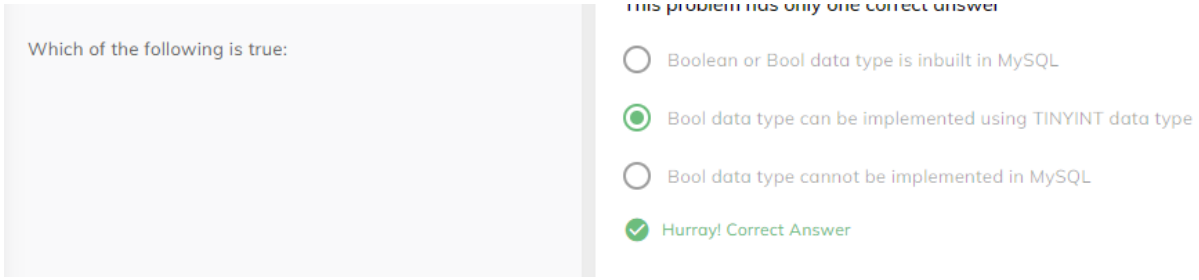
3. 

4. Keywords can be changed in MYSql.:-False
5. Which datatype is more suitable for storing Gender for a person, having values like M/F/O?Fixed length CHAR

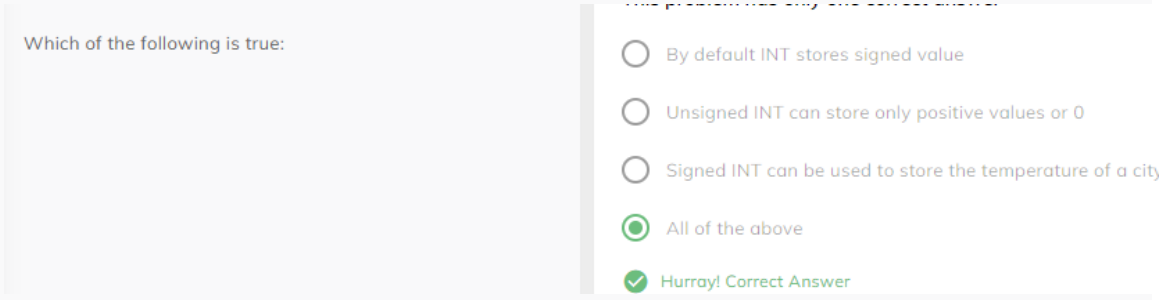
6. 

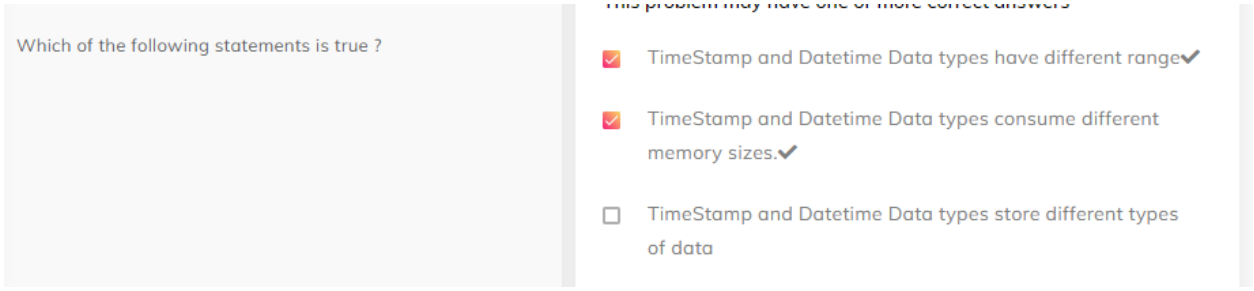
7. Size of INT Data type?(in bytes):-4

8. Which data type is best for storing the population of the cities?BIGINT
9. Which datatype is best for defining the available Balance in a bank account?DECIMAL
10. Value range of BIT is? 1-64
11. By Default what is the nature of INT data type? (Signed/Unsigned)sIGNED
12. To store the City for the students in the table ‘Student_details’ we should:dECLARE CITY AS VARCHAR

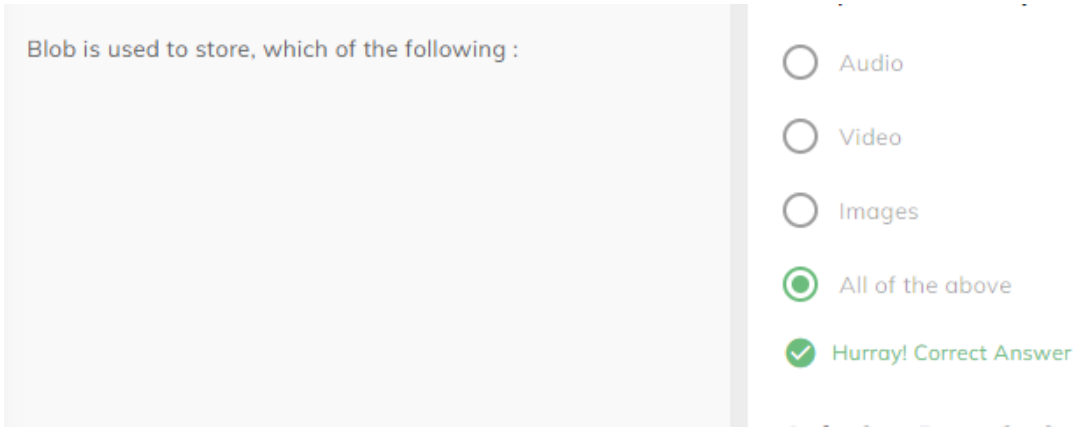
13. 

14. How will DECIMAL (7,2) be stored in MySQL?Total of 9 digits where 7 digits are significant digits/value and 2 digits after decimal

15. 

16. 

17. Timestamps can be used to track the changes done in the records or database.:True
18. Which of the following data type stores the value in format “0000-00-00”==Date
19. Timestamp data type provides both the date and the time value.--True

20. 

21. Full form of BLOB is?Binary Large Object
22. To store the book titles in a table, which of the following should be preferred assuming that no book title is longer than 60 characters:-Varchar(100)
23. Which of the following should be used to store geographical information ?Spatial datatype
24. Full form of JSON is :javascript object notation
25. Which data type is best suited to store Key:Value pair ? JSON Datatype

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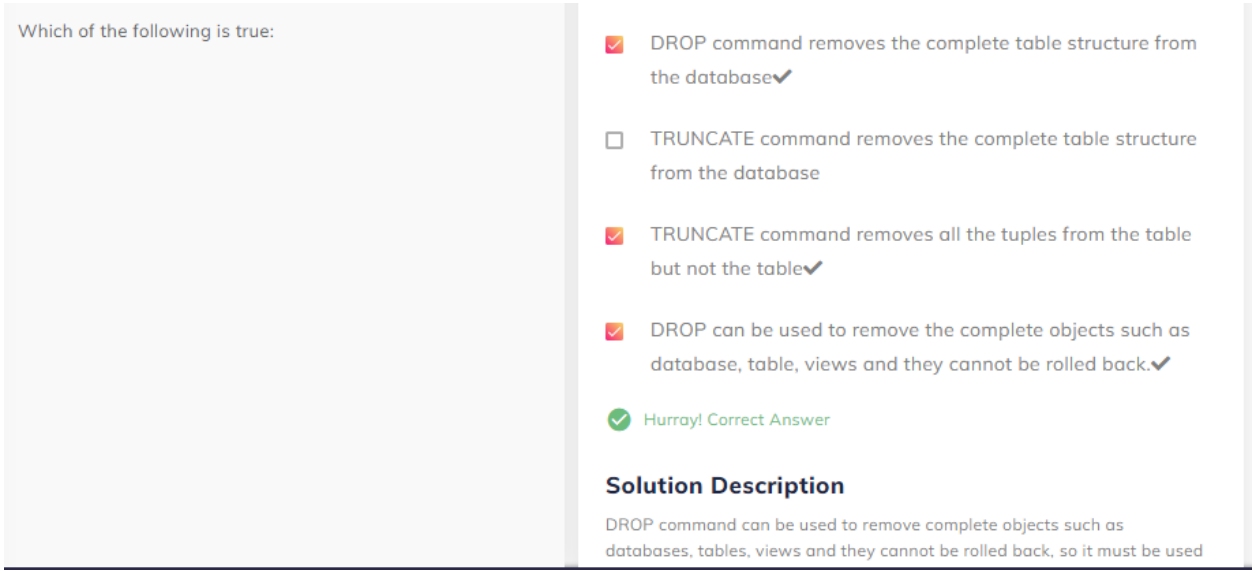
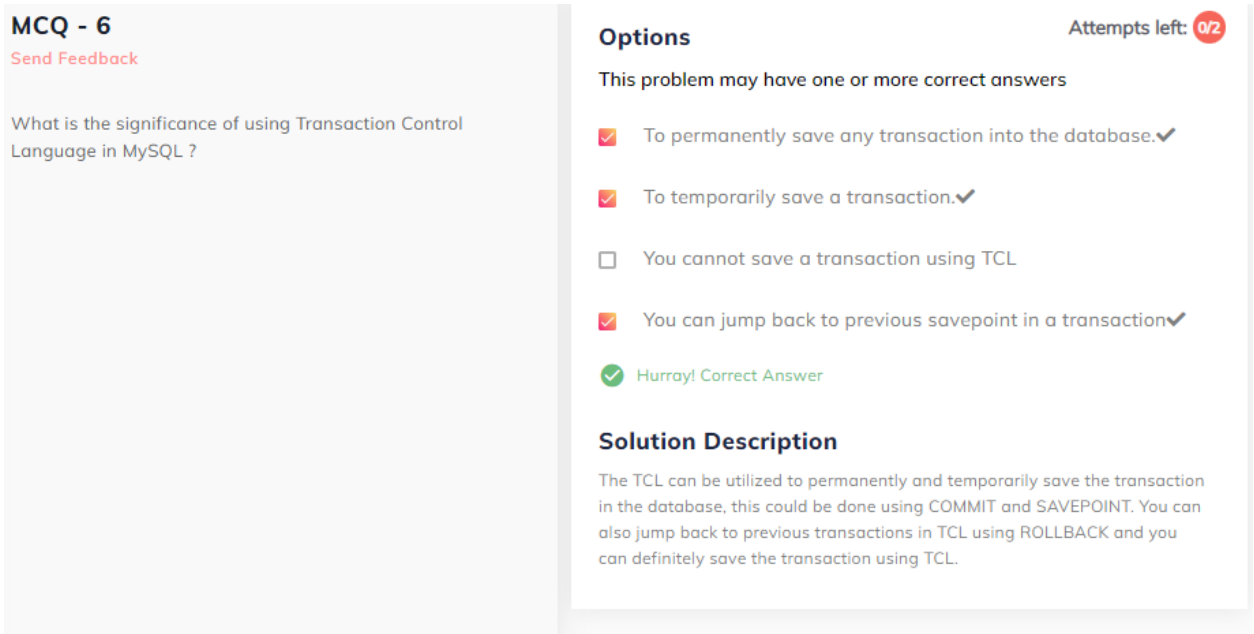
9. SQL Commands[6Mcqs]

1. Which of the following deals with database schemas and table structure ::DDL

2. 

3. ALTER command is a type of::DDL
4. Which of the following is not a part of Data Manipulation Language ::ROLLBACK
5. Which of the following keywords is not part of Transaction Control Language ?SAVE[There are mainly four types of TCL Command - 1. BEGIN TRANSACTION 2. COMMIT 3. ROLLBACK 4. SAVEPOINT]

6. 

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10. Filtering and Sorting Data[28Mcqs]

1. SELECT STUD_ID,FNAME,LNAME FROM STUDENT
2. SELECT STUD_ID,FNAME,LNAME,EMAIL,PH_NO FROM STUDENT WHERE JOINING_YEAR=2018;
3. SELECT * FROM STUDENT WHERE COURSE='CS400';
4. SELECT STUD_ID,FNAME,LNAME,EMAIL,PH_NO FROM STUDENT WHERE JOINING_YEAR>2000 AND LNAME='DAGA';
5. SELECT STUD_ID FROM STUDENT WHERE JOINING_YEAR=2016 OR COURSE='CS101';
6. SELECT * FROM STUDENT WHERE JOINING_YEAR BETWEEN 2009 AND 2011;
7. SELECT FNAME,LNAME,JOINING_YEAR,PH_NO FROM STUDENT WHERE DOB>= '1998-11-02';
8. SELECT EMP_NAME,EMAIL FROM EMP_DATA WHERE CONTRACT='Intern';
9. SELECT *FROM EMP_DATA WHERE DEPT='D3' AND CONTRACT='FTE';
10. SELECT * FROM EMP_DATA WHERE DEPT='D1' OR DEPT='D3';
11. SELECT * FROM EMP_DATA WHERE DEPT IN (D1 OR D3);
12. SELECT * FROM EMP_DATA WHERE DEPT IN ('D1','D3');
13. SELECT * FROM EMP_DATA WHERE DEPT NOT IN ('D1','D2');
14. SELECT EMP_NAME,DEPT FROM EMP_DATA WHERE HOMETOWN IN ('Mumbai','Jalandhar') and EMP_ID <900;
15. SELECT FNAME,LNAME FROM STUDENT WHERE FNAME LIKE '_s%';
16. SELECT * FROM STUDENT WHERE EMAIL LIKE '%yahoo%';
17. SELECT * FROM EMP_DATA WHERE EMAIL LIKE 'fab%';
18. SELECT EMP_ID,EMP_NAME

    FROM EMP_DATA

    WHERE EMAIL LIKE '%bcd%' AND DEPT IN ('D3','D4') AND HOMETOWN NOT IN ('Himachal','Guwahati');

19. SELECT * FROM STUDENT ORDER BY LNAME ASC;
20. SELECT * FROM STUDENT ORDER BY LNAME ASC;
21. SELECT EMAIL FROM STUDENT WHERE JOINING_YEAR=2005 ORDER BY DOB DESC;

22. SELECT FNAME,LNAME FROM STUDENT WHERE COURSE='CS206' AND JOINING_YEAR=2019 ORDER BY DOB ASC;
23. SELECT ORDER_ID,ORDERED_TIME FROM E_TRANSACTIONS ORDER BY ORDERED_TIME ASC;
24. SELECT * FROM E_TRANSACTIONS ORDER BY SHIPPING_TIME DESC;
25. SELECT * FROM E_TRANSACTIONS ORDER BY ORDERED_TIME DESC, SHIPPING_TIME ASC;
26. SELECT * FROM E_TRANSACTIONS WHERE COST<5000 ORDER BY COST ASC;
27. SELECT ORDER_ID,SHIPPING_TIME FROM E_TRANSACTIONS WHERE ORDERED_TIME<'2021-06-30'

    ORDER BY COST ASC,ORDERED_TIME DESC;

28. SELECT *

    FROM E_TRANSACTIONS

    WHERE (ORDERED_TIME >= '2021-02-01' AND ORDERED_TIME < '2021-03-01') OR (ORDERED_TIME >= '2021-07-01' AND ORDERED_TIME < '2021-08-01')

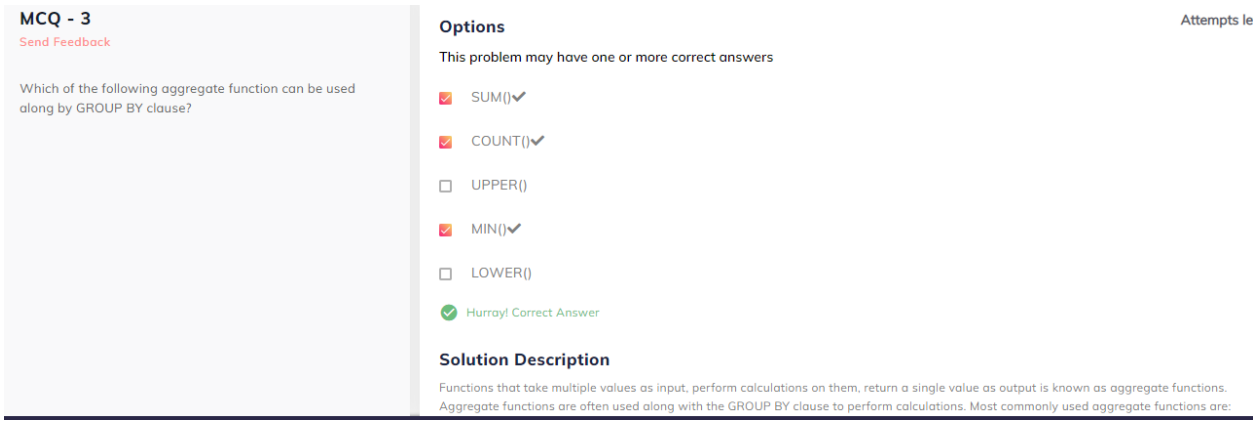
    ORDER BY COST ASC;

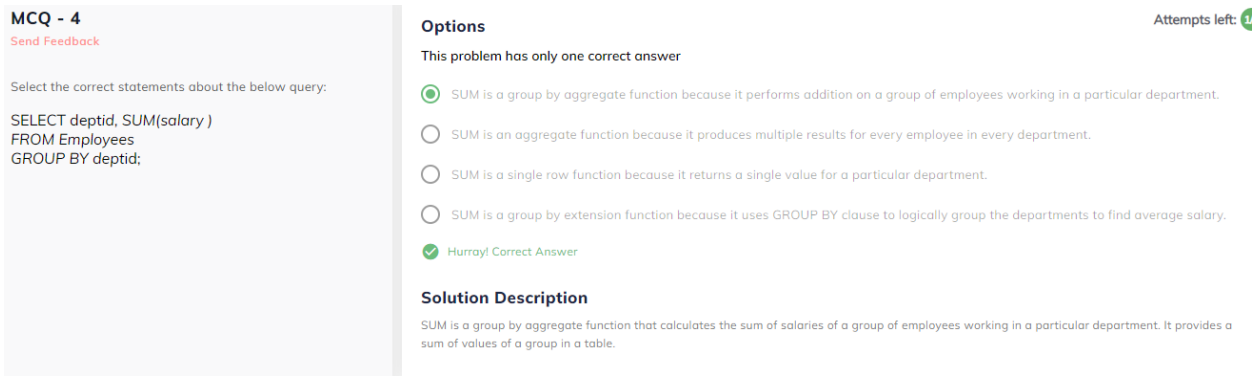
    Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-7\DBMS\10.Filtering and Sorting Data

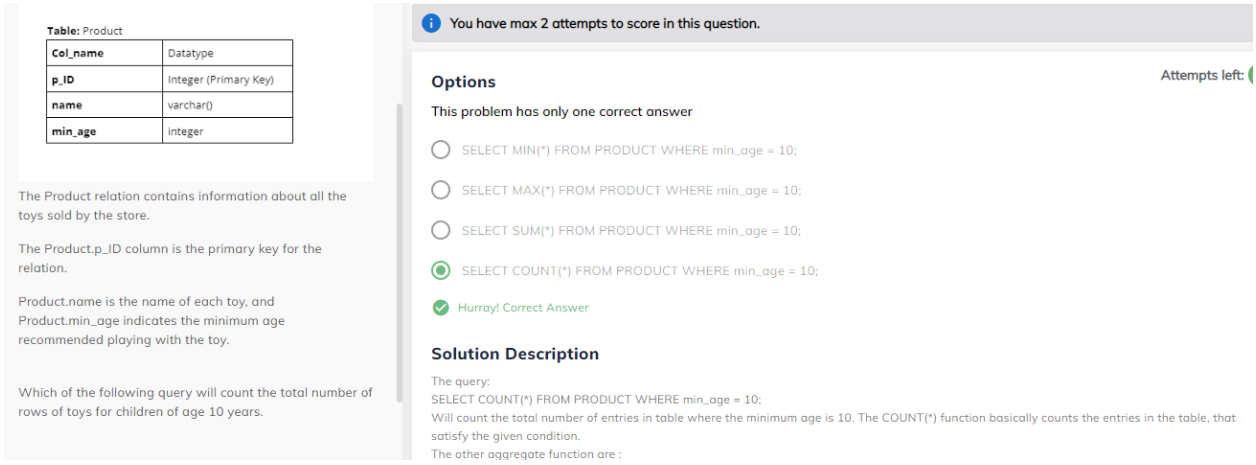
11. Grouping Data[32Mcqs]

1. GROUP BY clause in SQL is used to group rows that have:-Same value in a particular column
2. Which of the following SQL statements we can use to find the distinct elements in the table?GROUP BY & DISTINCT

3. SELECT GENDER FROM CUSTOMER GROUP BY GENDER;
4. SELECT YEAR_OF_JOINING FROM EMPLOYEE WHERE YEAR_OF_JOINING>2010 GROUP BY YEAR_OF_JOINING;
5. SELECT DEPT_ID FROM EMPLOYEE WHERE SALARY>50000 GROUP BY DEPT_ID;

6. 

7. 

8. 

9. SELECT CITY,COUNT(*) AS CUST_NUM

   FROM CUSTOMER

   GROUP BY CITY;

10. SELECT ADDRESS, SUM(TOTALORDERSYET)

FROM CUSTOMER

GROUP BY ADDRESS;

11. SELECT PINCODE,MAX(TOTALORDERSYET)

    FROM CUSTOMER

    GROUP BY PINCODE;

12. SELECT GENDER, MIN(TOTALORDERSYET)

    FROM CUSTOMER

    GROUP BY GENDER;

13. SELECT CITY, AVG(TOTALORDERSYET)

    FROM CUSTOMER

    GROUP BY CITY;

14. SELECT CITY, COUNT(*) AS NUMBER

    FROM CUSTOMER

    GROUP BY CITY

    ORDER BY NUMBER DESC;

15. SELECT ADDRESS, COUNT(*) AS ADDRESS_TIMES

    FROM CUSTOMER

    WHERE CITY='Jalandhar'

    GROUP BY ADDRESS;

16. SELECT Job, COUNT(*) AS empnum

    FROM EMPLOYEE_DATA

    GROUP BY JOB;

17. SELECT JOB,DEPTCODE, COUNT(*) AS NUMBER_OF_EMPLOYEES

    FROM EMPLOYEE_DATA

GROUP BY JOB,DEPTCODE;

18. SELECT JOB, MAX(SALARY)

    FROM EMPLOYEE_DATA

    GROUP BY JOB;

19. SELECT JOB, DEPTCODE, AVG(SALARY)

    FROM EMPLOYEE_DATA

    GROUP BY JOB, DEPTCODE;

20. SELECT JOB, DEPTCODE, AVG(SALARY)

    FROM EMPLOYEE_DATA

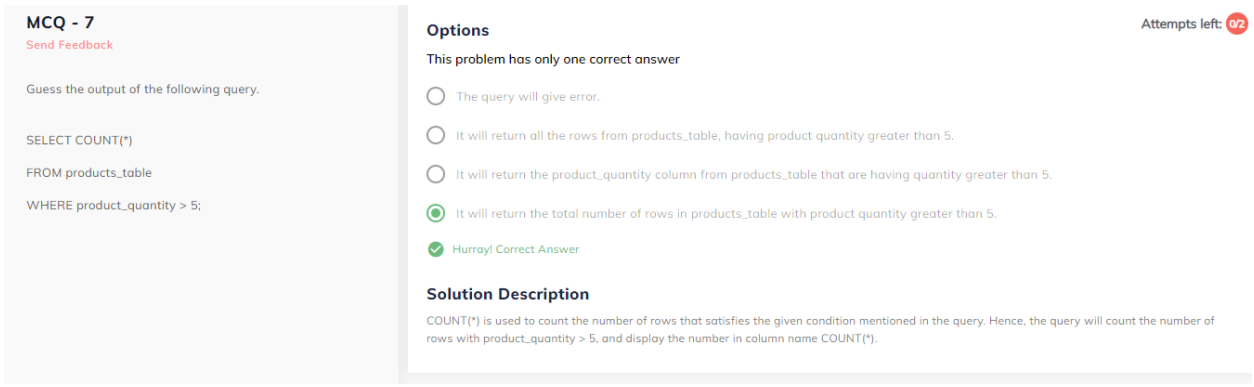
    GROUP BY JOB, DEPTCODE;

21. SELECT DEPT_ID,COUNT(DISTINCT EMP_ID) AS EMP_NUM

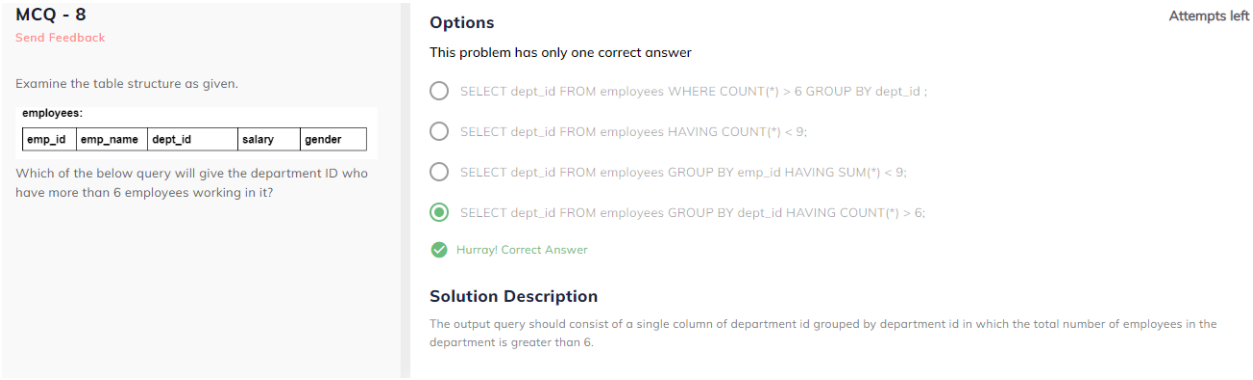
    FROM EMPLOYEE

    GROUP BY DEPT_ID;

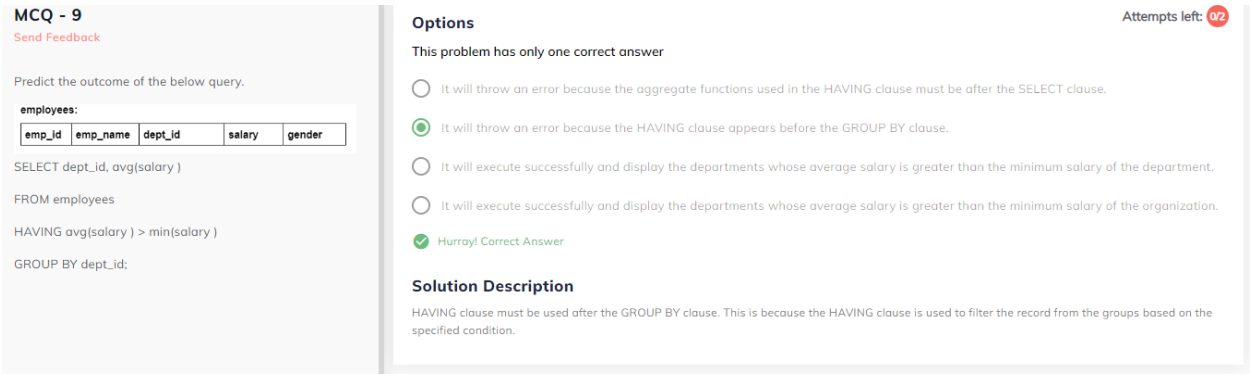
22. Which clause has the same function as the HAVING clause in SQL?where

23. 

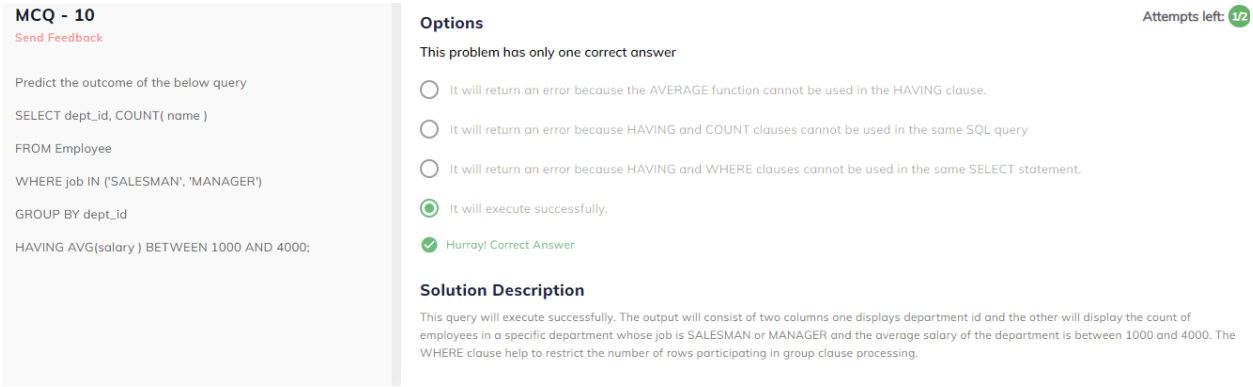
24.



25.



26.



27.
```
SELECT ADDRESS,CITY,PINCODE
FROM  CUSTOMER
GROUP BY ADDRESS,CITY,PINCODE
HAVING COUNT(*) > 2;
```

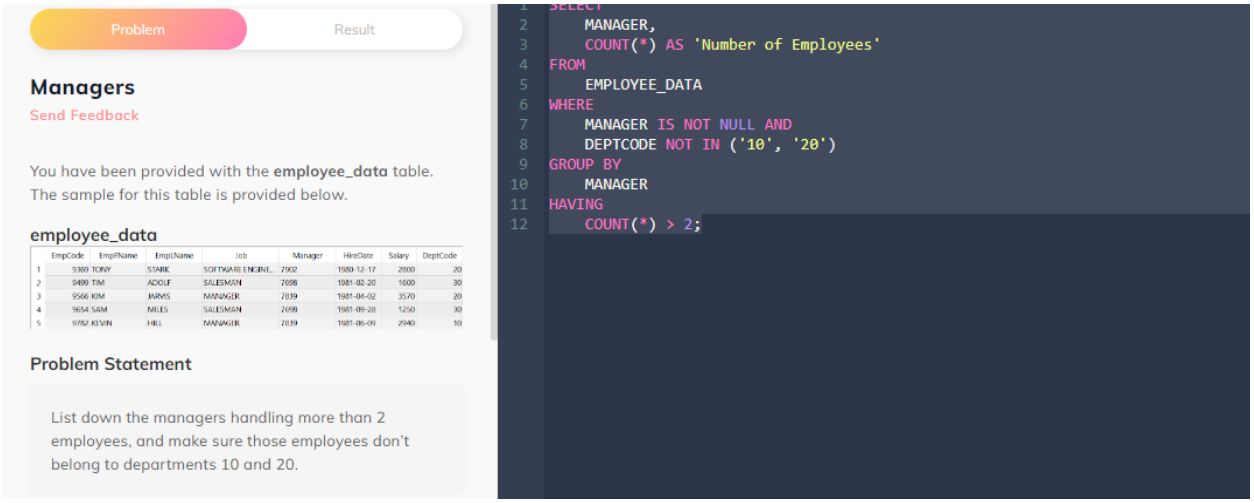
28.
```
SELECT
   ADDRESS
```

```
    FROM
        CUSTOMER
    WHERE
        CITY = 'Guwahati'
    GROUP BY
        ADDRESS
    HAVING
        SUM(TOTALORDERSYET) > 7;
29. SELECT
        JOB
    FROM
        EMPLOYEE_DATA
    GROUP BY
        JOB
    HAVING
        AVG(SALARY) > 3000;
30. SELECT
        DEPTCODE
    FROM
        EMPLOYEE_DATA
    GROUP BY
        DEPTCODE
    HAVING
        SUM(SALARY) > 5000
```

ORDER BY

MIN(SALARY) ASC;

31.



32.

Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-7\DBMS\11.Grouping Data

12. Queries with tables and constraints[13 Mcqs]

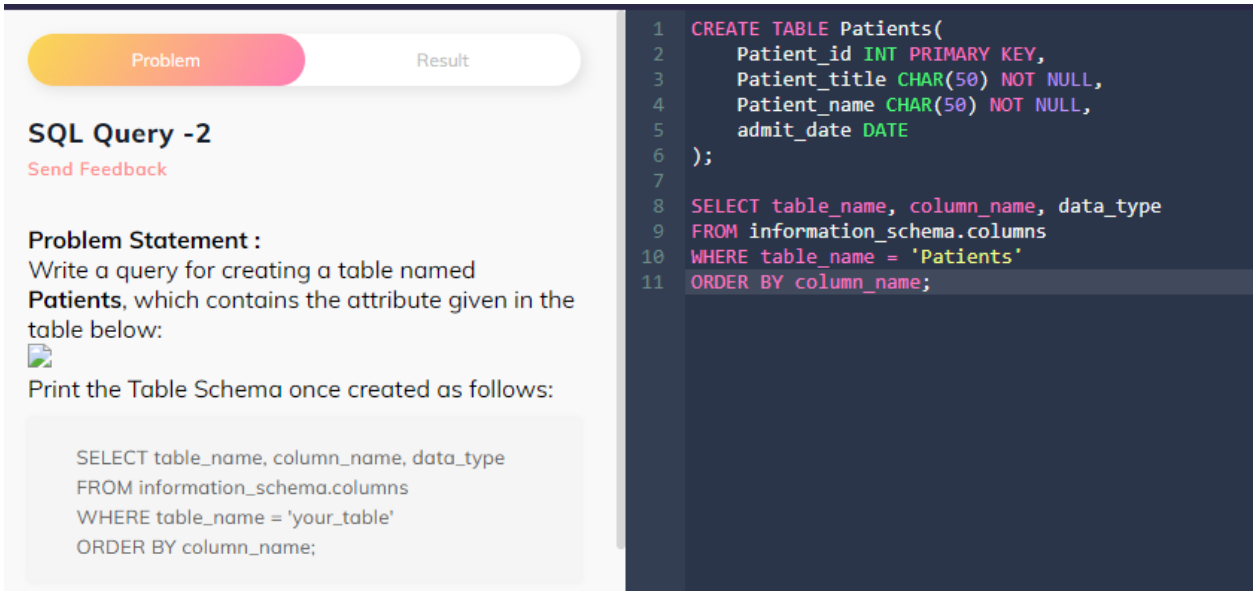
1. CREATE TABLE People(PID INT,LastName VARCHAR(255),FirstName VARCHAR(255),Address VARCHAR(255),CITY VARCHAR(255));

   SELECT table_name,column_name,data_type

   FROM information_schema.columns

   WHERE table_name = 'People'

   ORDER BY column_name;

2. 

3. Problem | Result

SQL Query - 3

Send Feedback

Problem Statement:

Write multiple queries to create two tables named customer and contacts:

1. The table **customer** contains features like ID, Name, City where all columns are never NULL. The ID here will be the primary key.

```sql
CREATE TABLE Patients(
    Patient_id INT PRIMARY KEY,
    Patient_title CHAR(50) NOT NULL,
    Patient_name CHAR(50) NOT NULL,
    admit_date DATE
);

SELECT table_name, column_name, data_type
FROM information_schema.columns
WHERE table_name = 'Patients'
ORDER BY column_name;
```

4. Which of the following can accept NULL values?:Unique Key

5. **MCQ - 2**

Send Feedback

Which of the following is not a Key in MySQL?

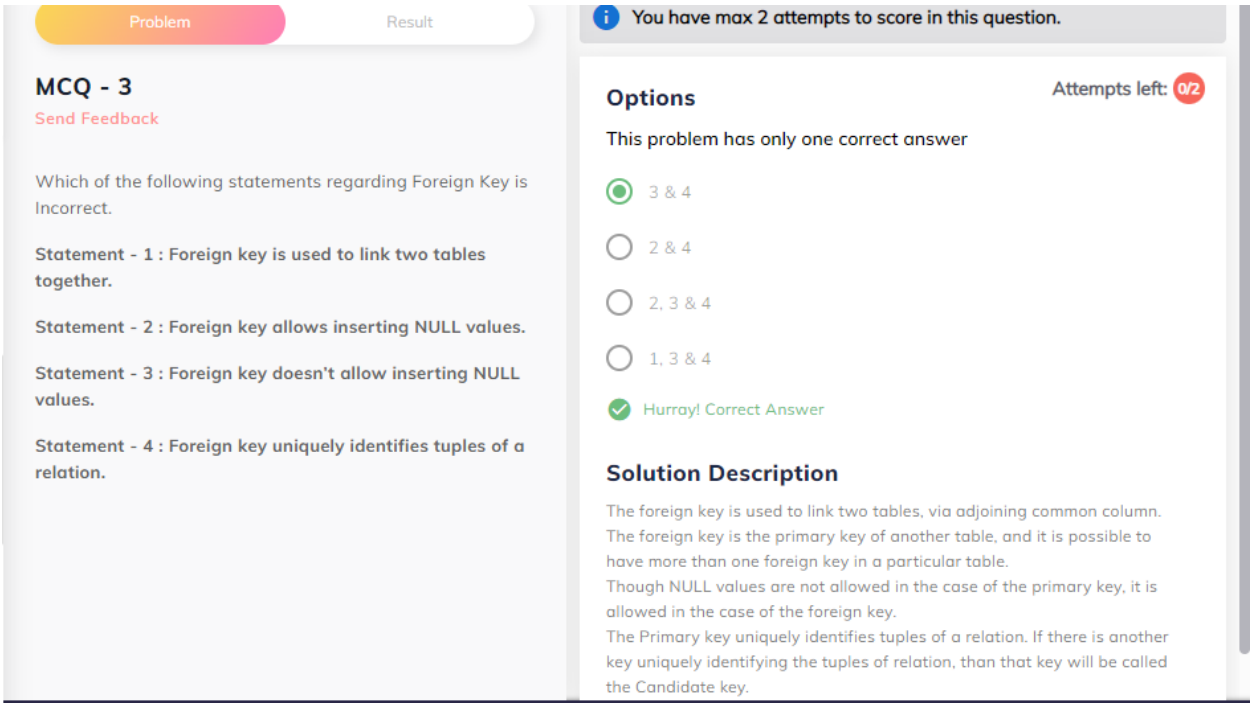
Options

This problem has only one correct answer

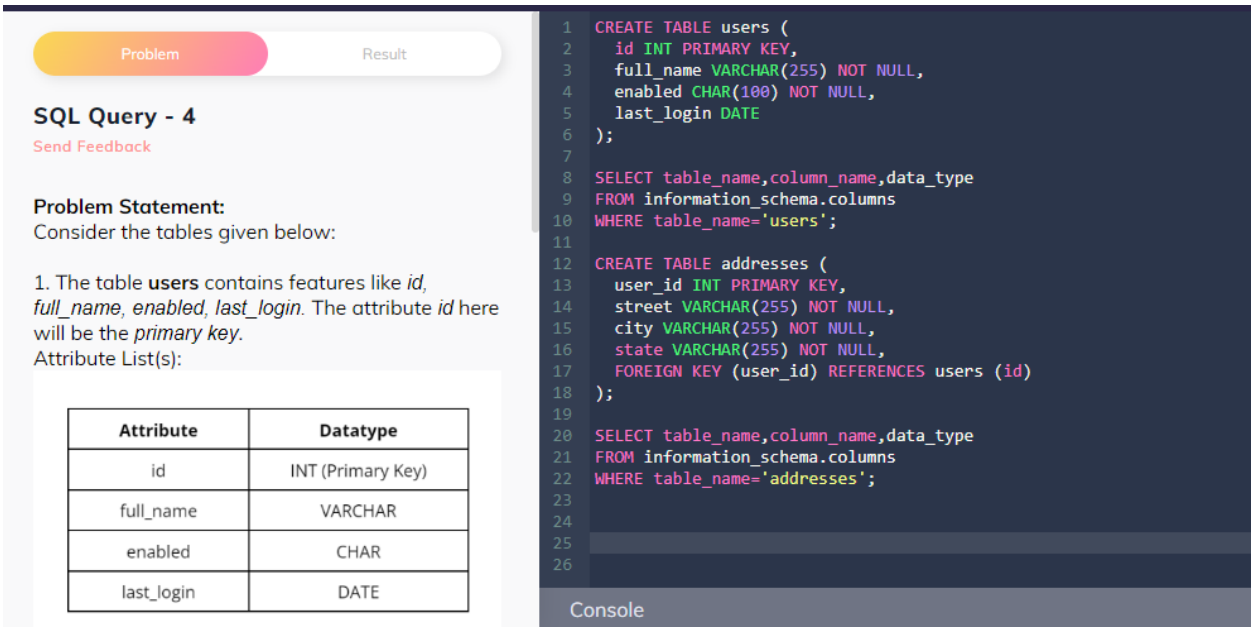
- ○ Primary
- ◉ Secondary
- ○ Alternate
- ○ Foreign

Hurray! Correct Answer

6.


Problem
Result
MCQ - 3
Send Feedback
Which of the following statements regarding Foreign Key is Incorrect.
Statement - 1 : Foreign key is used to link two tables together.
Statement - 2 : Foreign key allows inserting NULL values.
Statement - 3 : Foreign key doesn't allow inserting NULL values.
Statement - 4 : Foreign key uniquely identifies tuples of a relation.
You have max 2 attempts to score in this question.
Options
Attempts left: 0/2
This problem has only one correct answer
3 & 4
2 & 4
2, 3 & 4
1, 3 & 4
Hurray! Correct Answer
Solution Description
The foreign key is used to link two tables, via adjoining common column.
The foreign key is the primary key of another table, and it is possible to have more than one foreign key in a particular table.
Though NULL values are not allowed in the case of the primary key, it is allowed in the case of the foreign key.
The Primary key uniquely identifies tuples of a relation. If there is another key uniquely identifying the tuples of relation, than that key will be called the Candidate key.

7.


Problem
Result
SQL Query - 4
Send Feedback
Problem Statement:
Consider the tables given below:
1. The table users contains features like id, full_name, enabled, last_login. The attribute id here will be the primary key.
Attribute List(s):
Attribute
Datatype
id
INT (Primary Key)
full_name
VARCHAR
enabled
CHAR
last_login
DATE
CREATE TABLE users (
id INT PRIMARY KEY,
full_name VARCHAR(255) NOT NULL,
enabled CHAR(100) NOT NULL,
last_login DATE
);
SELECT table_name,column_name,data_type
FROM information_schema.columns
WHERE table_name='users';
CREATE TABLE addresses (
user_id INT PRIMARY KEY,
street VARCHAR(255) NOT NULL,
city VARCHAR(255) NOT NULL,
state VARCHAR(255) NOT NULL,
FOREIGN KEY (user_id) REFERENCES users (id)
);
SELECT table_name,column_name,data_type
FROM information_schema.columns
WHERE table_name='addresses';
Console

8.

Problem | Result

SQL Query - 5

Send Feedback

Problem Statement:
Consider the tables given below and formulate a SQL query to create these tables with all the constraints.

1. The table **books** contain features like *id, title, author, published_date, isbn*. The *id* should be declared as *PRIMARY KEY*. The *isbn* should be declared *UNIQUE*. The attributes *title, author and publish_date* should be declared *NOT NULL*.

Attribute	Data type
id	INT (PRIMARY KEY)
title	VARCHAR (100)
author	VARCHAR (100)

```sql
CREATE TABLE books (
    id INT PRIMARY KEY,
    title VARCHAR(100) NOT NULL,
    author VARCHAR(100) NOT NULL,
    published_date TIMESTAMP NOT NULL,
    isbn CHAR(12) UNIQUE
);

SELECT table_name, column_name, data_type
FROM information_schema.columns
WHERE table_name = 'books';

CREATE TABLE reviews (
  id INT PRIMARY KEY,
  book_id INT NOT NULL,
  reviewer_name VARCHAR(255) NOT NULL,
  content VARCHAR(255) NOT NULL,
  rating INT,
  published_date TIMESTAMP,
  FOREIGN KEY (id) REFERENCES books(id)
);

SELECT table_name, column_name, data_type
FROM information_schema.columns
WHERE table_name = 'reviews';
```

9.

Problem | Result

SQL Query - 6

Send Feedback

Problem Statement :
Given a table named **members**, write a query to add a column named cc_number (Datatype - VARCHAR).
Note : Print the Table Schema once created as follows:

```
SELECT table_name, column_name, data_type
FROM information_schema.columns
WHERE table_name = 'your_table'
ORDER BY column_name;
```

```sql
ALTER TABLE members ADD cc_number VARCHAR(100) ;


SELECT table_name,column_name,data_type
FROM information_schema.columns
WHERE table_name='members'
ORDER BY column_name;
```

10.

Problem | Result

SQL Query - 7

Send Feedback

Problem Statement :
Given a table named Bank, write a query to change the existing column person_id to Pid VARCHAR(50).
table **Bank**

Attribute	Data type
person_id	INT (Primary Key)
full_name	VARCHAR (30)
acc_no	INT
last_trans	VARCHAR (200)
phone_no	VARCHAR (200)

```
1  ALTER TABLE Bank CHANGE COLUMN person_id Pid VARCHAR(50);
2  DESC Bank;
```

11.

Problem | Result

SQL Query - 8

Send Feedback

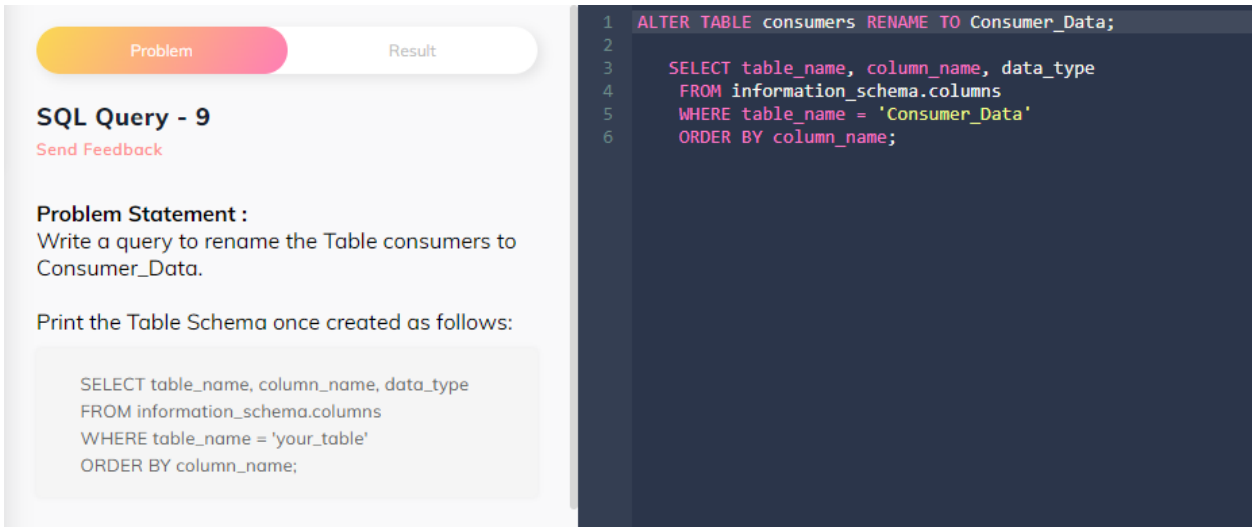
Problem Statement :
Given a table named members, write a query to remove a column named member_dob.

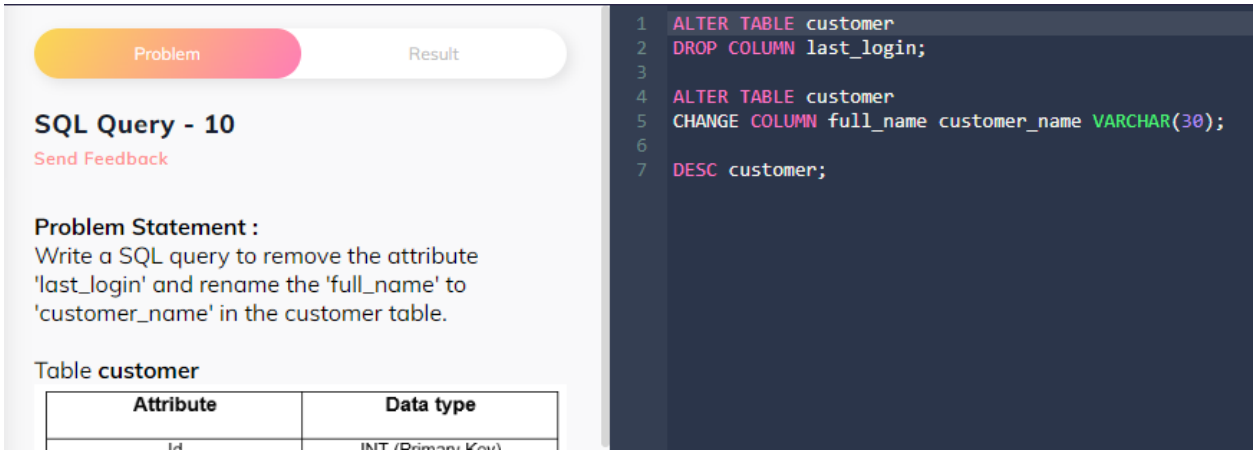
Print the Table Schema once created as follows:

```
SELECT table_name, column_name, data_type
FROM information_schema.columns
WHERE table_name = 'your_table'
ORDER BY column_name;
```

Note - 1: Replace 'your_table' with the actual table name

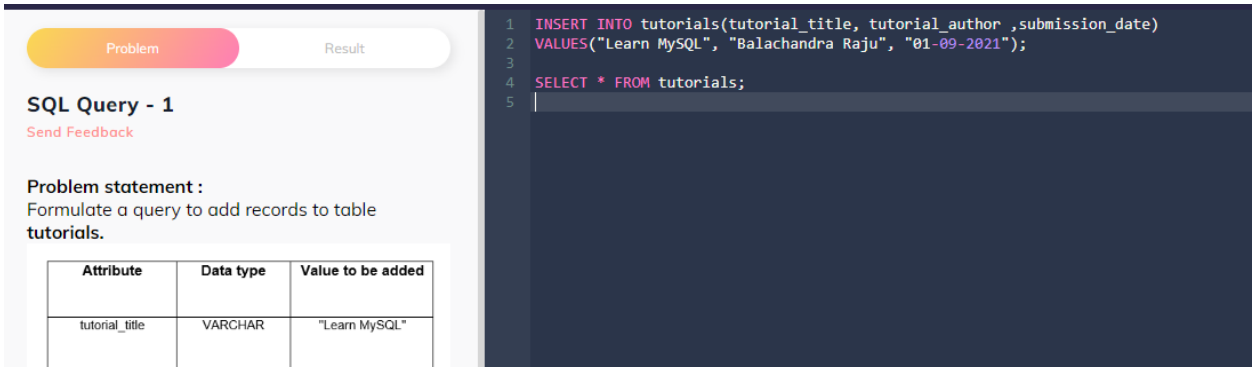
```
1  ALTER TABLE members DROP COLUMN member_dob;
2
3     SELECT table_name, column_name, data_type
4      FROM information_schema.columns
5      WHERE table_name = 'members'
6      ORDER BY column_name;
```

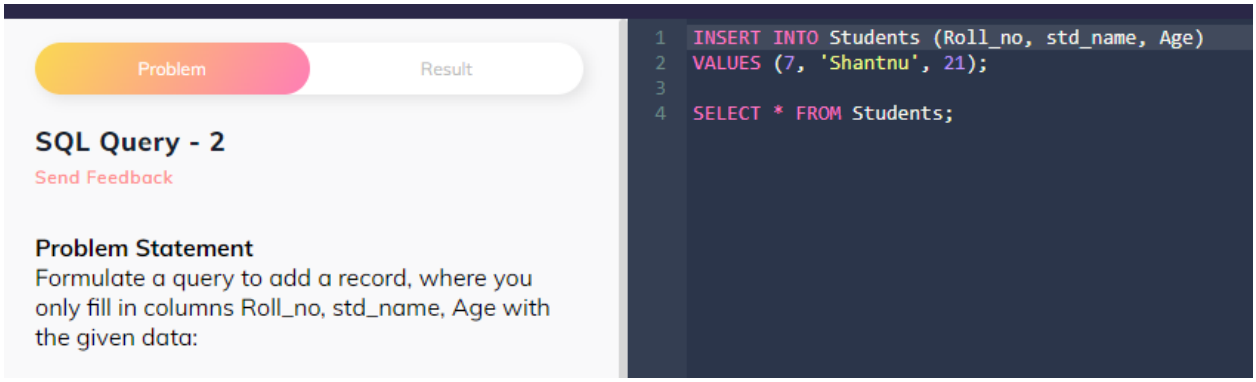
12. 

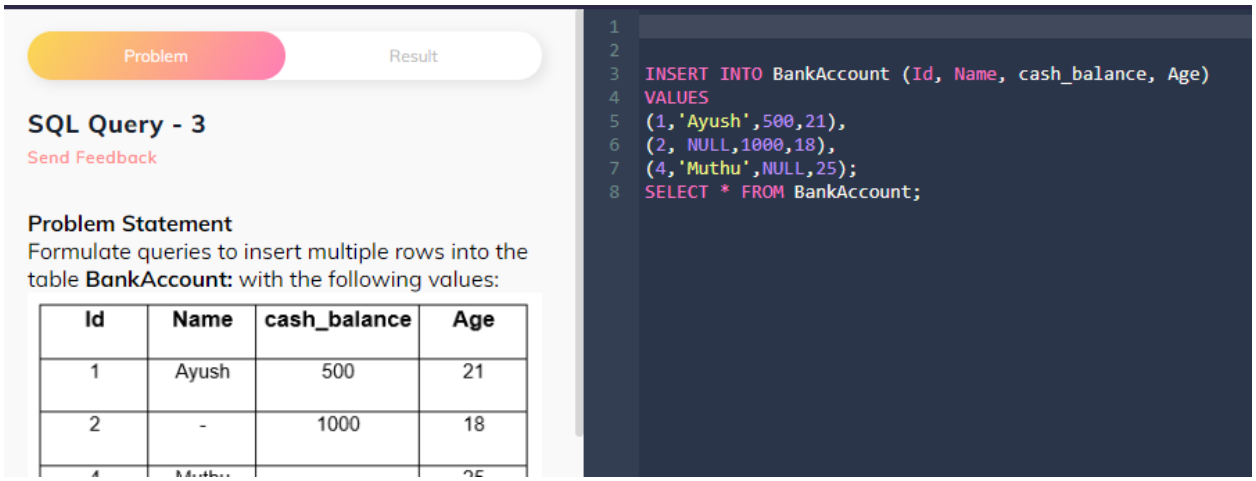
13. 

14. Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-7\DBMS\12.Queries with Tables and Constraints

13. Modifying Data[21 Mcqs]

1. 

2. 

3. 

4.

Problem | Result

SQL Query - 4

Send Feedback

Problem Statement

Write Queries to:

1. Update the Age of Id 2 to 18.
2. Update the cash_balance of Muthu to 2000.

Note: These two are seperate queries.

Information about the table

Table **BankAccount:**

Id	Name	cash_balance	Age

```sql
UPDATE  BankAccount
SET Age='18'
WHERE Id=2;

UPDATE  BankAccount
SET cash_balance='2000'
WHERE Id=4;

SELECT * FROM BankAccount;
```

5.

MCQ - 1

Send Feedback

Which of the following is the most efficient way to update the current value of "Semester" attribute by 1, for all the rows of the table 'Student':

Options Attempts left: 1/2

This problem has only one correct answer

- ○ Write 'n' update commands, if 'n' number of rows are present in the t
- ○ Instead of updating, insert all the records again in the table
- ◉ Update Student SET Semester= Semester + 1;
- ○ We cannot update all the rows at once.

Hurray! Correct Answer

Solution Description

We definitely can update all rows at once. This is possible as we have not used any WHERE condition to limit the rows on which we would like to perform UPDATE operation . For example in this case for all the rows of the Student table, the Semester column would get updated by 1.

6.

MCQ - 2

Send Feedback

A University has following dataset:

Id	Name	Age
1	Lawrence	21
2	Aniket	18
3	Carla	25

The dataset was last updated 1 year ago , which means the age of every person in the dataset is 1 year older now. Choose the most appropriate option to Update the dataset accordingly to store the correct age of every person.

Options

Attempts left: 1/2

This problem has only one correct answer

- UPDATE * in University Age=Age+1;
- UPDATE University SET Age = Age+1;
- UPDATE University SET ALL Age=Age+1;
- We cannot update all the rows at once.

Hurray! Correct Answer

Solution Description

In this question, we need to update the age of every person by one. So we can use the UPDATE query on the Database University and increase every element in the AGE column by one, hence we can do- UPDATE University SET Age = AGE +1.

7.

Problem | Result

SQL Query - 5

Send Feedback

Problem Statement:
Given a table named **stud_data**, formulate a query to change the **Fname and Age** of the already entered record to **(Neelabh, 22)** of **roll number 17**.

Information about the table
Table **stud_data :**

```
roll_no Fname   Age
```

```sql
UPDATE stud_data
SET Fname='Neelabh',Age='22'
WHERE roll_no=17;

SELECT * FROM stud_data;
```

8.

Problem | Result

SQL Query - 6 (Part -1)

Send Feedback

Problem Statement
Formulate a query to update the table accordingly and show the updated table.

As the company is celebrating its 5th anniversary, the company is updating the salaries of all people with positions “SDE” and “CA” to 150000.

Information about the table
Table **Employee:**

```sql
UPDATE Employee
SET salary=150000
WHERE position="SDE";

UPDATE Employee
SET salary=150000
WHERE position="CA";

SELECT *FROM Employee;
```

9.

Problem | Result

SQL Query - 6 (Part -2)

Send Feedback

Problem Statement
Formulate a query to update the table accordingly and show the updated table.

The company has also decided to increase the current salary by 10000 for people with age 18,21 and 65.

Information about the table
Table **Employee:**

id	name	age	gender	salary	position
1	Ryan	21	M	100000	SDE
2	Joanna	26	F	243200	HOD Marketing

```sql
UPDATE Employee
SET salary=salary+10000
WHERE age IN (18,21,65);

-- UPDATE Employee
-- SET salary=10000
-- WHERE age="21";

-- UPDATE Employee
-- SET salary=10000
-- WHERE age="65";

SELECT * FROM Employee;
```

10.

Problem | Result

SQL Query - 7

Send Feedback

Problem Statement:
All those bank branches which are in Delhi and Bangalore are shifted to Noida due to its increasing popularity so update the branch accordingly.

Information about the table:
Table **Bank :**

id	Name	branch	CustomerBase
1	HCBC	Hyderabad	100000
2	GDFS	Bangalore	150000
3	ZCZCQ	Delhi	250000

```
UPDATE Bank
SET branch='Noida'
WHERE branch IN ('Delhi','Bangalore');

SELECT * FROM Bank;
```

11.

Problem | Result

SQL Query - 8

Send Feedback

Problem Statement:
Consider a table named products, formulate a query deleting the record where product_id = 596 or 700.

Information about the table:
Table **products :**

product_id	pname	p_mfd
345	oneplus	2021-01-01
596	iphone	2021-07-22
132	MI	2021-03-09
482	vivo	2021-09-01
700	oppo	2021-04-14

```
DELETE FROM products WHERE product_id IN (596,700);

SELECT * FROM products;
```

12.

Problem | Result

SQL Query - 9

Send Feedback

Problem Statement:
Someone has mistakenly added the wrong data in the table as the data only for people above Age 20 was needed. You have to remove the data of all such people whose age is less than equal to 20 years.

Information about the table:
Table **stud_data:**

roll_no	Fname	Age
17	Rishi	23

```
1  DELETE FROM stud_data WHERE Age<=20;
2
3  SELECT * FROM stud_data;
4
```

13.

Problem | Result

SQL Query - 10

Send Feedback

Problem Statement :
It's a time of recession so a new startup company has to cut down on its employee base to reduce its expenses and it has decided to remove all those employees whose name contains "an" in their name and have salary more than 100000, so update the database accordingly.

Information about the table

```
1  DELETE FROM Employee WHERE name like '%an%' and salary>100000;
2
3  SELECT * FROM Employee;
```

14.

MCQ - 3

Send Feedback

There are two tables Employee and Payment. The id of the Employee Table acts as a foreign key for the Payment Table.

Refer the tables given below:

Employee Table:

id	Name	gender	hire_date
101	Bryan	M	2015-08-26
102	Joseph	M	2014-10-21
103	Mike	M	2017-10-28
104	Daren	M	2006-11-01
105	Marie	F	2018-10-12

Payment Table:

payment_id	id	amount	payment_date

Options

This problem has only one correct answer

- We cannot update the id of the employee
- We should update the correct value of id in the employee table only
- We should make sure that if we are updating the correct value of id in the Employee table, it should also get updated in another table
- None of the above is correct

Hurray! Correct Answer

Solution Description

We can update the current_id of employees from 103 to 100 because the current_id of value 100 is not present in the database. current_id is a primary key so its value should be unique. If current_id = 100 consist before, then it is not possible to update but this is not the issue here.

We should update the correct value of current_id in the employee as well as the payment table. We should make sure that if we are updating the correct value of id in the Employee table, it should also get updated in the Payment table so that the data remains consistent.

15.

True/False - 1

Send Feedback

In the Delete cascade , deleting a row from the parent table will automatically delete the matching row from the child table.

Options Attempts left: 1/2

This problem has only one correct answer

- True
- False

Hurray! Correct Answer

Solution Description

When we use delete cascade on the parent table, it will delete that particular row or column from all over the database. So it will result in deletion of the matching row or column in the child database as the child table is linked with the parent's table.

16.

There are two tables: Employee and Payment. Current Structure for both is as follows:

```
CREATE TABLE Employee (
id int(10) NOT NULL,
Name varchar(40) NOT NULL,
gender varchar(10) NOT NULL,
hire_date date NOT NULL,
PRIMARY KEY (id) );

CREATE TABLE Payment (
payment_id int(10) PRIMARY KEY NOT NULL,
id int(10) NOT NULL,
amount INT NOT NULL,
payment_date date NOT NULL,
);
```

Now if we want to apply a feature such that deleting / updating in one table also affects the other table . Which of the following statements should be added to the Payment table to cause such an effect?

You have max 2 attempts to score in this question.

Options Attempts left: 0/2

This problem has only one correct answer

- FOREIGN KEY (id) REFERENCES Employee (id) ON DELETE CASCADE , ON UPDATE CASCADE ;
- PRIMARY KEY (payment_id) REFERENCES Employee (id) ON DELETE CASCADE;
- FOREIGN KEY (id) REFERENCES Employee (id) ON DELETE CASCADE ON UPDATE CASCADE
- No change is required in the payment table.

Hurray! Correct Answer

Solution Description

The primary key is a field or a collection of fields in a table whose value is unique for every row in the table. This value cannot be NULL. Foreign Key is a field or a collection of fields in a table that makes a reference to the primary key of another table. The foreign key is used to create links between tables. In the following tables, the Foreign Key (id) of the payments table will reference the Primary key (id) of Employee tables for the Operation like UPDATE, DELETE, etc. This is the only link between the two tables. No link other than this can be created.

17.

MCQ - 5

Send Feedback

Which of the following statement(s) is/are correct?

Options Attempts left: 0/2

This problem may have one or more correct answers

- [ ] Replace works as Insert command if duplicate data is not found in the table.✔
- [x] Replace can act as Insert command as well as update command under specific conditions.✔
- [ ] If a matching value is already found in the table then Replace doesn't do anything.
- [ ] None of the above.

The solution to this problem has been viewed

18.

Problem | Result

MCQ - 6

Send Feedback

Choose the correct statement:

This problem has only one correct answer

- If the row which we want to replace is not present , replace will not do anything but update will add a new row.
- Update delete the old data and then add new data while replace always makes changes in current data.
- If the row is not present, replace will add a new row and update will not do anything.
- Replace is faster than update because it always adds new data instead of making changes in existing one.

Hurray! Correct Answer

Solution Description

REPLACE adds new rows if they don't exist and updates old rows in case they already existed.

UPDATE make changes in existing rows.

Hence , A is not correct as Replace will insert the row and update will not do anything if row is not present.

B is not correct as Update makes changes in existing data while replace makes changes according to row presence or absence.

D is not correct as Update is faster because replace have to add new data while update have to make changes in current one.

19.

Problem | Result

SQL Query - 11

Send Feedback

Problem Statement :
Data for id 103 has been incorrectly entered. As a school Data manager, you have to correct this data with the correct student name and admission data.

```
REPLACE INTO Student(id,Name,gender,admission_date)
VALUES(103,'Lawrence','M','2008-11-27');

SELECT * FROM Student;
```

20.

Problem | Result

SQL Query - 12

Send Feedback

Problem Statement
Due to multiple issues due to the wrong data insertion of a person with id 305, the company needs to replace the data with its correct information. Formulate a query for the same.

```
REPLACE INTO Insurance(insurance_id,Name,insurance_amount,premium_date)
VALUES(305,'Kev',1750000,'2014-09-08');

SELECT * FROM Insurance
```

21.

Problem | Result

SQL Query - 13

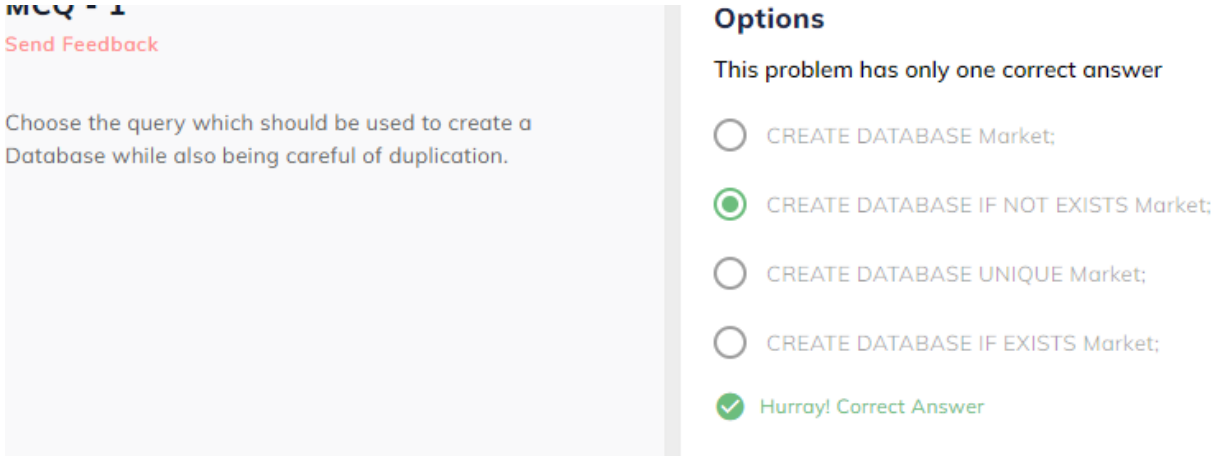
Send Feedback

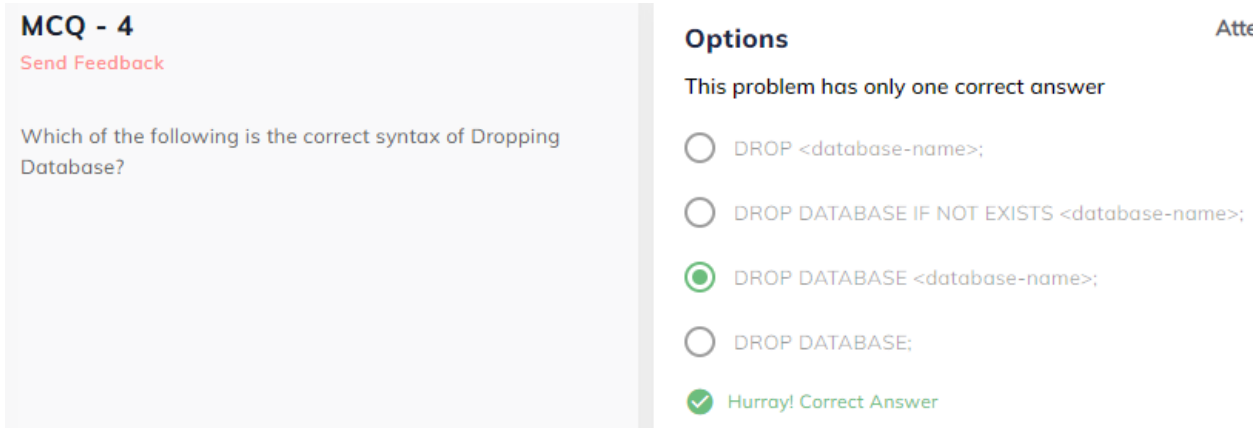
Problem Statement
Given the table cities, form a query using REPLACE, to update/add the given data:

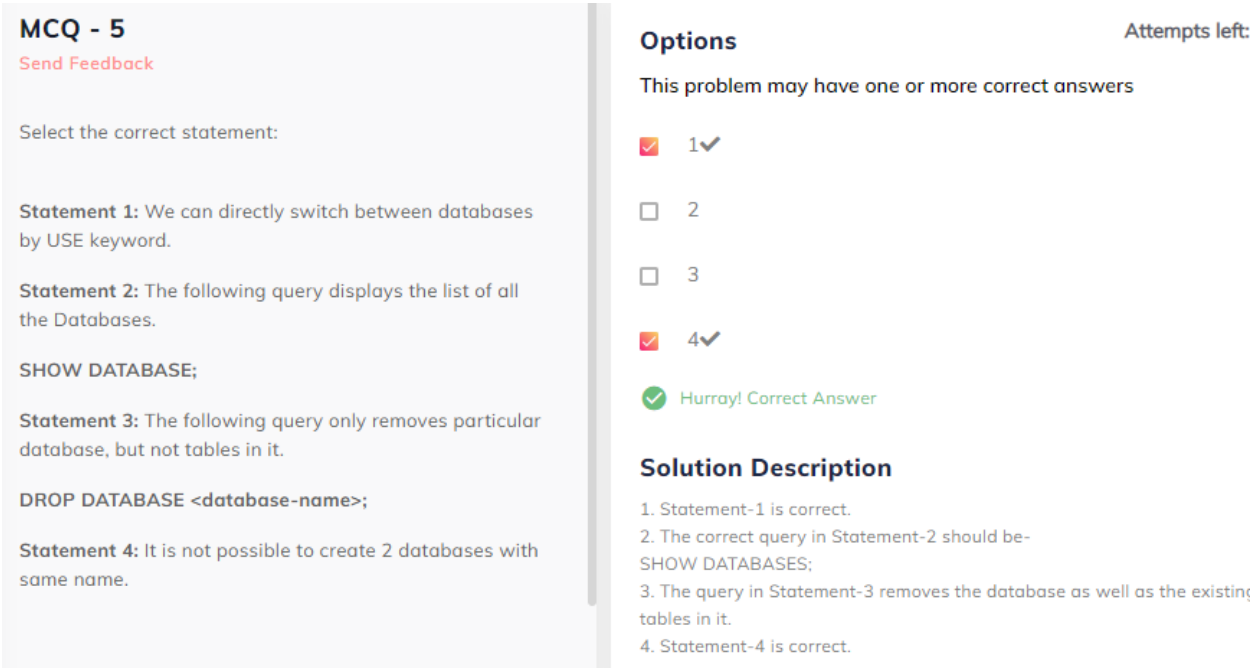
```
REPLACE INTO cities (id, cname, population) VALUES (4, 'Phoenix', 1768980);

SELECT * FROM cities;
```

Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-7\DBMS\13.Modifing Data

14. Managing Database[5 Mcqs]

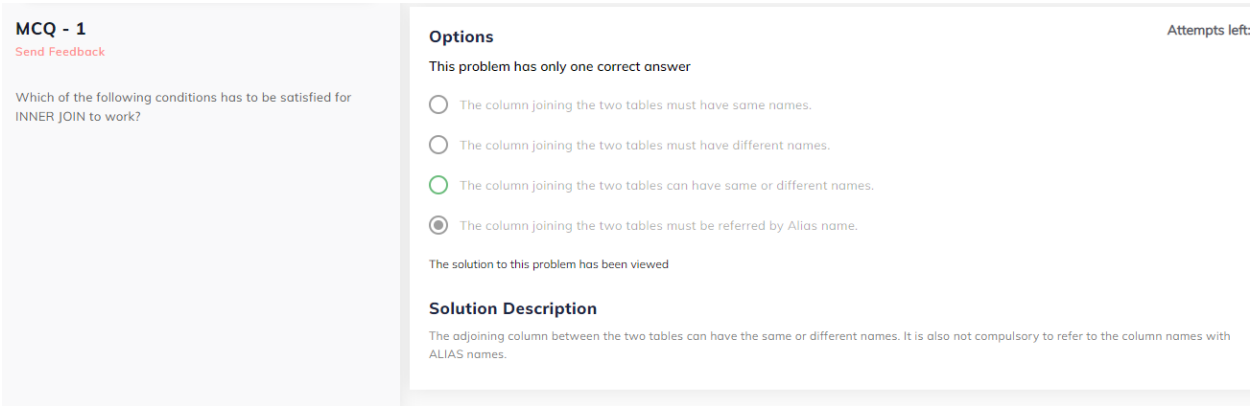
1. 

2. Which DDL command is used to permanently delete the database.:DROP
3. What does The DROP DATABASE statement return?Total no of tables deleted
4. 

5. 

Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-7\DBMS\14.Manging Database

15. Joining Tables[24 Mcqs]

1. 

2.

MCQ - 2

Send Feedback

The following query is equivalent to:

```
SELECT * FROM Table_A JOIN Table_B
USING(Column_Name);
```

Options

This problem has only one correct answer

- (●) SELECT * FROM Table_A INNER JOIN Table_B USING (Column);
- ( ) SELECT * FROM Table_A OUTER JOIN Table_B USING (Column);
- ( ) SELECT * FROM Table_A LEFT OUTER JOIN Table_B USING (Column);
- ( ) None of the above.

✓ Hurray! Correct Answer

Solution Description

The normal JOIN is equivalent to INNER JOIN.

3.

SQL Query - 1

Send Feedback

Problem Statement:
Enlist all the employees ID's, names along with the Project allocated to them.

Information about the table:
Table **Employee:**

EmpID	EmpFname	EmpLname	Age	EmailID	PhoneNo	City
1	Riya	Khanna	21	riya@abc.com	987655443	Delhi

```
-- ON e.id=p.id;


SELECT e.EmpID, e.EmpFname,e.EmpLname,p.ProjectID, p.ProjectName
FROM Employee e
INNER JOIN Project p
ON e.EmpID = p.EmpID
```

4.

Problem | Result

SQL Query - 2

Send Feedback

Problem Statement:
Fetch out all the employee ID's and their contact detail who have been working from Delhi or have clients in Kolkata.

Information about the table:
Table **Employee:**

EmpID	EmpFname	EmpLname	Age	EmailID	PhoneNo	City
1	Riya	Khanna	21	riya@abc.com	987655443	Delhi
2	Sahil	Kumar	32	sahil@abc.com	987657643	Mumbai

```
SELECT e.EmpID,e.EmailID,e.PhoneNo,c.ClientFname, c.ClientLname
FROM Employee e
INNER JOIN Client_d c
ON e.EmpID=c.EmpID
WHERE e.City IN ('Delhi','Kolkata');

-- SELECT e.EmpID,e.EmailID,e.PhoneNo,c.ClientFname, c.ClientLname
-- FROM Employee e
-- -- INNER JOIN Project p ON e.EmpID = p.EmpID
-- INNER JOIN Client_d c
-- ON e.EmpID = c.ClientID
-- WHERE c.City = 'Delhi' OR c.City = 'Kolkata'
```

5.

Problem | Result

SQL Query - 3

Send Feedback

Problem Statement:
List out all the project names with corresponding client's email id, for all the projects that were allocated after April 2021 and order them in descending order of the age of clients.

Information about the table:
Table **Employee:**

EmpID	EmpFname	EmpLname	Age	EmailID	PhoneNo	City
1	Riya	Khanna	21	riya@abc.com	987655443	Delhi

```sql
SELECT p.ProjectName, c.ClientEmailID
FROM Project p
INNER JOIN Client_d c
ON p.ClientID = c.ClientID
WHERE p.ProjectStartDate >= '2021-04-30'
ORDER BY c.Age DESC;
```

6.

Problem | Result

SQL Query - 4

Send Feedback

Problem Statement:
Write an SQL query to inner join all the three table(Supplier, SP and Product) and print all the elements of the table. The tables should be joined in the same order as stated above.

Information about the table:
Table **Product**:

Pno	Pname	Colour	Weight

```sql
SELECT *
FROM Supplier s
INNER JOIN SP sp ON s.Sno = sp.Sno
INNER JOIN Product p ON sp.Pno = p.Pno
ORDER BY p.Pno ASC
```

7.

Problem | Result

SQL Query - 5

Send Feedback

Problem Statement:
Write a SQL query to find the name, colour and quantity of the product supplied by sahil. The tables (Supplier, SP and Product) should be joined in the same order as stated above.

Information about the table:
Table **Product**:

Pno	Pname	Colour	Weight

```sql
SELECT p.Pname, p.Colour, sp.Qty
FROM Product p
INNER JOIN SP sp ON p.Pno= sp.Pno
INNER JOIN Supplier s ON sp.Sno = s.Sno
WHERE s.Sname = 'sahil'
```

8.

Problem | Result

SQL Query - 6

Send Feedback

Problem Statement:
Write an SQL query to find the number of products supplied by each colour.

Information about the table:
Table **Product**:

Pno	Pname	Colour	Weight
1	pen	red	5
2	pencil	blue	10
3	sharpner	red	3
4	eraser	white	6
5	stapler	green	40

```sql
SELECT p.Colour, COUNT(*) AS nop
FROM Product p
INNER JOIN SP sp ON p.Pno = sp.Pno
GROUP BY p.Colour
```

9.

Problem | Result

SQL Query - 7

Send Feedback

Problem Statement:
Write a SQL query to find the max quantity (Qty) supplied by each status. The tables (Supplier, SP and Product) should be joined in the same order as stated in bracket.
Note: Name the column with max quantity as 'm'

```sql
SELECT s.Status, MAX(sp.Qty) AS m
FROM Supplier s
INNER JOIN SP sp ON s.Sno = sp.Sno
GROUP BY s.Status
```

10.

Result

```sql
SELECT s.Sname, p.Pname, s.Status
FROM Supplier s
INNER JOIN SP sp ON s.Sno = sp.Sno
INNER JOIN Product p ON sp.Pno = p.Pno
ORDER BY sp.Qty ASC
```

11.

Problem | Result

SQL Query - 9

Send Feedback

Problem Statement:
Fetch out each project allocated to which employee.

Information about the table:
Table **Employee:**

EmpID	EmpFname	EmpLname	Age	EmailID	PhoneNo	City
1	Riya	Khanna	21	riya@abc.com	987655443	Delhi
2	Sahil	Kumar	32	sahil@abc.com	987657643	Mumbai

```sql
SELECT e.EmpFname,e.EmpLname,p.ProjectID,p.ProjectName
FROM Employee e
LEFT JOIN Project p
ON e.EmpID=p.EmpID
```

12.

Problem | Result

SQL Query - 10

Send Feedback

Problem Statement:
Write a SQL statement to make a report with buyer name, buyer city, product ID, purchased date, and amount in ascending order of the purchased date to find that either any of the existing customers have purchased any product

```sql
SELECT b.bname,b.bcity,p.pid,p.pdate,p.amount
FROM Buyer AS b
LEFT JOIN Product AS p
ON b.bId=p.bId
ORDER BY p.pdate ASC;
```

13.

Problem | Result

SQL Query - 11

Send Feedback

Problem Statement:
Write a SQL query to find those buyers whose budget is less than 3000 (or even NULL). Display the Buyer name, city, budget and Seller's name & city. The result should be in ascending order of

```sql
SELECT b.bname,b.bcity,b.budget,s.sname,s.scity
FROM Buyer b
LEFT JOIN Seller s
ON b.sId=s.sId
WHERE b.budget < 3000
ORDER BY b.bId ASC;
```

14.

Problem | Result

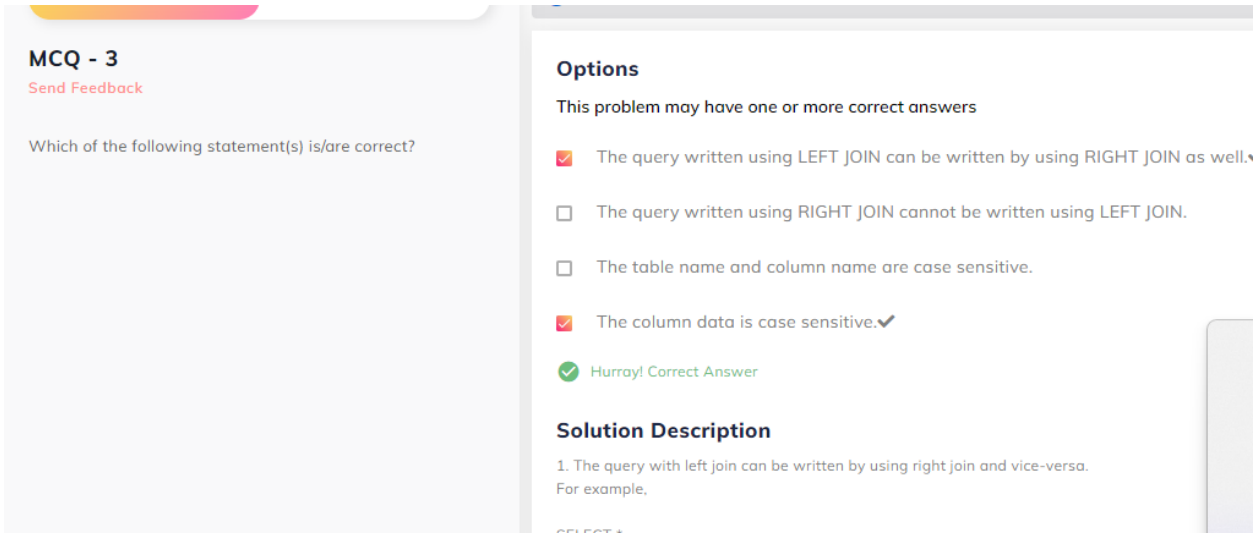
SQL Query - 12

Send Feedback

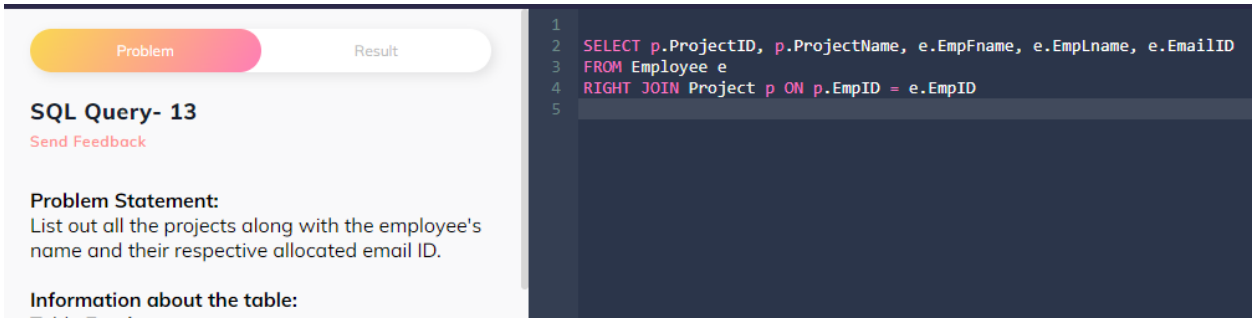
Problem Statement:
Write a SQL query to make a report, with buyer name, buyer city, product number, purchased date, amount, seller name and profit to find that either any of the existing buyer have purchased any product or not, by their seller.

```sql
SELECT b.bname,b.bcity,p.pid,p.pdate,p.amount,s.sname,s.profit
FROM Buyer AS b
LEFT JOIN Product AS p
ON b.bid=p.bid
LEFT JOIN Seller AS s
ON p.sid=s.sid;
```

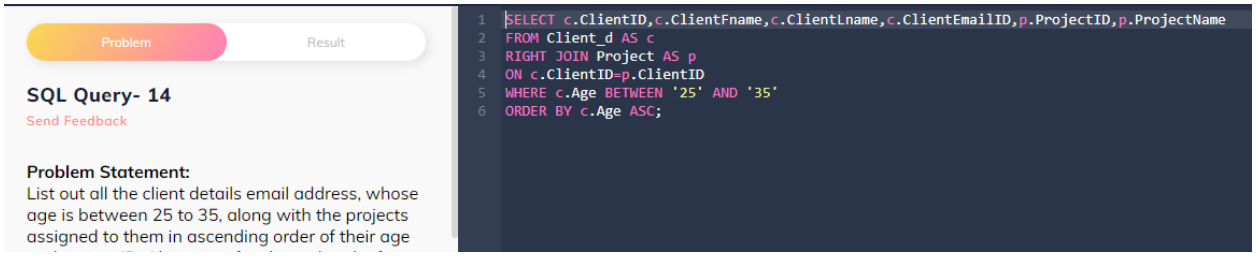
15.


MCQ - 3
Send Feedback
Which of the following statement(s) is/are correct?
Options
This problem may have one or more correct answers
The query written using LEFT JOIN can be written by using RIGHT JOIN as well.
The query written using RIGHT JOIN cannot be written using LEFT JOIN.
The table name and column name are case sensitive.
The column data is case sensitive.
Hurray! Correct Answer
Solution Description
1. The query with left join can be written by using right join and vice-versa.
For example,

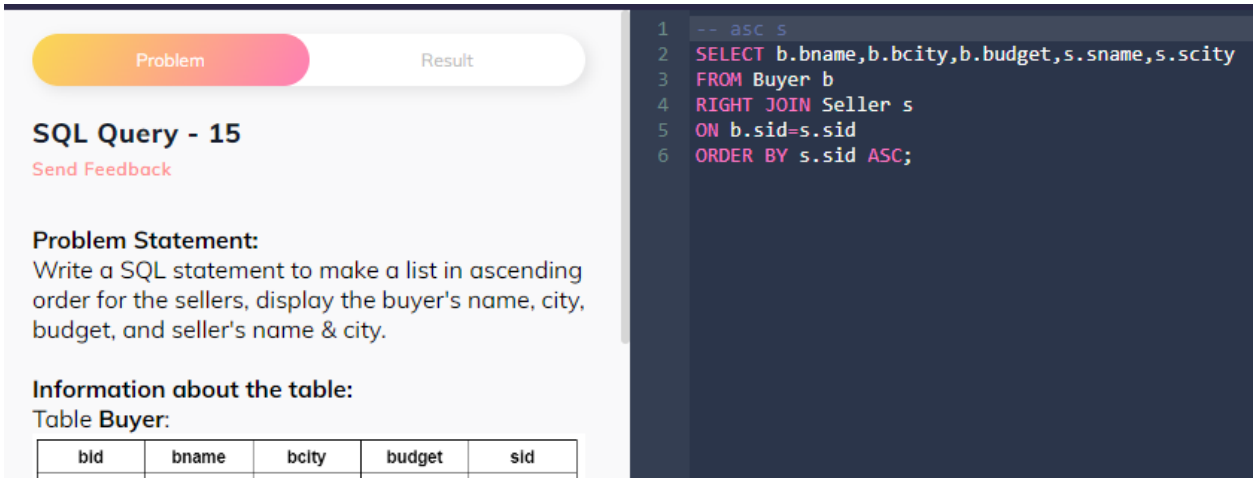
16.

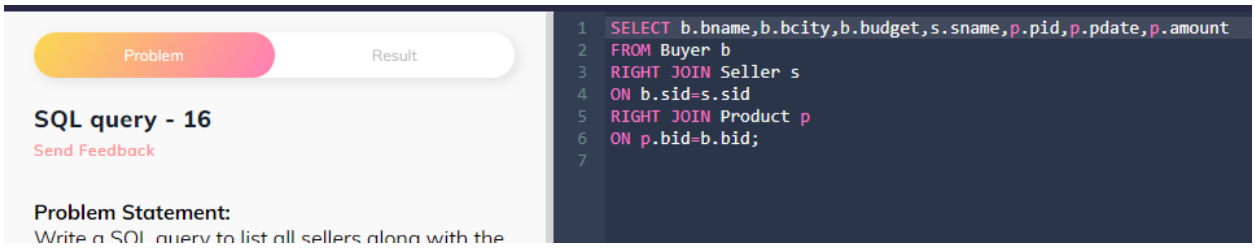

Problem
Result
SQL Query- 13
Send Feedback
Problem Statement:
List out all the projects along with the employee's name and their respective allocated email ID.
Information about the table:
SELECT p.ProjectID, p.ProjectName, e.EmpFname, e.EmpLname, e.EmailID
FROM Employee e
RIGHT JOIN Project p ON p.EmpID = e.EmpID

17.


Problem
Result
SQL Query- 14
Send Feedback
Problem Statement:
List out all the client details email address, whose age is between 25 to 35, along with the projects assigned to them in ascending order of their age
SELECT c.ClientID,c.ClientFname,c.ClientLname,c.ClientEmailID,p.ProjectID,p.ProjectName
FROM Client_d AS c
RIGHT JOIN Project AS p
ON c.ClientID=p.ClientID
WHERE c.Age BETWEEN '25' AND '35'
ORDER BY c.Age ASC;

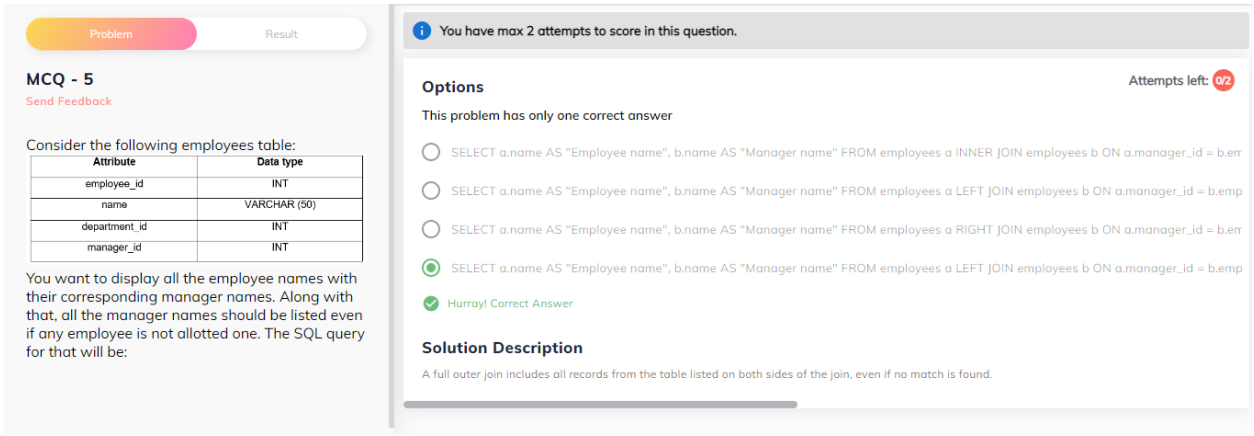
18.

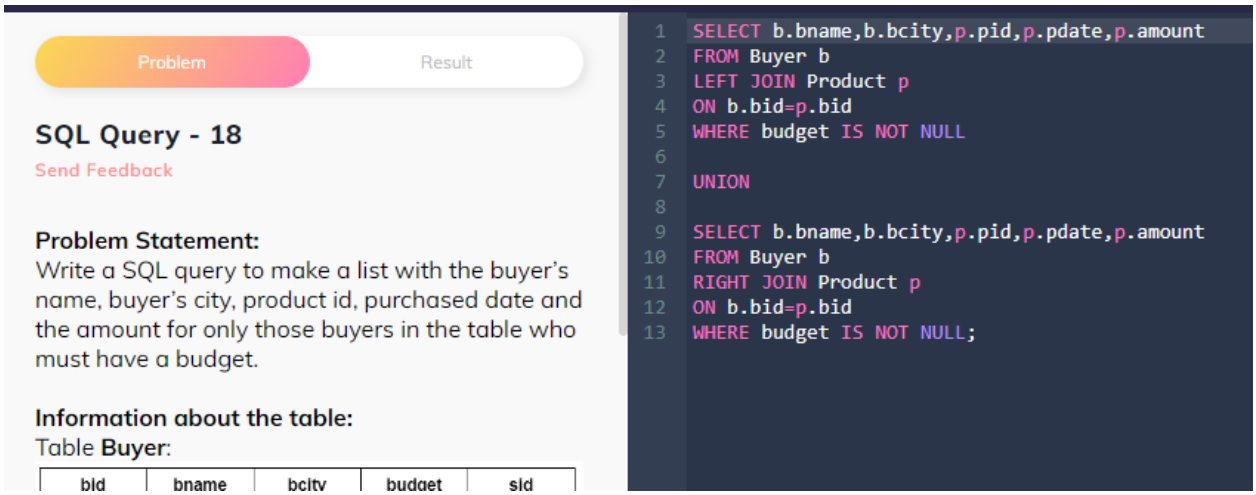

Problem
Result
SQL Query - 15
Send Feedback
Problem Statement:
Write a SQL statement to make a list in ascending order for the sellers, display the buyer's name, city, budget, and seller's name & city.
Information about the table:
Table Buyer:
bid
bname
bcity
budget
sid
-- asc s
SELECT b.bname,b.bcity,b.budget,s.sname,s.scity
FROM Buyer b
RIGHT JOIN Seller s
ON b.sid=s.sid
ORDER BY s.sid ASC;

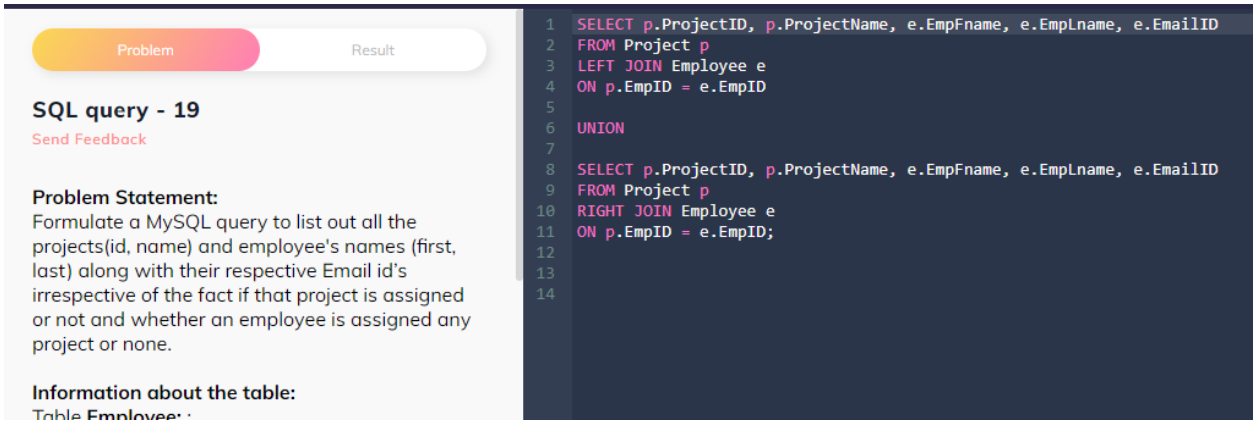
19. 

20. **Relation A** has 5 tuples and 8 attributes. **Relation B** has 10 tuples and 7 attributes. When a CROSS JOIN is achieved between A and B, how many tuples would the resultant set have? 5*10

21. 

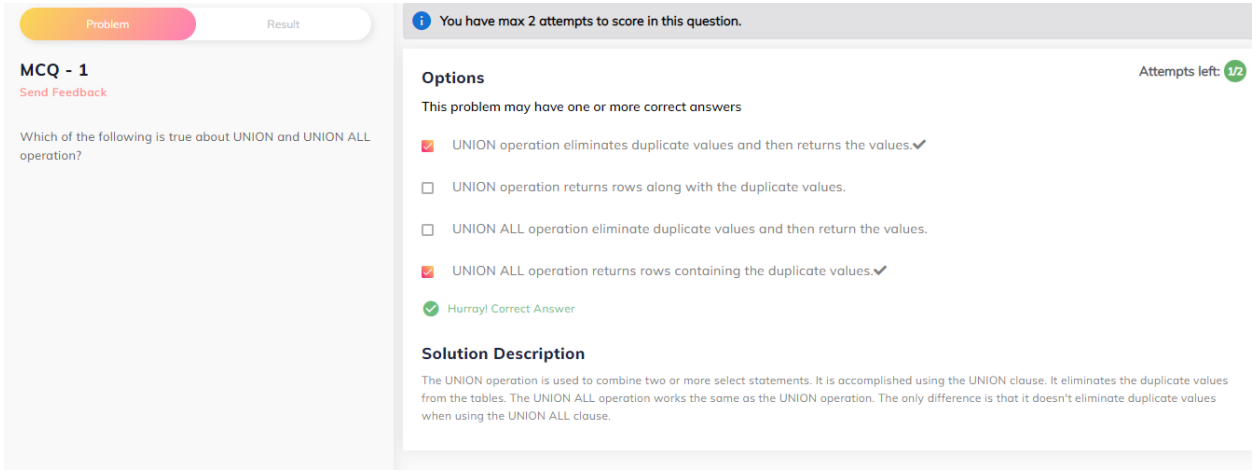
22. 

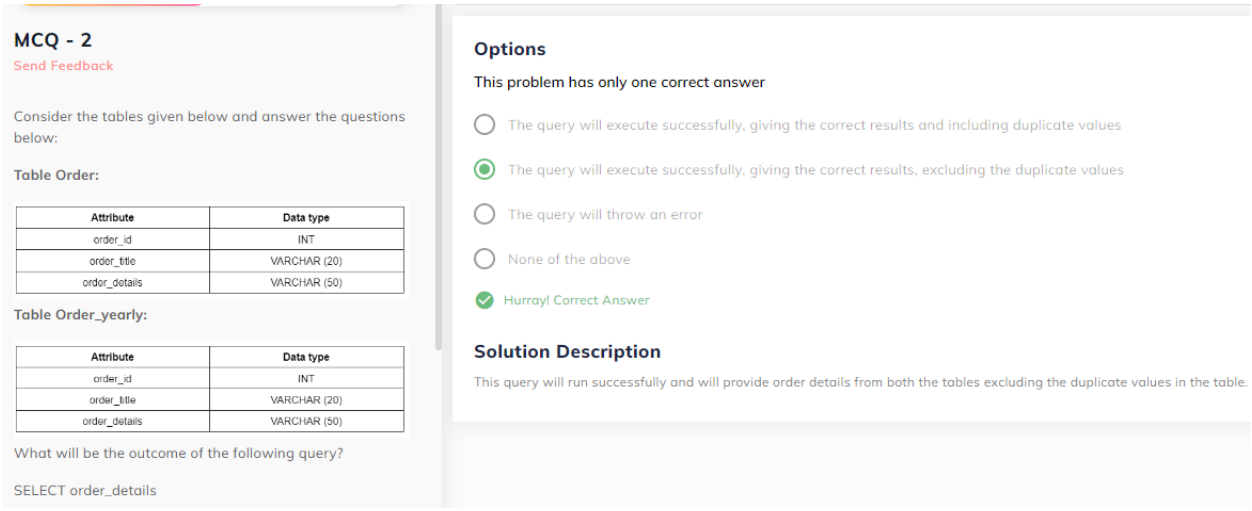
23. 

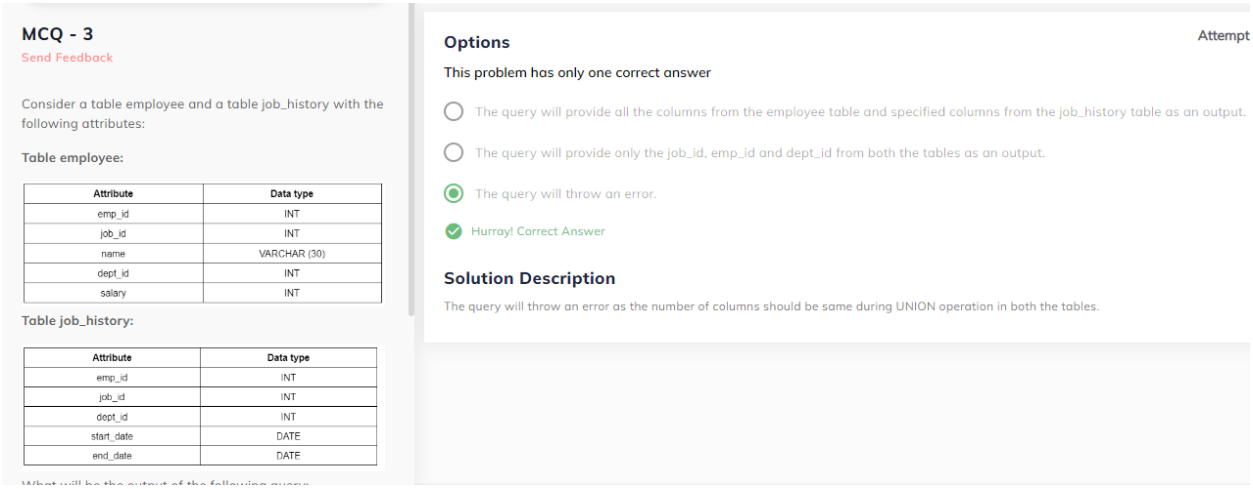
24. 

Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-7\DBMS\15.Joining Tables

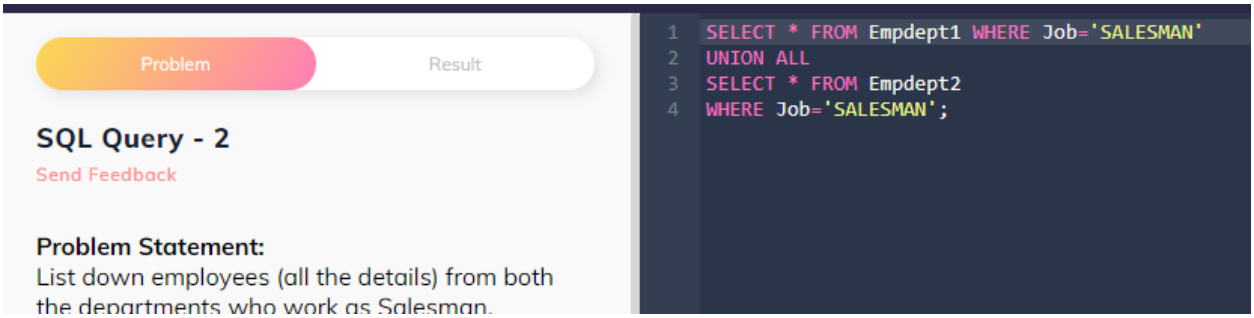
16. Set Operations[18Mcqs]

1. 

2. 

3. 

4. SELECT * FROM Empdept1 UNION SELECT * FROM Empdept2;

5. 

6.

Problem | Result

SQL Query - 3

Send Feedback

Problem Statement:
List out each employee name and employee code from both the departments and order them in ascending order by their code.

Information about the table:
Table **Empdept1:** :

EmpCode	EmpFName	EmpLName	Job

```sql
SELECT s.EmpFName,s.EmpLName,s.EmpCode
FROM
(
    SELECT e1.EmpFName,e1.EmpLName,e1.EmpCode
    FROM Empdept1 e1

    UNION ALL

    SELECT e2.EmpFName,e2.EmpLName,e2.EmpCode
    FROM Empdept2 e2
) AS s
ORDER BY s.EmpCode ASC;
```

7.

Problem | Result

SQL query - 4

Send Feedback

Problem Statement:
Write a SQL query to print the item name, item type and price of all the items present in both the shops in descending order of their price.

```sql
SELECT S.item_name,S.item_type,S.price
FROM(
    SELECT s1.item_name,s1.item_type,s1.price
    FROM shop_1 s1
    UNION ALL
    SELECT s2.item_name,s2.item_type,s2.price
    FROM shop_2 s2
) AS S
ORDER BY S.price DESC;
```

8.

Problem | Result

SQL query - 5

Send Feedback

Problem Statement:
Write a SQL query to get the item_name, price of items in shop_1 and shop_2 where price is greater than 25.

```sql
SELECT S.item_name,S.price
FROM(
    SELECT s1.item_name,s1.price
    FROM shop_1 s1
    UNION ALL
    SELECT s2.item_name,s2.price
    FROM shop_2 s2
) AS S
-- ORDER BY S.price DESC;
WHERE S.price>25;
```

9.

MCQ - 4

Send Feedback

What is true regarding the intersect operator?

Options

This problem has only one correct answer

- INTERSECT operation returns rows from the combined queries and NOT NULL values.
- INTERSECT operation returns columns for the combined queries after eliminating duplicates.
- (selected) INTERSECT operation returns the common rows from the combined queries.
- INTERSECT keyword is available in MySQL.

Hurray! Correct Answer

Solution Description

INTERSECT operation returns only common rows in both queries after sorting them and removing duplicates.

10.

Problem | Result

SQL query - 6

Send Feedback

Problem Statement:
Find out all the details of employees that work for both the departments.

Information about the table:
Table **Empdept1:**

```
SELECT DISTINCT EmpCode,EmpFName,EmpLName,Job
FROM Empdept1 INNER JOIN Empdept2 using (EmpCode,EmpFName,EmpLName,Job);
```

11.

Problem | Result

SQL query - 7

Send Feedback

Problem Statement:

```
SELECT item_name,item_type
FROM shop_1 INNER JOIN shop_2 using (item_name,item_type)
WHERE item_type='stationery';
```

12.

Problem | Result

SQL query - 8

Send Feedback

Problem Statement:
Write a SQL query to find the name and price of items whose price is greater than 20 and available in both the shops

```
SELECT DISTINCT item_name,price
FROM shop_1 INNER JOIN shop_2 using (item_name,price)
WHERE price>20;
```

13.

MCQ - 5

Send Feedback

What of the following is TRUE regarding the MINUS operator?

Options Attempts left

This problem has only one correct answer

- (●) MINUS operation returns rows only from the first query but not from the second query.
- ( ) MINUS operation returns columns from the first query but not from the second query.
- ( ) MINUS operation returns non-duplicate rows after combining both the queries.
- ( ) MINUS operation returns duplicate columns from the combined queries ignoring the NULL values.

Hurray! Correct Answer

Solution Description

MINUS operation returns only the rows present in the first table that don't appear in the second table after sorting them and removing duplicates.

14.

MCQ - 6

Send Feedback

When SET operators are used, where can we use the ORDER BY clause?

Options Attempt

This problem has only one correct answer

- ( ) When we combine queries, we can use the ORDER BY clause after the SET operator.
- ( ) We can use the ORDER BY clause only in the first query.
- (●) We can use the ORDER BY clause at the end of the compound query.
- ( ) None of the above.

Hurray! Correct Answer

Solution Description

If the ORDER BY clause is used in between any of the queries joined using the SET operators. It will throw an error. So, the ORDER BY clause v always be used at the end of the compound query while using SET operators.

15.

MCQ - 7

Send Feedback

What is the order of precedence of the set operators:

Options

This problem has only one correct answer

- ( ) UNION ALL > UNION > INTERSECT > MINUS
- ( ) MINUS > INTERSECT > UNION > UNION ALL
- ( ) UNION > INTERSECT > UNION ALL >MINUS
- (●) UNION = UNION ALL = INTERSECT = MINUS (They have the equal precedence)

Hurray! Correct Answer

Solution Description

All the set operators have the same order of precedence.

16.

SQL query - 9

Send Feedback

Problem Statement:
List down all the details of employees working in dept1 but not in Dept2.

Information about the table:
Table **Empdept1:** :

EmpCode	EmpFName	EmpLName	Job
9369	TONY	STARK	SOFTWAREENGINEER
9499	TIM	ADOLF	SALESMAN
9566	KIM	JARVIS	MANAGER
9654	SAM	MILES	SALESMAN

Table **Empdept2**:

EmpCode	EmpFName	EmpLName	Job

```
-- LEFT JOIN Empdept2 e2 using (e2.EmpCode,e2.EmpFName,e2.EmpLName,e2.Job
-- WHERE e2.EmpCode,e2.EmpFName,e2.EmpLName,e2.Job IS NULL;

SELECT e1.*
FROM Empdept1 e1
LEFT JOIN Empdept2 e2 ON e1.EmpCode = e2.EmpCode
WHERE e2.EmpCode IS NULL;
```

17.

SQL query - 10

Send Feedback

Problem Statement:
Write a SQL query to print the item name, item type of only the items which are available in shop 1 but not in shop 2 in the ascending order of item name.

Information about the table:
Table **shop_1**:

item_id	item_name	item_type	price
1	pencil	stationery	10

```
-- WHERE s2.item_id IS NULL;

SELECT s1.item_name, s1.item_type
FROM shop_1 s1
LEFT JOIN shop_2 s2 ON s1.item_name = s2.item_name
WHERE s2.item_name IS NULL
ORDER BY s1.item_name ASC;
```

18.

SQL query - 11

Send Feedback

Problem Statement:
Write a SQL query to print the item name, price of only the items which are available in shop 2 but not in shop 1 whose price is greater than 50.

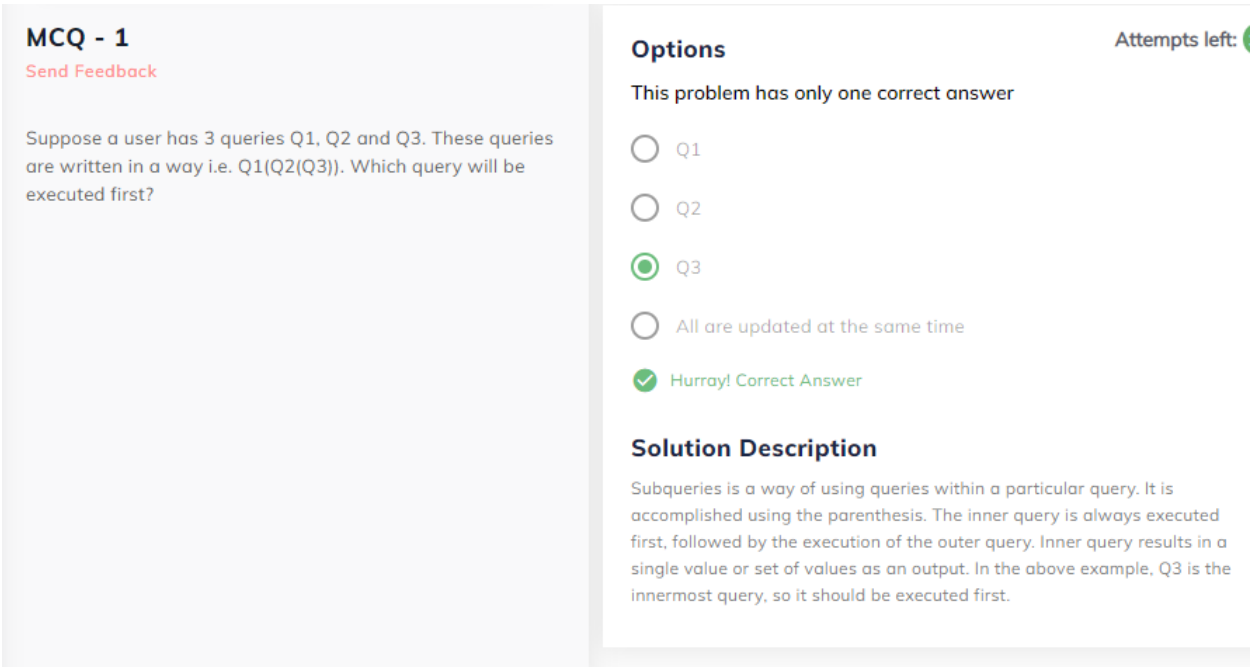
Information about the table:
Table **shop_1**:

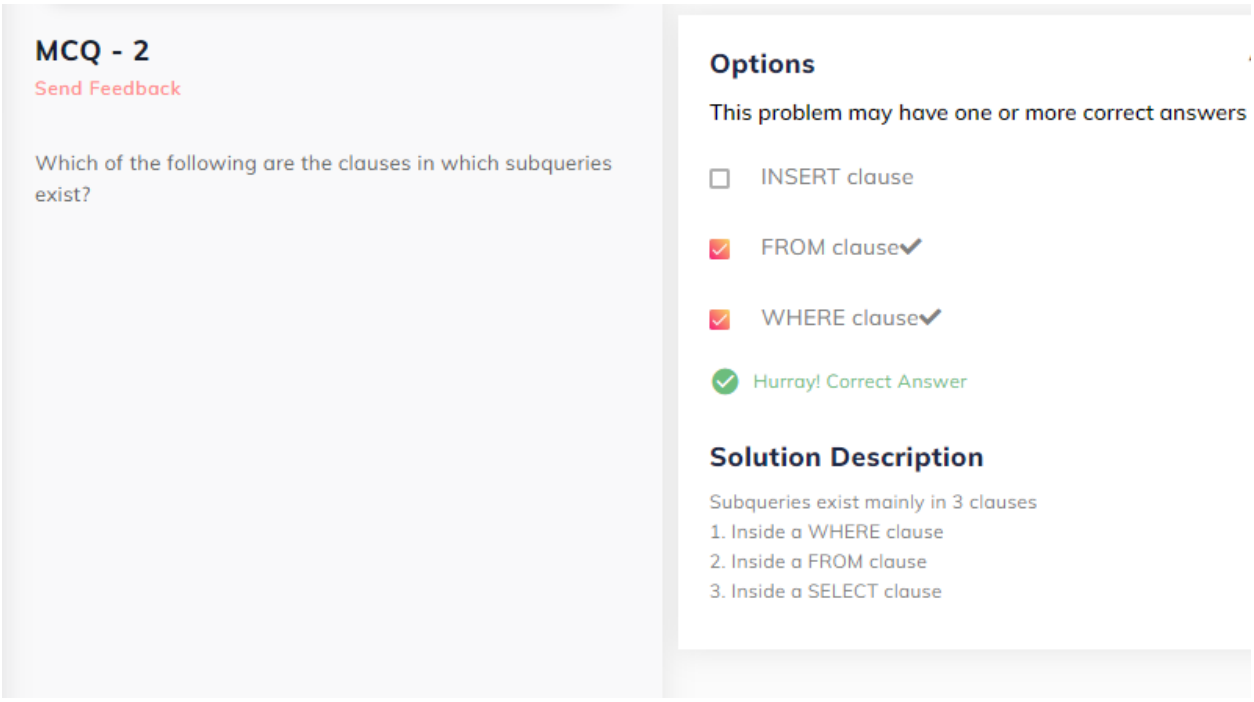
item_id	item_name	item_type	price
1	pencil	stationery	10
2	soap	toiletries	25
3	eraser	stationery	5

```
-- LEFT JOIN shop_2 s2 ON s1.item_id = s2.item_id
-- WHERE s2.item_id IS NULL;

SELECT s2.item_name, s2.price
FROM shop_1 s1
RIGHT JOIN shop_2 s2 ON s1.item_name = s2.item_name
WHERE s1.item_name IS NULL AND s2.price>50;
```

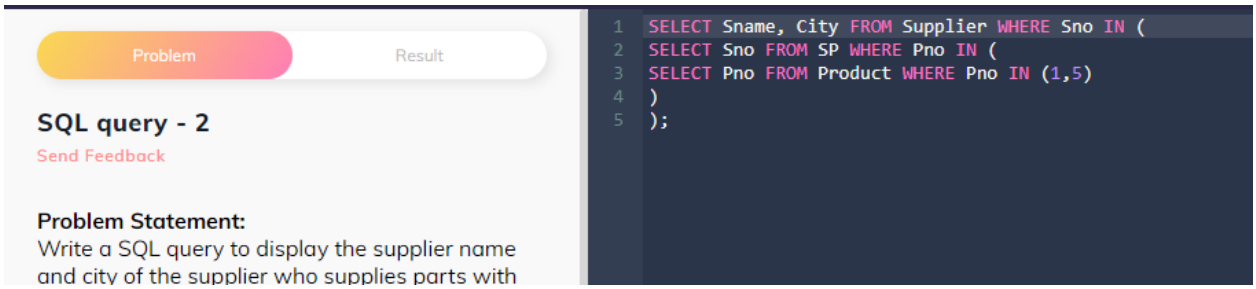
Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-7\DBMS\16.SetOperations

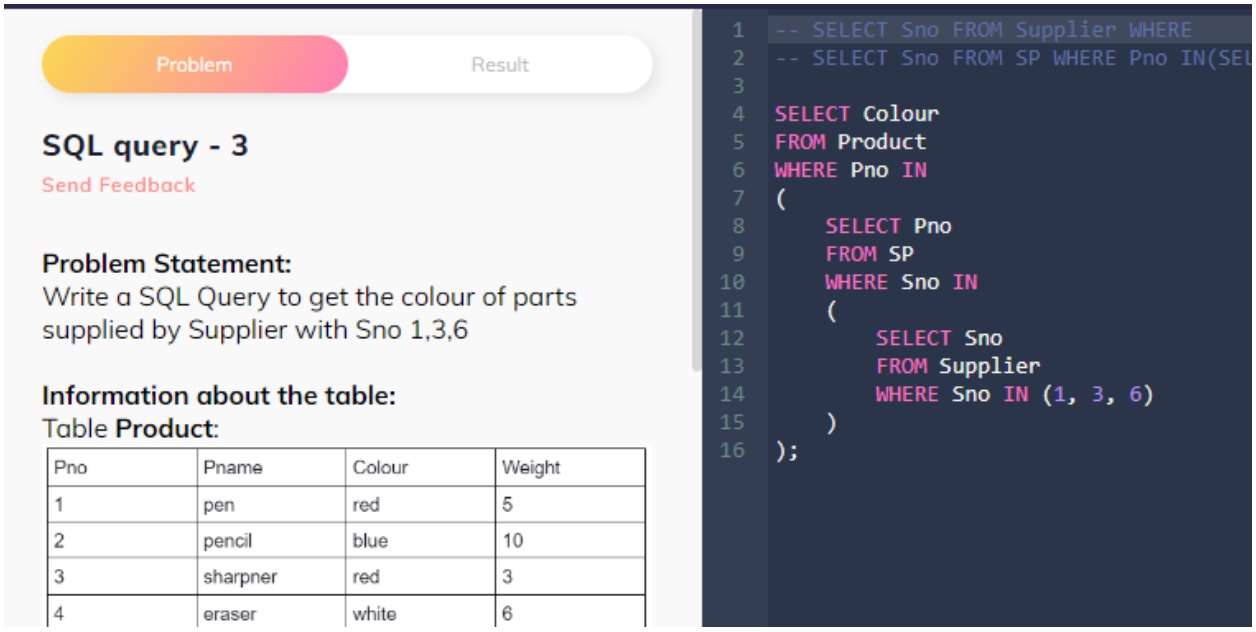
17. Sub Queries[27Mcqs]

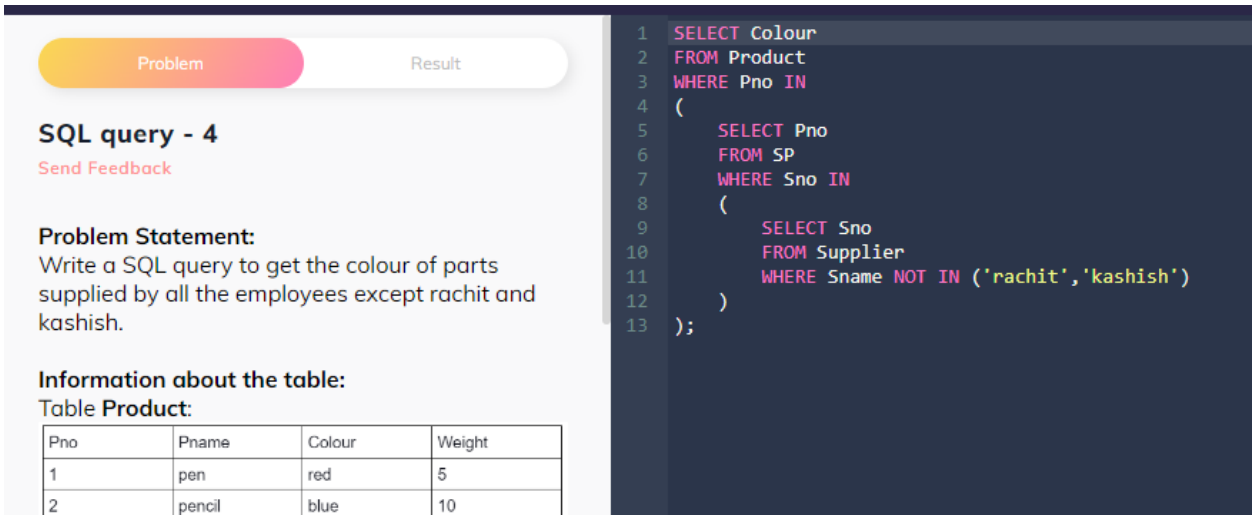
1. 

2. 

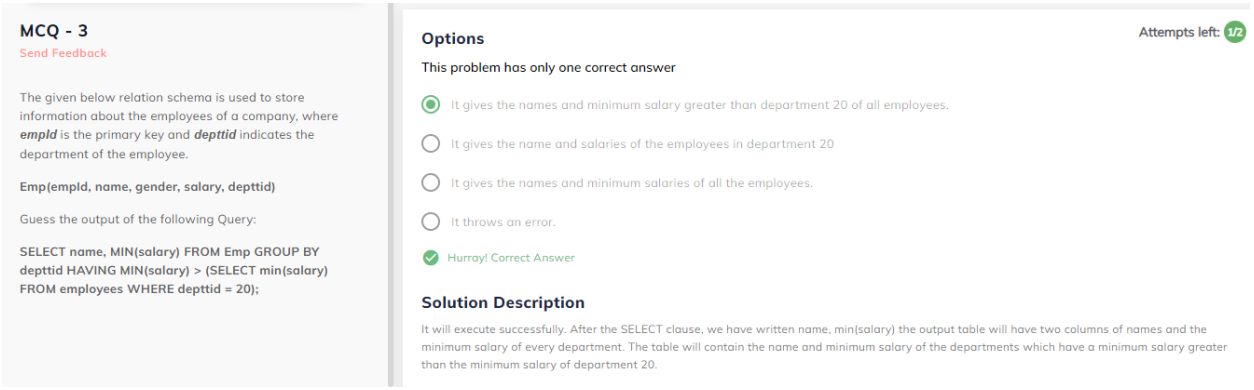
3. SELECT Qty FROM SP WHERE Sno IN(SELECT Sno FROM Supplier WHERE Sname IN ("rachit","anjali"));

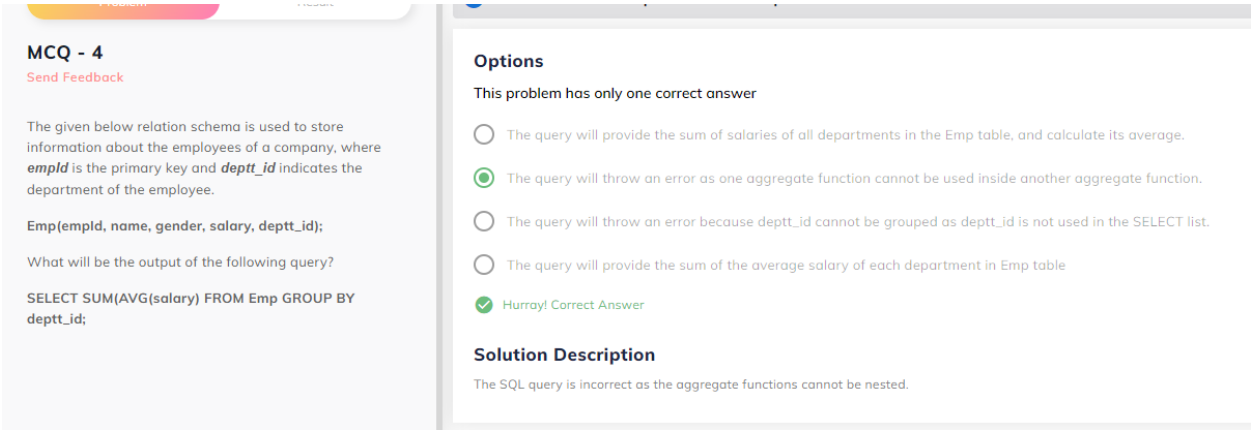
4. 

5. 

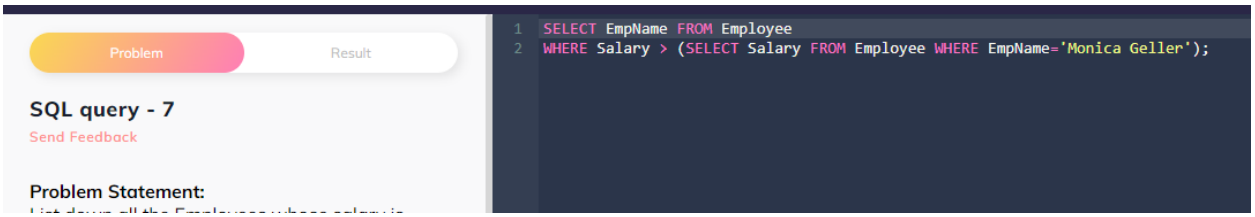
6. 

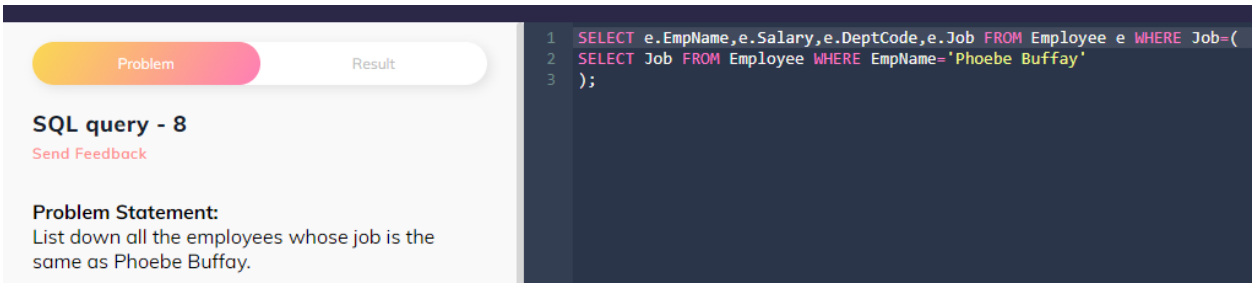
7. SELECT s.sname,s.age FROM sailors s WHERE age=(SELECT MAX(age) FROM sailors);

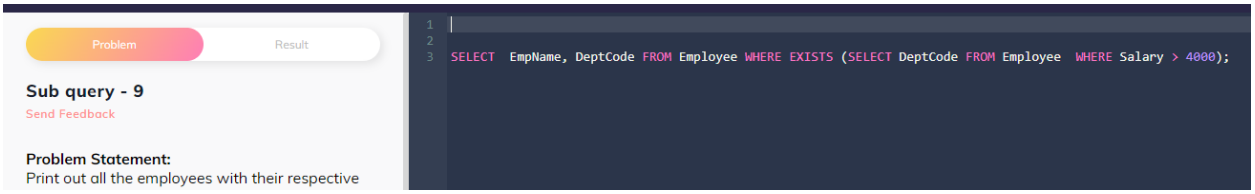
8. 

9. 

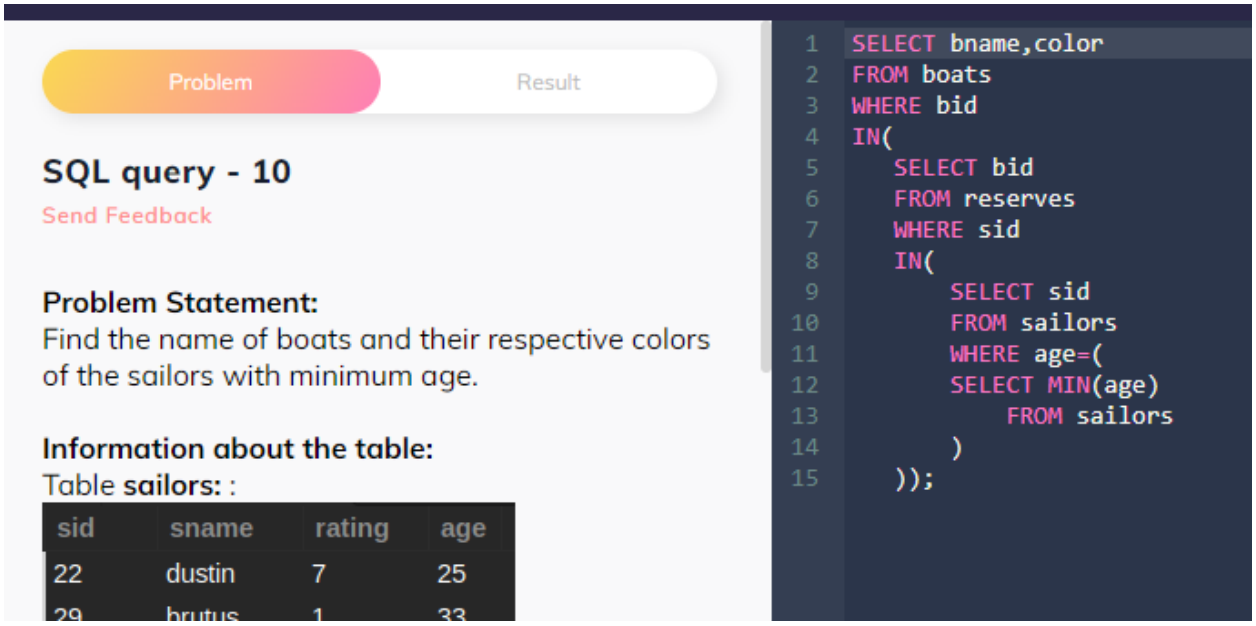
10. SELECT Sname FROM Supplier WHERE Sno IN (SELECT Sno FROM SP WHERE Qty>10 AND Pno IN (SELECT Pno FROM Product WHERE Pname='pencil'));

11. 

12. 

13. 

14.



Problem | Result

SQL query - 10

Send Feedback

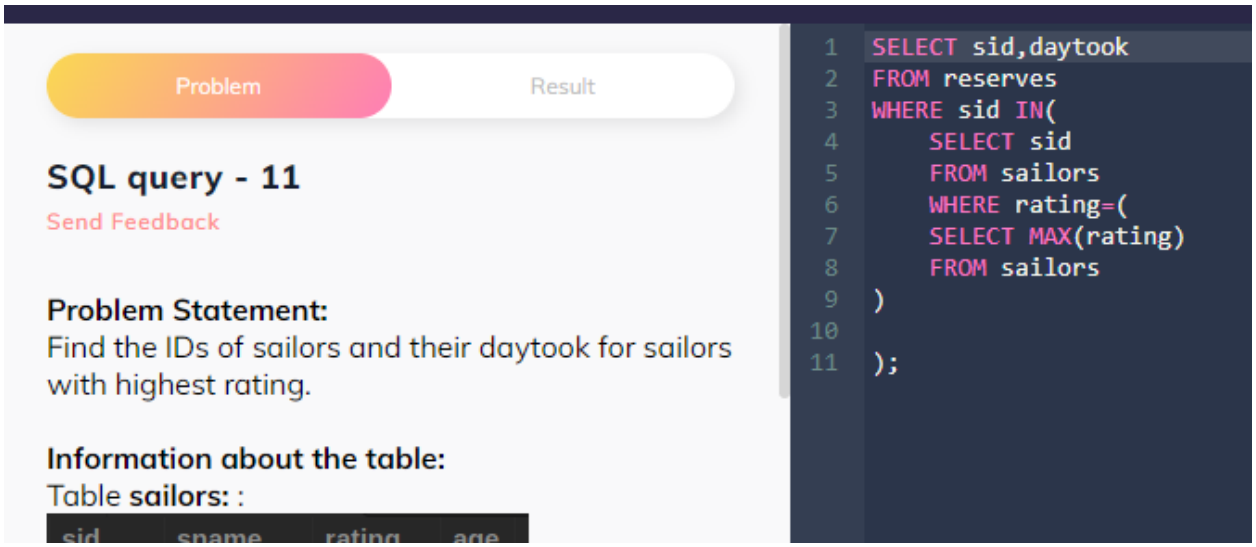
Problem Statement:
Find the name of boats and their respective colors of the sailors with minimum age.

Information about the table:
Table **sailors:** :

sid	sname	rating	age
22	dustin	7	25
29	brutus	1	33

```
SELECT bname,color
FROM boats
WHERE bid
IN(
   SELECT bid
   FROM reserves
   WHERE sid
   IN(
       SELECT sid
       FROM sailors
       WHERE age=(
       SELECT MIN(age)
           FROM sailors
       )
   ));
```

15.



Problem | Result

SQL query - 11

Send Feedback

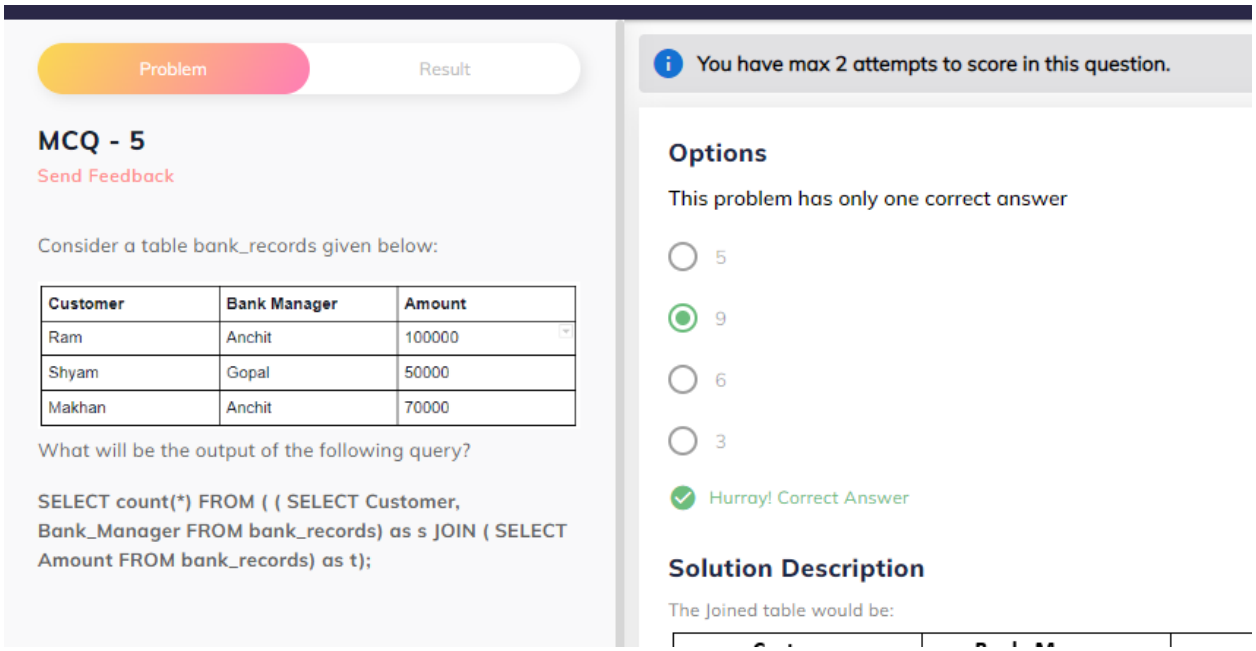
Problem Statement:
Find the IDs of sailors and their daytook for sailors with highest rating.

Information about the table:
Table **sailors:** :

sid	sname	rating	age

```
SELECT sid,daytook
FROM reserves
WHERE sid IN(
    SELECT sid
    FROM sailors
    WHERE rating=(
    SELECT MAX(rating)
    FROM sailors
)

);
```

16.



Problem | Result

MCQ - 5

Send Feedback

Consider a table bank_records given below:

Customer	Bank Manager	Amount
Ram	Anchit	100000
Shyam	Gopal	50000
Makhan	Anchit	70000

What will be the output of the following query?

SELECT count(*) FROM ((SELECT Customer, Bank_Manager FROM bank_records) as s JOIN (SELECT Amount FROM bank_records) as t);

You have max 2 attempts to score in this question.

Options

This problem has only one correct answer

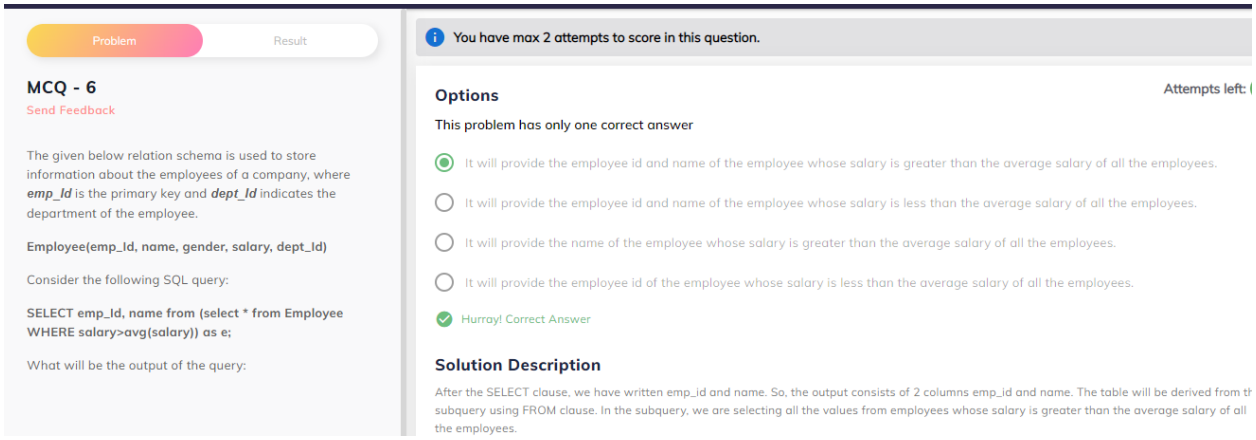
- 5
- 9 (selected)
- 6
- 3

Hurray! Correct Answer

Solution Description

The Joined table would be:

17.



Problem | Result

MCQ - 6

Send Feedback

The given below relation schema is used to store information about the employees of a company, where ***emp_Id*** is the primary key and ***dept_Id*** indicates the department of the employee.

Employee(emp_Id, name, gender, salary, dept_Id)

Consider the following SQL query:

SELECT emp_Id, name from (select * from Employee WHERE salary>avg(salary)) as e;

What will be the output of the query:

You have max 2 attempts to score in this question.

Options Attempts left:

This problem has only one correct answer

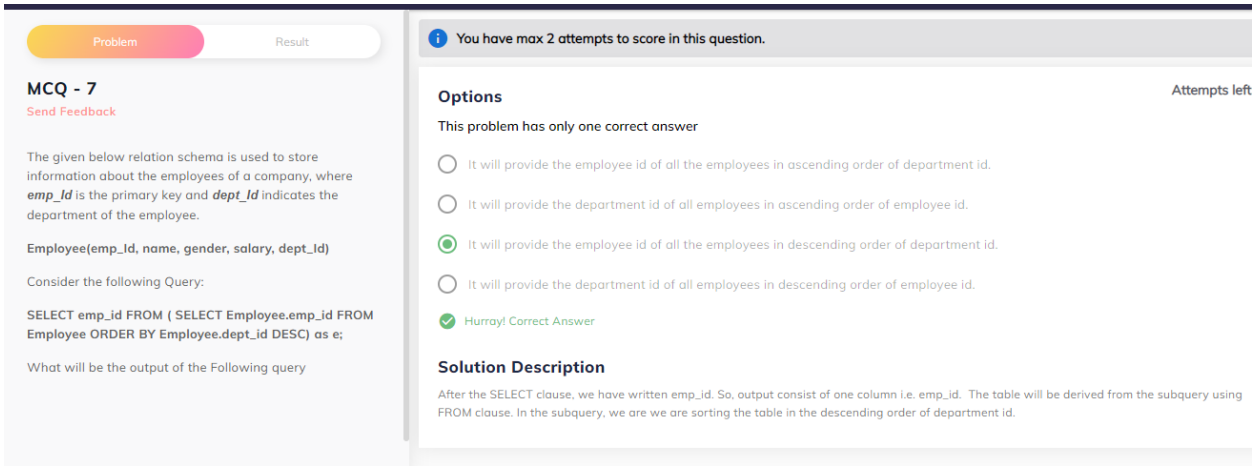
- It will provide the employee id and name of the employee whose salary is greater than the average salary of all the employees. (selected)
- It will provide the employee id and name of the employee whose salary is less than the average salary of all the employees.
- It will provide the name of the employee whose salary is greater than the average salary of all the employees.
- It will provide the employee id of the employee whose salary is less than the average salary of all the employees.

Hurray! Correct Answer

Solution Description

After the SELECT clause, we have written emp_id and name. So, the output consists of 2 columns emp_id and name. The table will be derived from th subquery using FROM clause. In the subquery, we are selecting all the values from employees whose salary is greater than the average salary of all the employees.

18.



Problem | Result

MCQ - 7

Send Feedback

The given below relation schema is used to store information about the employees of a company, where ***emp_Id*** is the primary key and ***dept_Id*** indicates the department of the employee.

Employee(emp_Id, name, gender, salary, dept_Id)

Consider the following Query:

SELECT emp_id FROM (SELECT Employee.emp_id FROM Employee ORDER BY Employee.dept_id DESC) as e;

What will be the output of the Following query

You have max 2 attempts to score in this question.

Options Attempts left

This problem has only one correct answer

- It will provide the employee id of all the employees in ascending order of department id.
- It will provide the department id of all employees in ascending order of employee id.
- It will provide the employee id of all the employees in descending order of department id. (selected)
- It will provide the department id of all employees in descending order of employee id.

Hurray! Correct Answer

Solution Description

After the SELECT clause, we have written emp_id. So, output consist of one column i.e. emp_id. The table will be derived from the subquery using FROM clause. In the subquery, we are we are sorting the table in the descending order of department id.

19.

Problem | Result

SQL query - 12

Send Feedback

Problem Statement:
Write a SQL query for the red-colored products whose original weight is less than 10 units; displaying information in the output table as: product name, colour and 20 times the original weight as 'w'.

```
SELECT Pname,Colour, Weight*20 AS w
FROM Product
WHERE Colour='red' AND Weight<10;
```

20.

Problem | Result

SQL query - 13

Send Feedback

Problem Statement:
List down the employee details with their annual salary, given that the annual salary of the

```
SELECT EmpCode,EmpName,Salary,Salary*12 AS A_Sal
FROM Employee
WHERE Salary*12>30000;
```

21.

MCQ - 8

Send Feedback

What is true about correlated subqueries?

Options Attempts left: 1/2

This problem has only one correct answer

- The tables used in the main query are also used in a correlated subquery
- Subqueries that necessarily use tables other than those used in the main query are called correlated subqueries.
- The subquery that references a column used in the main query is called a correlated subquery
- A subquery written without parentheses is called a correlated subquery

Hurray! Correct Answer

Solution Description

The correlated subquery references a column in the outer query and runs the subquery once for each row of the outer query, while the uncorrelated subquery runs the subquery first and passes the price value for the outer query.

22.

Problem | Result

SQL query - 14

Send Feedback

Problem Statement:
Print the employee details for all employees who earn more than the average salary and having an "e" in their name.

Information about the table:
Table **Employee**:

```
SELECT EmpCode,EmpName,Salary
FROM Employee
WHERE Salary>(SELECT AVG(Salary) FROM Employee) AND EmpName LIKE '%e%';
```

23.

Problem | Result

SQL query - 15

Send Feedback

Problem Statement:
Find the ids and names of sailors who have reserved at least two different boats.

Information about the table:
Table **sailors:** :

sid	sname	rating	age

```
SELECT s.sid,s.sname
FROM sailors s
WHERE (
    SELECT COUNT(DISTINCT r.bid)
    FROM reserves r
    WHERE r.sid=s.sid
)>=2;
```

24.

Problem | Result

SQL query - 16

Send Feedback

Problem Statement:
Fetch out the color, sailor id and boat id of the boats reserved by the Sailor having 2nd highest rating. Order the result based on the bid in descending order.

Information about the table:
Table **sailors:** :

```
SELECT b.color, r.sid, r.bid
FROM sailors s
JOIN reserves r ON s.sid = r.sid
JOIN boats b ON r.bid = b.bid
WHERE s.rating = (
    SELECT DISTINCT rating FROM sailors s ORDER BY rating DESC LIMIT 1 OFFSET 1
)
ORDER BY r.bid DESC;
```

25.

Problem | Result

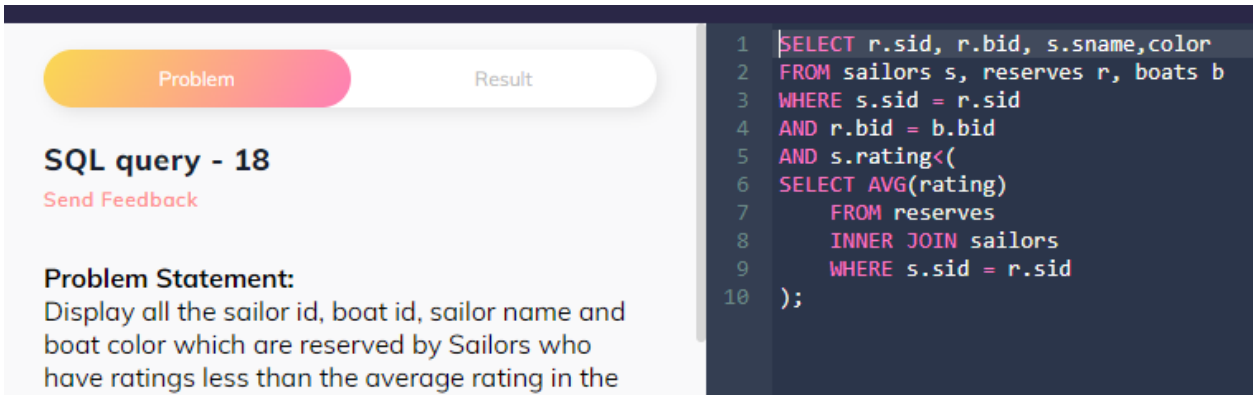
SQL query - 17

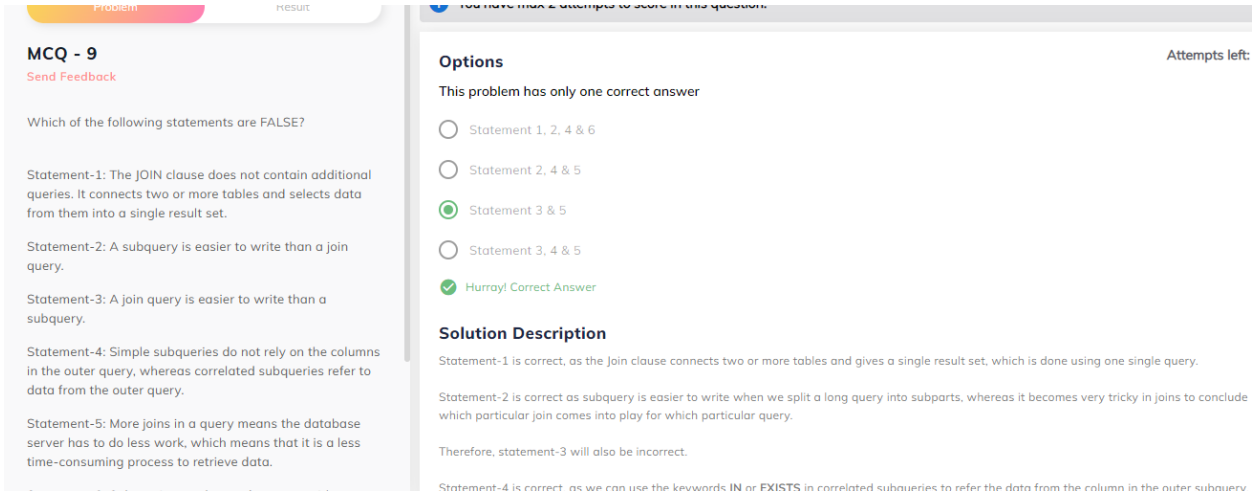
Send Feedback

Problem Statement:
Display all the sailor id, boat id and sailor name which are reserved by Sailors who have ratings more than the average rating in the reserves table.

Information about the table:

```
SELECT s.sid, r.bid, s.sname
FROM sailors s
JOIN reserves r ON s.sid = r.sid
JOIN (
  SELECT AVG(s.rating) AS avg_rating
  FROM sailors s
  JOIN reserves r ON s.sid = r.sid
) AS t
WHERE s.rating > t.avg_rating
ORDER BY s.sid, r.bid;
```

26. 
Problem
Result
SQL query - 18
Send Feedback
Problem Statement:
Display all the sailor id, boat id, sailor name and boat color which are reserved by Sailors who have ratings less than the average rating in the
SELECT r.sid, r.bid, s.sname,color
FROM sailors s, reserves r, boats b
WHERE s.sid = r.sid
AND r.bid = b.bid
AND s.rating<(
SELECT AVG(rating)
FROM reserves
INNER JOIN sailors
WHERE s.sid = r.sid
);

27. 
MCQ - 9
Send Feedback
Which of the following statements are FALSE?
Statement-1: The JOIN clause does not contain additional queries. It connects two or more tables and selects data from them into a single result set.
Statement-2: A subquery is easier to write than a join query.
Statement-3: A join query is easier to write than a subquery.
Statement-4: Simple subqueries do not rely on the columns in the outer query, whereas correlated subqueries refer to data from the outer query.
Statement-5: More joins in a query means the database server has to do less work, which means that it is a less time-consuming process to retrieve data.
Options
Attempts left:
This problem has only one correct answer
Statement 1, 2, 4 & 6
Statement 2, 4 & 5
Statement 3 & 5
Statement 3, 4 & 5
Hurray! Correct Answer
Solution Description
Statement-1 is correct, as the Join clause connects two or more tables and gives a single result set, which is done using one single query.
Statement-2 is correct as subquery is easier to write when we split a long query into subparts, whereas it becomes very tricky in joins to conclude which particular join comes into play for which particular query.
Therefore, statement-3 will also be incorrect.

28.

Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-7\DBMS\17.Sub Queries

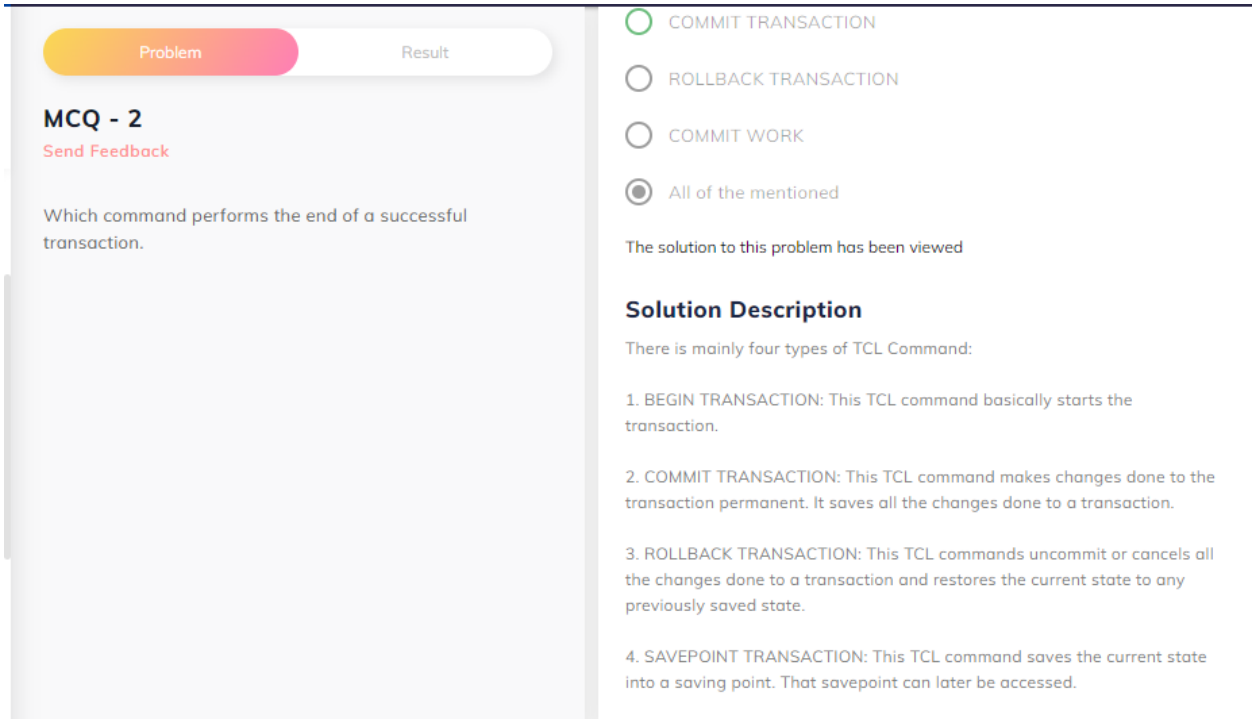
18. Cheat Sheet

Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-7\DBMS\18. Cheat Sheet

Part-2

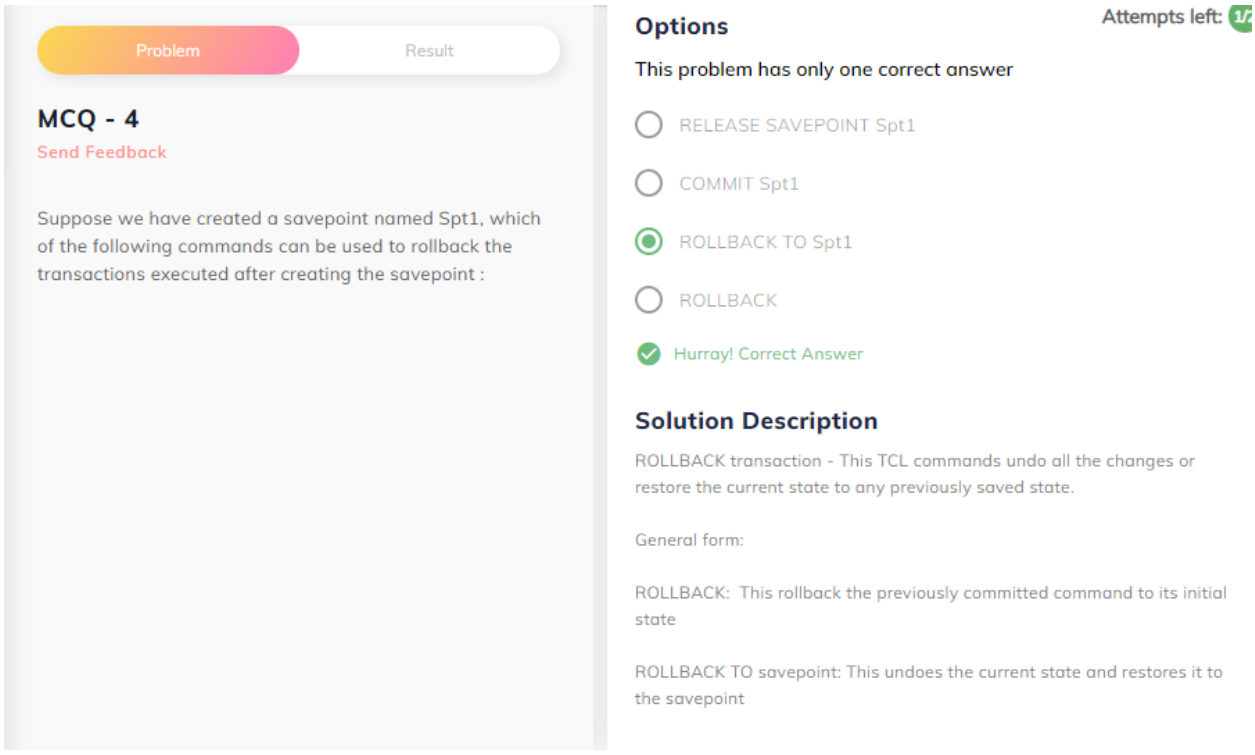
1.Transaction Statement[8]

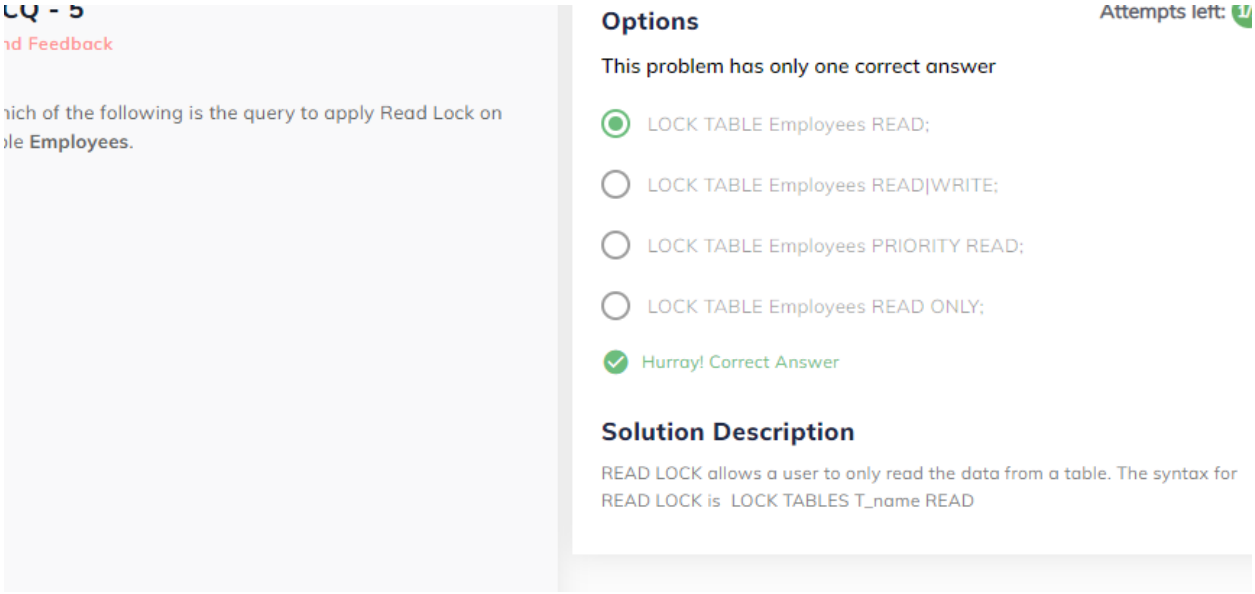
1. Which of the following is a sequence of SQL operations which are treated as a single unit of work:Transaction

2. 

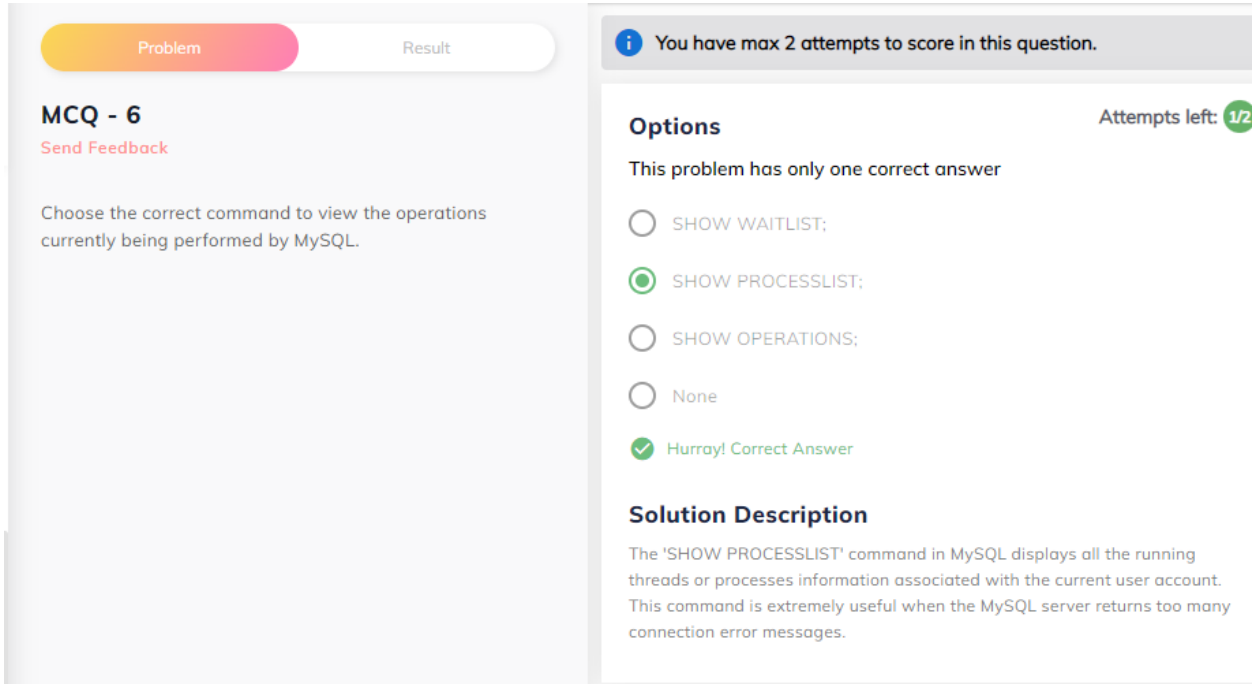
3. You can roll back after performing the commit in MySQL.

4. You can roll back after performing the commit in MySQL.:False

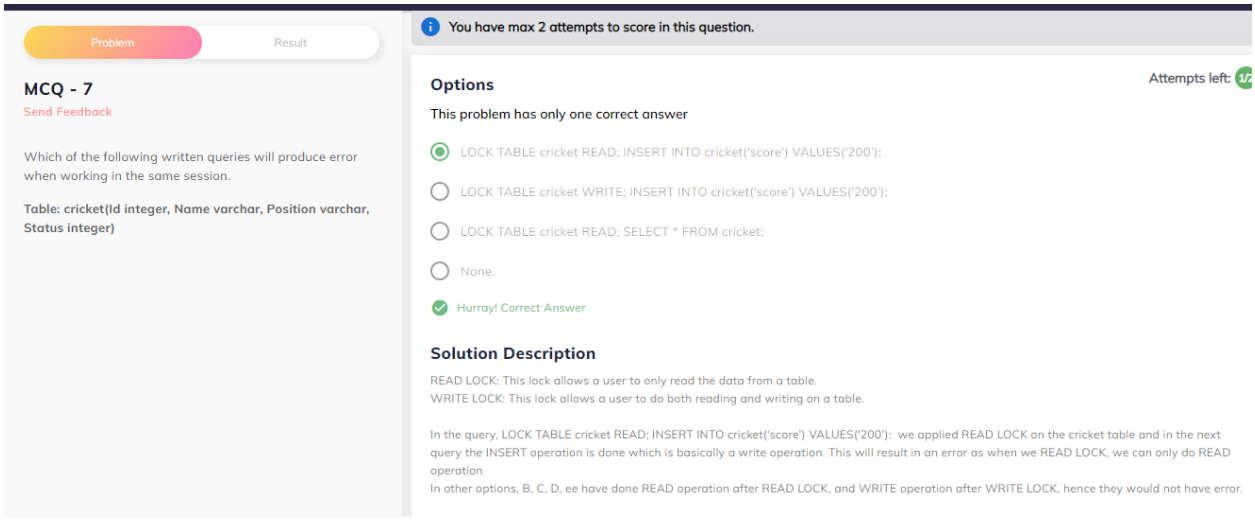
5. 

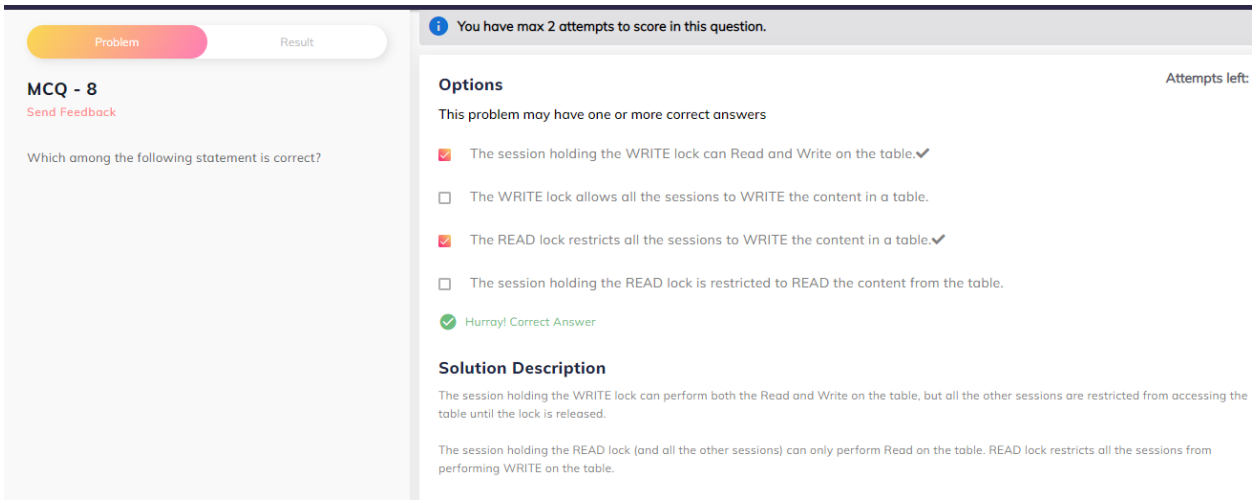
6. 

7.


Problem
Result
MCQ - 6
Send Feedback
Choose the correct command to view the operations currently being performed by MySQL.
You have max 2 attempts to score in this question.
Options
Attempts left: 1/2
This problem has only one correct answer
SHOW WAITLIST;
SHOW PROCESSLIST;
SHOW OPERATIONS;
None
Hurray! Correct Answer
Solution Description
The 'SHOW PROCESSLIST' command in MySQL displays all the running threads or processes information associated with the current user account. This command is extremely useful when the MySQL server returns too many connection error messages.

8.


Problem
Result
MCQ - 7
Send Feedback
Which of the following written queries will produce error when working in the same session.
Table: cricket(Id integer, Name varchar, Position varchar, Status integer)
You have max 2 attempts to score in this question.
Options
Attempts left: 1/2
This problem has only one correct answer
LOCK TABLE cricket READ; INSERT INTO cricket('score') VALUES('200');
LOCK TABLE cricket WRITE; INSERT INTO cricket('score') VALUES('200');
LOCK TABLE cricket READ; SELECT * FROM cricket;
None.
Hurray! Correct Answer
Solution Description
READ LOCK: This lock allows a user to only read the data from a table.
WRITE LOCK: This lock allows a user to do both reading and writing on a table.
In the query, LOCK TABLE cricket READ; INSERT INTO cricket('score') VALUES('200'): we applied READ LOCK on the cricket table and in the next query the INSERT operation is done which is basically a write operation. This will result in an error as when we READ LOCK, we can only do READ operation
In other options, B, C, D, ee have done READ operation after READ LOCK, and WRITE operation after WRITE LOCK, hence they would not have error.

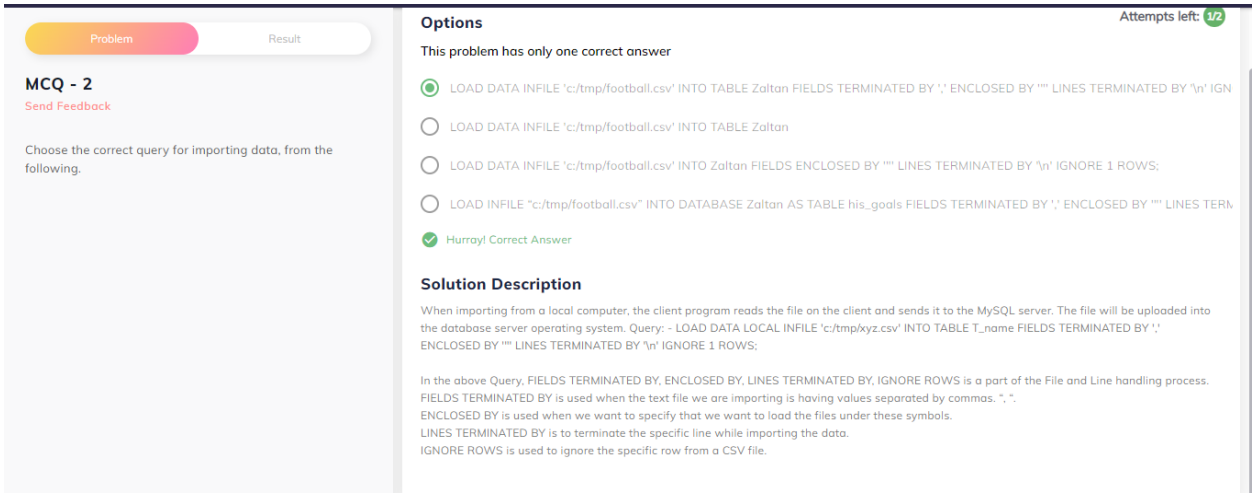
9. 

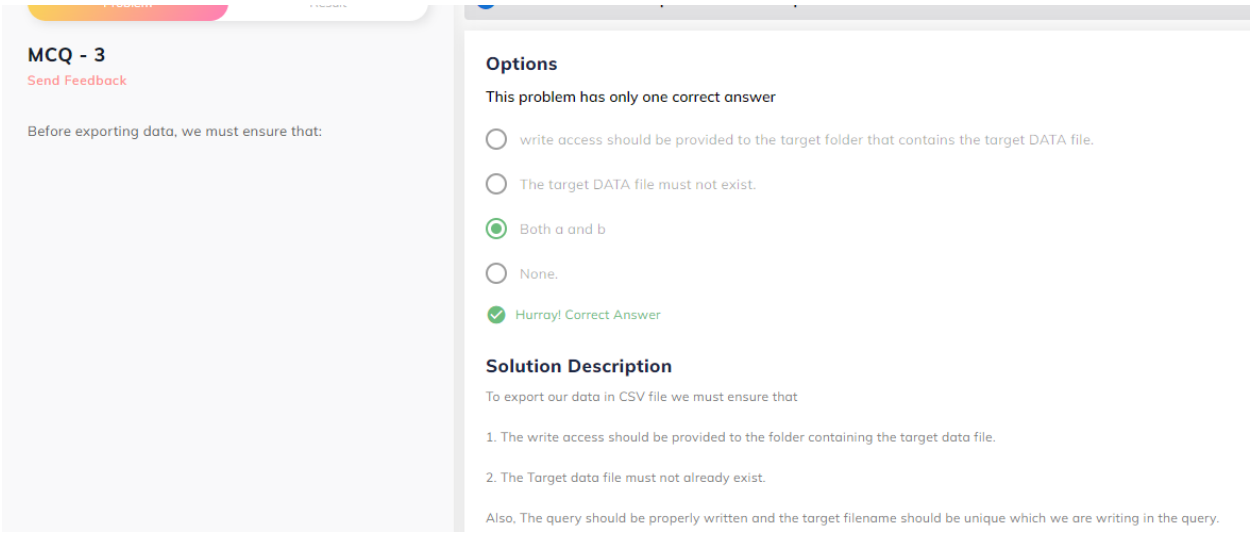
Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-8\DBMS\1.Transaction Statment

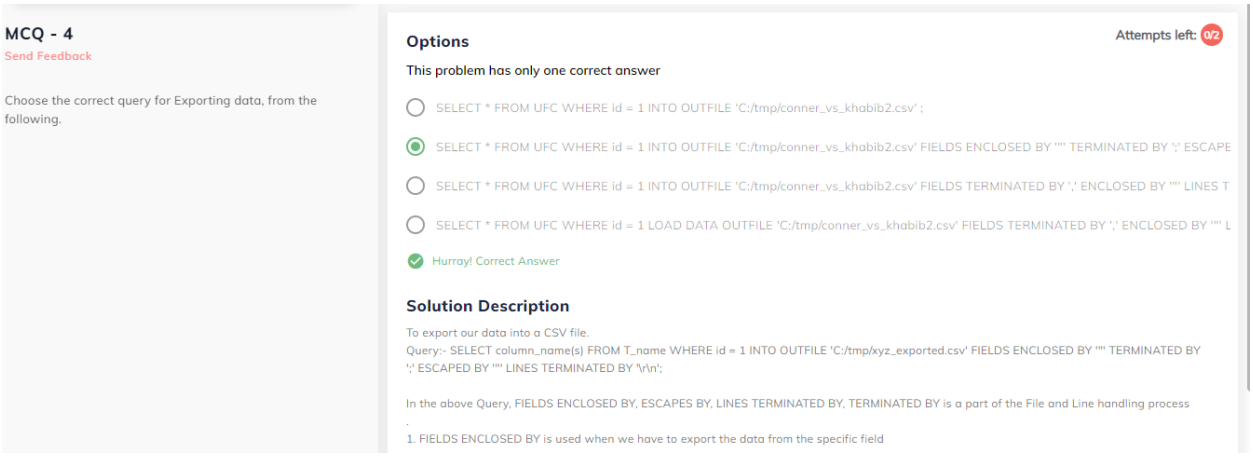
2.Import/Export [4]

1. Out of the following, what data file can mysql workbench import data from?[1,2]]

    1. csv
    2. json
    3. ORC
    4. Protocol
    5. Parquet

2. 

3. 

4. 

Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-8\DBMS\2.Import Exports

3.Normalization[20]

1.

MCQ - 1

Send Feedback

What is trivial functional dependency?

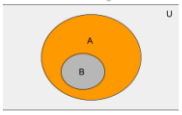
- If A→B holds where B is a subset of A.
- If A→B holds where B is not an intersection of A.
- If A→B holds where B is an intersection of A.

Hurray! Correct Answer

Solution Description

Let there be a set of attributes A which determines a set of attributes B (i.e. A→ B). Now if the dependent (i.e. B) is a subset of the determinant (i.e A). i.e. If A→ B and B⊆A. Hence, we call this a trivial functional dependency

Here is a Venn diagram below for this trivial dependency:



2.

MCQ - 2

Send Feedback

The rule which states that addition of same attributes to the right side and left side will results in other valid dependency is classified as:

Options

Attempts left: 1/2

This problem has only one correct answer

- reflexive rule
- augmentation rule
- transitivity Rule
- Sigma Rule

Hurray! Correct Answer

Solution Description

The augmentation rule states that the addition of the same attributes to the right side and the left side will result in another valid dependency. If B can be determined from A, then adding an attribute to this functional dependency won't change anything. i.e. If A→ B holds, then AM→ BM holds too. 'M' being a set of attributes.

3.

MCQ - 3

Send Feedback

A relation R has the following tuples:

A	B	C
1	2	3
4	2	3
5	3	3
2	4	4

Which of the following dependencies do not hold over the relation R?

Options

Attempts left: 1

This problem has only one correct answer

- A -> B
- AB -> C
- C -> B
- B -> C

Hurray! Correct Answer

Solution Description

Explanation: Here , if we observe carefully for C->B, we would notice that for attribute 'C', value 3 is appearing multiples times and it is pointing to different values of attribute 'B'. So, if we consider value 3 of attribute 'C' , then it can point to value 2 as well as value 3 of attribute 'B'. Hence, 'C' cannot determine 'B' uniquely.

Hence ,C->B dost NOT hold.

4.

MCQ - 4

Send Feedback

R={A, B, C, D, E} is the given schema, the FD's for the same are as follows:

A→B

A→C

CD→E

B→D

E→A

Identify the illegal relation from the following.

Options

Attempts left:

This problem has only one correct answer

- BC→ CD
- AC→ BC
- EC→ AC
- BD→ CD

Hurray! Correct Answer

Solution Description

Using Armstrong's axiom of Augmentation, which states that,If Y can be determined from X, then adding an attribute to this functional dependency won't change anything.
i.e. If X→ Y holds, then XM→ YM holds too. 'M' being a set of attributes.
Therefore, here all the relation stated holds but not BD→ CD. As there is no FD stating B→ D.

5.

MCQ - 5

Send Feedback

R={A, B, C, D, E} is the given schema, the FD's for the same are as follows:

A→B

A→C

CD→E

B→D

E→A

Is the relation CD→ AC legal one?

Options

This problem has only one correct answer

- Yes
- No
- Cannot say

Hurray! Correct Answer

Solution Description

We know CD→ E and E→ A . Therefore, CD→ A (using transitive rule)
Also it is evident that C⊆CD therefore, CD→ C.
Hence, Combining CD→ A and CD→ C , we can state, CD→ AC.

6.

MCQ - 6

Send Feedback

A functional dependency of the form A→B is trivial if:

Options

Attempts left:

This problem has only one correct answer

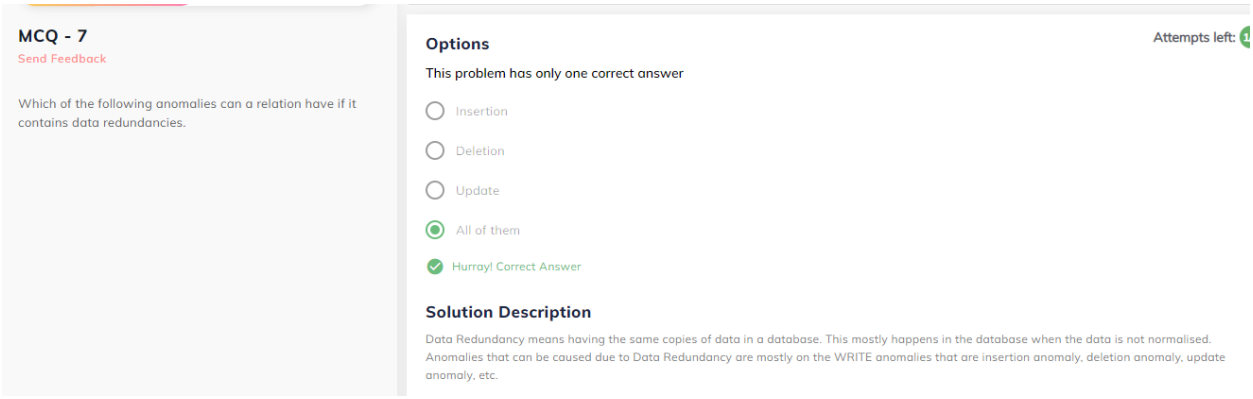
- A⊆A
- A⊆B
- B⊆A
- A⊆B and B⊆A

Hurray! Correct Answer

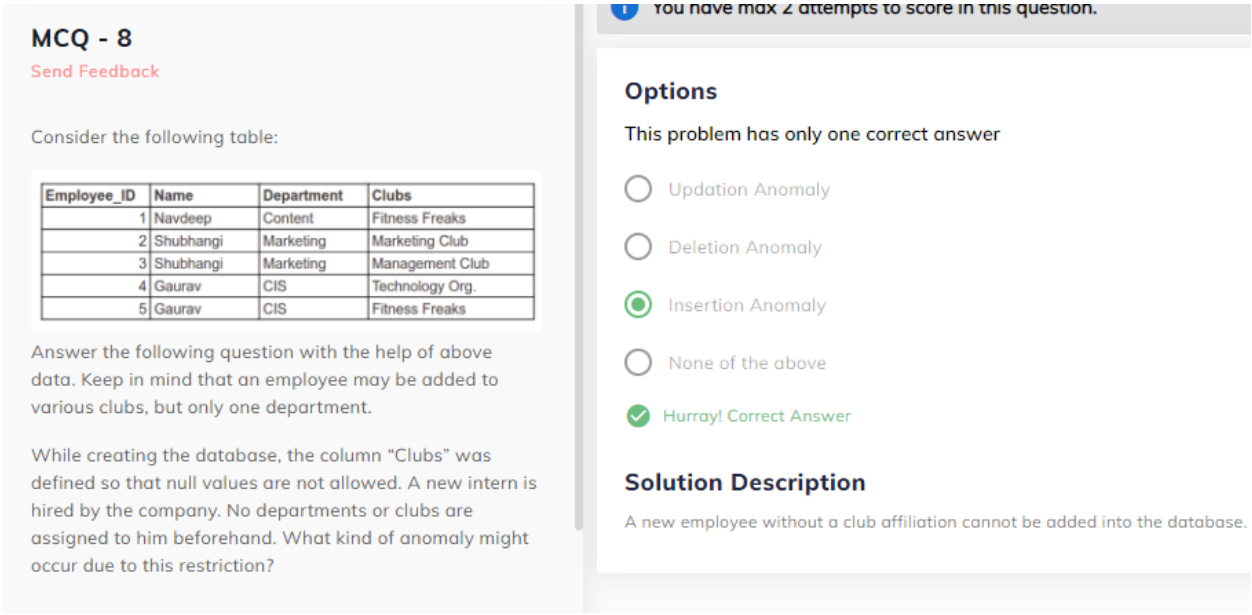
Solution Description

Let there be a set of attributes A which determines a set of attributes B (i.e. A→ B). The functional dependency will be trivial if the dependent (i.e. B) is a subset of the determinant (i.e. A). i.e. If A→ B and B⊆A.

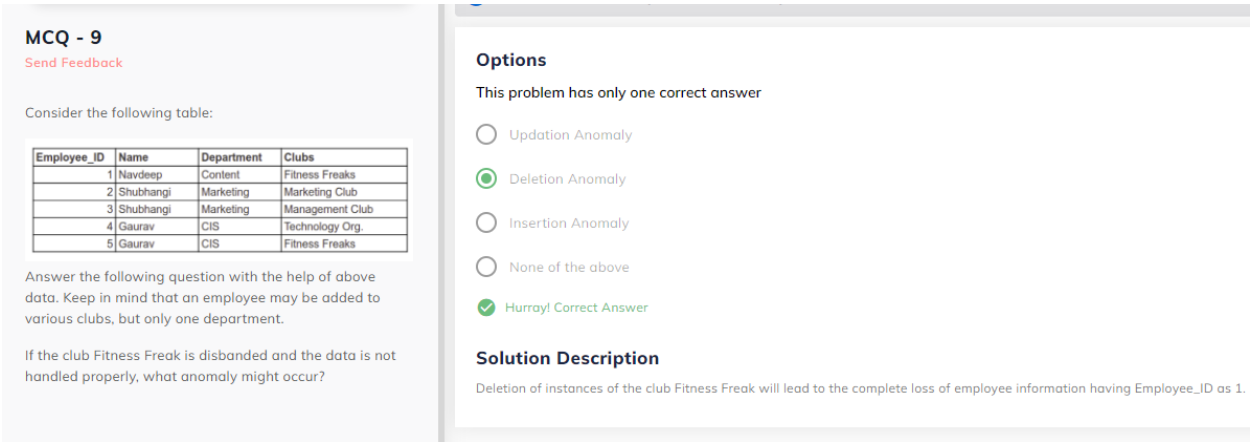
7.


MCQ - 7
Send Feedback
Which of the following anomalies can a relation have if it contains data redundancies.
Options
Attempts left:
This problem has only one correct answer
Insertion
Deletion
Update
All of them
Hurray! Correct Answer
Solution Description
Data Redundancy means having the same copies of data in a database. This mostly happens in the database when the data is not normalised. Anomalies that can be caused due to Data Redundancy are mostly on the WRITE anomalies that are insertion anomaly, deletion anomaly, update anomaly, etc.

8.


MCQ - 8
Send Feedback
Consider the following table:
Employee_ID | Name | Department | Clubs
1 | Navdeep | Content | Fitness Freaks
2 | Shubhangi | Marketing | Marketing Club
3 | Shubhangi | Marketing | Management Club
4 | Gaurav | CIS | Technology Org.
5 | Gaurav | CIS | Fitness Freaks
Answer the following question with the help of above data. Keep in mind that an employee may be added to various clubs, but only one department.
While creating the database, the column "Clubs" was defined so that null values are not allowed. A new intern is hired by the company. No departments or clubs are assigned to him beforehand. What kind of anomaly might occur due to this restriction?
You have max 2 attempts to score in this question.
Options
This problem has only one correct answer
Updation Anomaly
Deletion Anomaly
Insertion Anomaly
None of the above
Hurray! Correct Answer
Solution Description
A new employee without a club affiliation cannot be added into the database.

9.


MCQ - 9
Send Feedback
Consider the following table:
Employee_ID | Name | Department | Clubs
1 | Navdeep | Content | Fitness Freaks
2 | Shubhangi | Marketing | Marketing Club
3 | Shubhangi | Marketing | Management Club
4 | Gaurav | CIS | Technology Org.
5 | Gaurav | CIS | Fitness Freaks
Answer the following question with the help of above data. Keep in mind that an employee may be added to various clubs, but only one department.
If the club Fitness Freak is disbanded and the data is not handled properly, what anomaly might occur?
Options
This problem has only one correct answer
Updation Anomaly
Deletion Anomaly
Insertion Anomaly
None of the above
Hurray! Correct Answer
Solution Description
Deletion of instances of the club Fitness Freak will lead to the complete loss of employee information having Employee_ID as 1.

10.

MCQ - 10

Send Feedback

Consider the following table:

Employee_ID	Name	Department	Clubs
1	Navdeep	Content	Fitness Freaks
2	Shubhangi	Marketing	Marketing Club
3	Shubhangi	Marketing	Management Club
4	Gaurav	CIS	Technology Org.
5	Gaurav	CIS	Fitness Freaks

Answer the following question with the help of above data. Keep in mind that an employee may be added to various clubs, but only one department.

Gaurav has recently decided to switch to the Tech Team and has put in an official request for department change. What anomaly might occur in the above database if the database manager doesn't realise the one to many relation between employee and clubs?

Options

Attempts le

This problem has only one correct answer

- Updation Anomaly
- Deletion Anomaly
- Insertion Anomaly
- None of the above
- Hurray! Correct Answer

Solution Description

Updating the department may lead to the data inconsistency and partial update as multiple entries are present for Gaurav . All rows should be updated with a new department for Gaurav.

11.

MCQ - 11

Send Feedback

Katherine was the assistant to the DBMS professor at her college. She was given a simple task of converting composite attributes into individual attributes for a table. What normalization is she performing?

This problem has only one correct answer

- First
- Second
- Third
- None of the above
- Hurray! Correct Answer

Solution Description

First Normal Form (1NF) is the first step of the normalisation process. For a relation to justifying 1NF, it needs to satisfy 4 basic conditions:
1. Each attribute should contain atomic values. (i.e. no multivalued attributes)
2. Each Value stored in an attribute should be of the same type.
3. All the attributes in a table should have unique names.
4. The order of the data stored in the table doesn't matter.

In the given question Katherine was given the task of converting composite attributes to individual attributes for a table. So it is in the First normal form.

12.

MCQ - 12

Send Feedback

Which of the following is not required for a table to be in 1NF?

Options

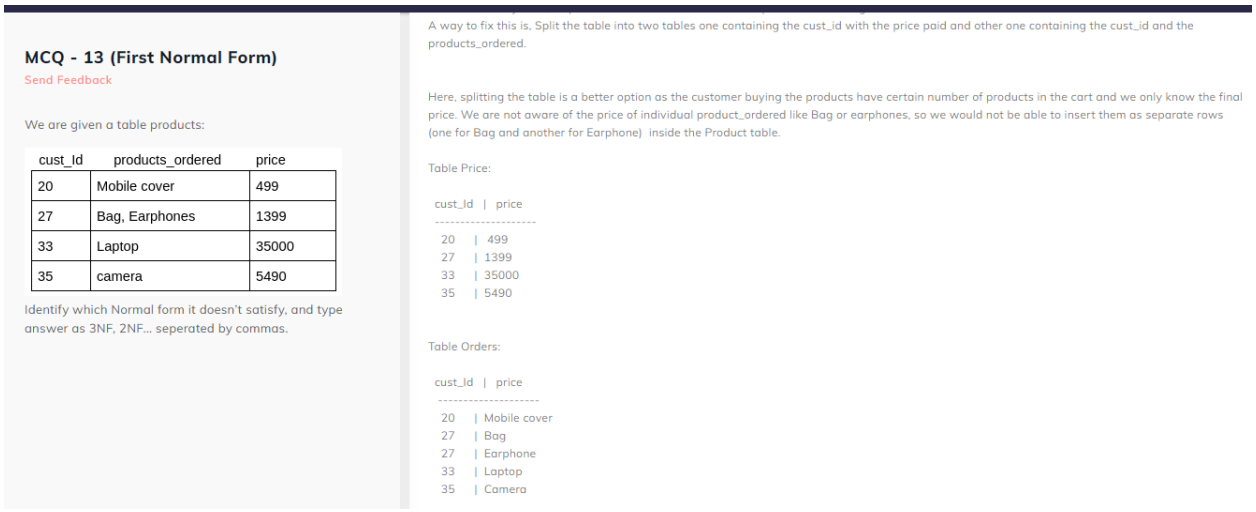
This problem has only one correct answer

- Attributes to have unique names
- Free from Transitive dependencies
- Single valued attribute
- Each value in an attribute is of a similar type.
- Hurray! Correct Answer

Solution Description

For a relation to justifying 1NF, it needs to satisfy 4 basic conditions:
1. Each attribute should contain atomic values.
2. Each Value stored in an attribute should be of the same type.
3. All the attributes in a table should have unique names.
4. The order of the data stored in the table doesn't matter.

13.



MCQ - 13 (First Normal Form)

Send Feedback

We are given a table products:

cust_Id	products_ordered	price
20	Mobile cover	499
27	Bag, Earphones	1399
33	Laptop	35000
35	camera	5490

Identify which Normal form it doesn't satisfy, and type answer as 3NF, 2NF... seperated by commas.

A way to fix this is, Split the table into two tables one containing the cust_id with the price paid and other one containing the cust_id and the products_ordered.

Here, splitting the table is a better option as the customer buying the products have certain number of products in the cart and we only know the final price. We are not aware of the price of individual product_ordered like Bag or earphones, so we would not be able to insert them as separate rows (one for Bag and another for Earphone) inside the Product table.

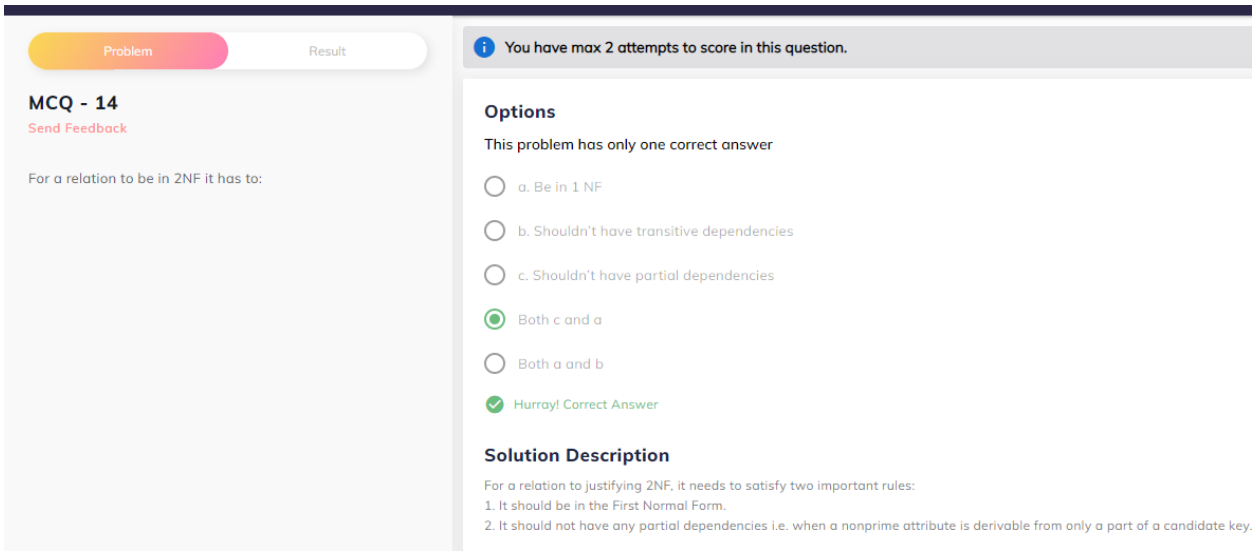
Table Price:

cust_Id	price
20	499
27	1399
33	35000
35	5490

Table Orders:

cust_Id	price
20	Mobile cover
27	Bag
27	Earphone
33	Laptop
35	Camera

14.



Problem | Result

MCQ - 14

Send Feedback

For a relation to be in 2NF it has to:

You have max 2 attempts to score in this question.

Options

This problem has only one correct answer

- a. Be in 1 NF
- b. Shouldn't have transitive dependencies
- c. Shouldn't have partial dependencies
- Both c and a
- Both a and b

Hurray! Correct Answer

Solution Description

For a relation to justifying 2NF, it needs to satisfy two important rules:
1. It should be in the First Normal Form.
2. It should not have any partial dependencies i.e. when a nonprime attribute is derivable from only a part of a candidate key.

15.

MCQ - 15 (Second Normal Form)

Send Feedback

For a given table employee, assume an employee can work for multiple teams.

Emp_id	Team	Emp_age
34324	Design	22
34324	Content	22
54355	Content	21
77445	Technical	25
77445	Design	25

Identify the prime attributes. Write them as comma separated.

Answer

Type here

2NF

Solution Description

Non-prime: Emp_age (it is dependent on Emp_id)

Prime attributes: {Emp_id, Team}

16.

MCQ - 16 (Second Normal Form)

Send Feedback

For a given table employee, assume an employee can work for multiple teams.

Emp_id	Team	Emp_age
34324	Design	22
34324	Content	22
54355	Content	21
77445	Technical	25
77445	Design	25

What normal form does this table violates?

Answer

Type here

2NF

Solution Description

Here {{Emp_id, Team}} is the key for the table. We can see that Emp_age is dependent on Emp_id and Emp_id is a subset of the Prime attributes {{Emp_id, Team}}. Hence, it is a case of Partial dependency. Therefore, it is a violation of 2NF.

17.

MCQ - 17 (Second Normal Form)

Send Feedback

For a given table employee, assume an employee can work for multiple teams.

Emp_id	Team	Emp_age
34324	Design	22
34324	Content	22
54355	Content	21
77445	Technical	25
77445	Design	25

How will you fix the violation? Write in bullet format.

It should not have partial dependencies

Solution Description

To fix this we should split the above table into two:

Table Emp_detail:

```
Emp_id  |  Emp_age
--------------------
34324 | 22
54355 | 21
77445 | 25
```

Table Team_data:

```
Emp_id  |  Team
--------------------
34324 | Design
34324 | Content
54355 | Content
77445 | Technical
77445 | Design
```

18.

MCQ - 18

Send Feedback

Which of the following dependencies leads to violation of 3NF.

Options

This problem has only one correct answer

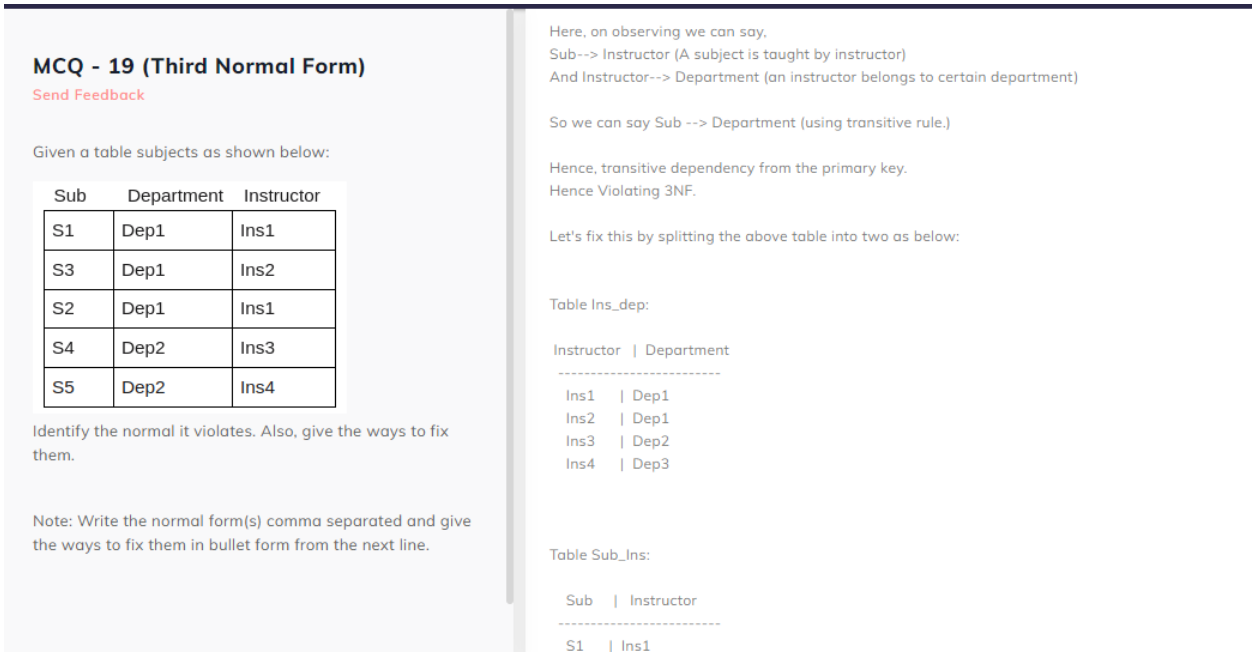
- ○ Transitive Dependency
- ○ Partial Dependency
- ◉ Both a and b
- ○ None of them

✓ Hurray! Correct Answer

Solution Description

For a table to be in third normal form, first it should be in 2NF and second no transitive dependencies.

19.



MCQ - 19 (Third Normal Form)

Send Feedback

Given a table subjects as shown below:

Sub	Department	Instructor
S1	Dep1	Ins1
S3	Dep1	Ins2
S2	Dep1	Ins1
S4	Dep2	Ins3
S5	Dep2	Ins4

Identify the normal it violates. Also, give the ways to fix them.

Note: Write the normal form(s) comma separated and give the ways to fix them in bullet form from the next line.

Here, on observing we can say,
Sub--> Instructor (A subject is taught by instructor)
And Instructor--> Department (an instructor belongs to certain department)

So we can say Sub --> Department (using transitive rule.)

Hence, transitive dependency from the primary key.
Hence Violating 3NF.

Let's fix this by splitting the above table into two as below:

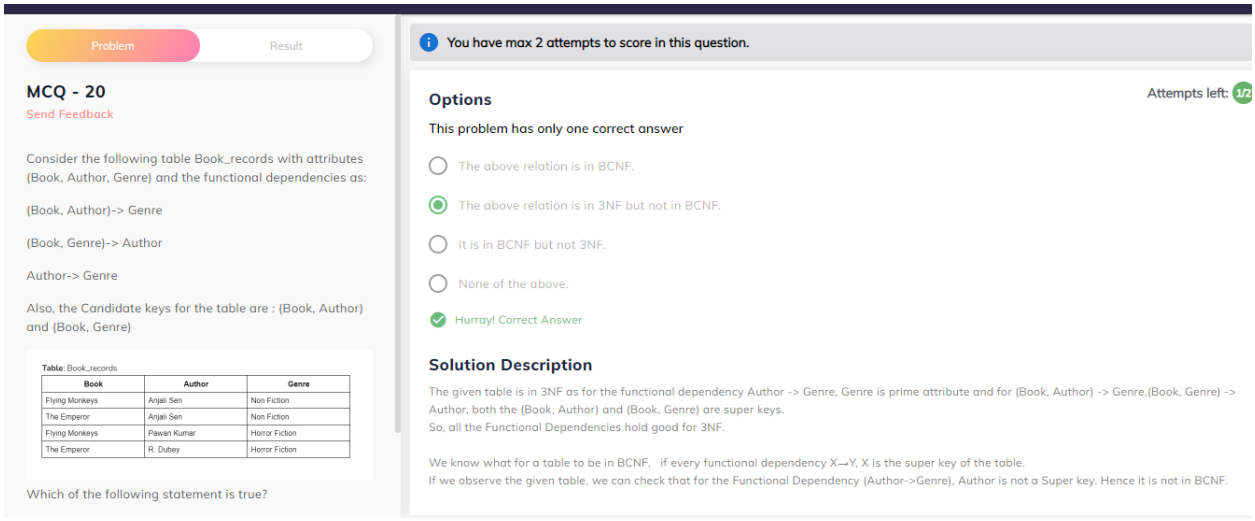
Table Ins_dep:

```
Instructor  | Department
------------------------
 Ins1       | Dep1
 Ins2       | Dep1
 Ins3       | Dep2
 Ins4       | Dep3
```

Table Sub_Ins:

```
 Sub    | Instructor
------------------------
 S1     | Ins1
```

20.



Problem | Result

MCQ - 20

Send Feedback

Consider the following table Book_records with attributes (Book, Author, Genre) and the functional dependencies as:

(Book, Author)-> Genre

(Book, Genre)-> Author

Author-> Genre

Also, the Candidate keys for the table are : (Book, Author) and (Book, Genre)

Table: Book_records

Book	Author	Genre
Flying Monkeys	Anjali Sen	Non Fiction
The Emperor	Anjali Sen	Non Fiction
Flying Monkeys	Pawan Kumar	Horror Fiction
The Emperor	R. Dubey	Horror Fiction

Which of the following statement is true?

You have max 2 attempts to score in this question.

Attempts left: 1/2

Options

This problem has only one correct answer

- The above relation is in BCNF.
- The above relation is in 3NF but not in BCNF.
- It is in BCNF but not 3NF.
- None of the above.

Hurray! Correct Answer

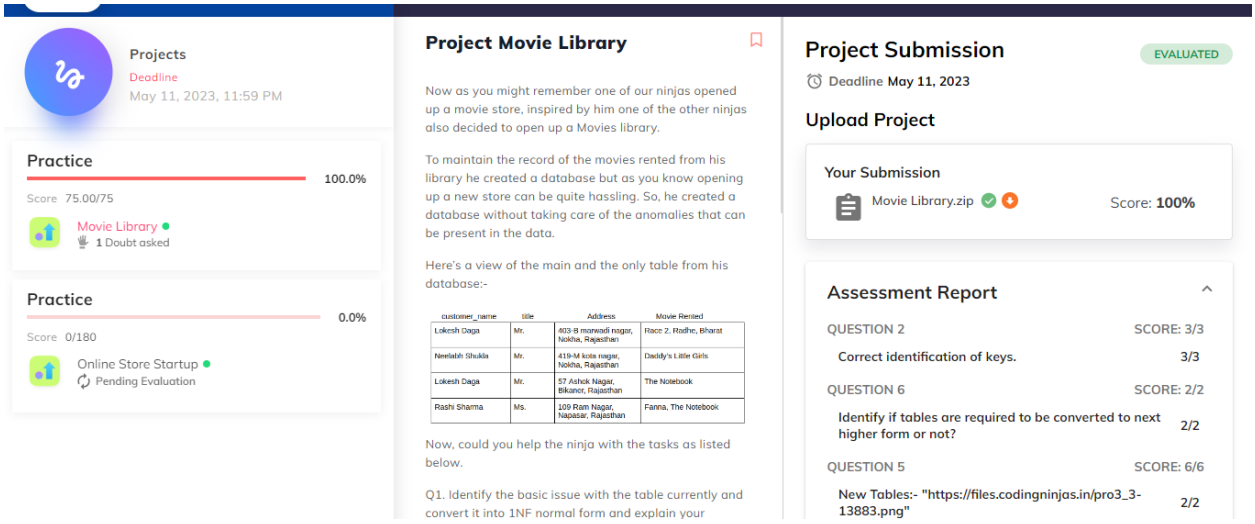
Solution Description

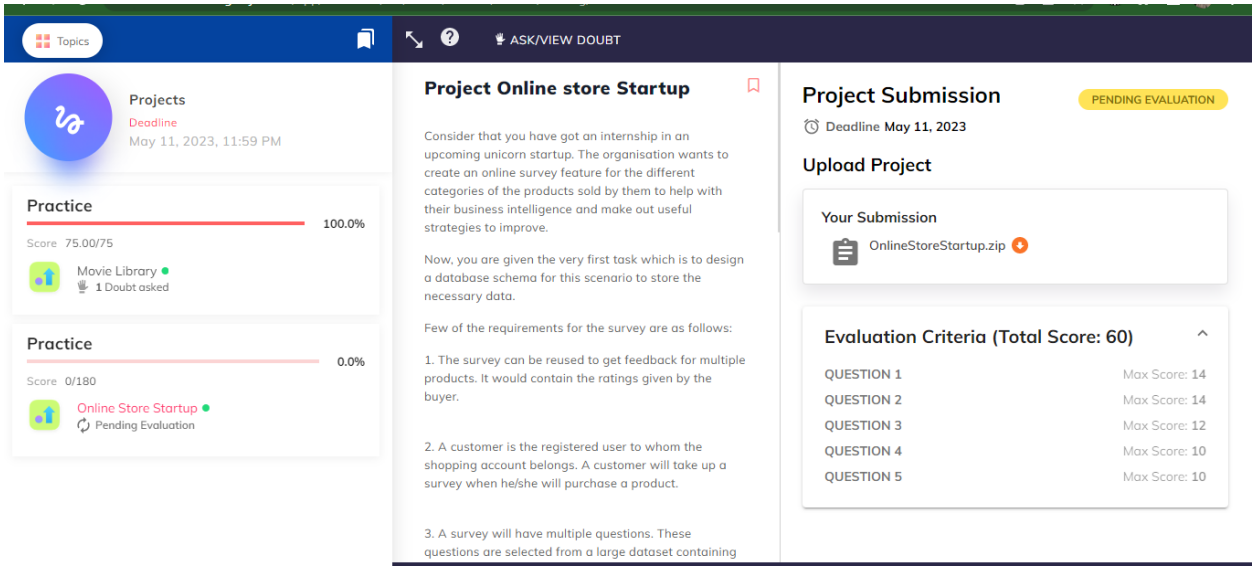
The given table is in 3NF as for the functional dependency Author -> Genre, Genre is prime attribute and for (Book, Author) -> Genre,(Book, Genre) -> Author, both the (Book, Author) and (Book, Genre) are super keys.
So, all the Functional Dependencies hold good for 3NF.

We know what for a table to be in BCNF, if every functional dependency X→Y, X is the super key of the table.
If we observe the given table, we can check that for the Functional Dependency (Author->Genre), Author is not a Super key. Hence it is not in BCNF.

Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-8\DBMS\3.Normalization

4.Projects

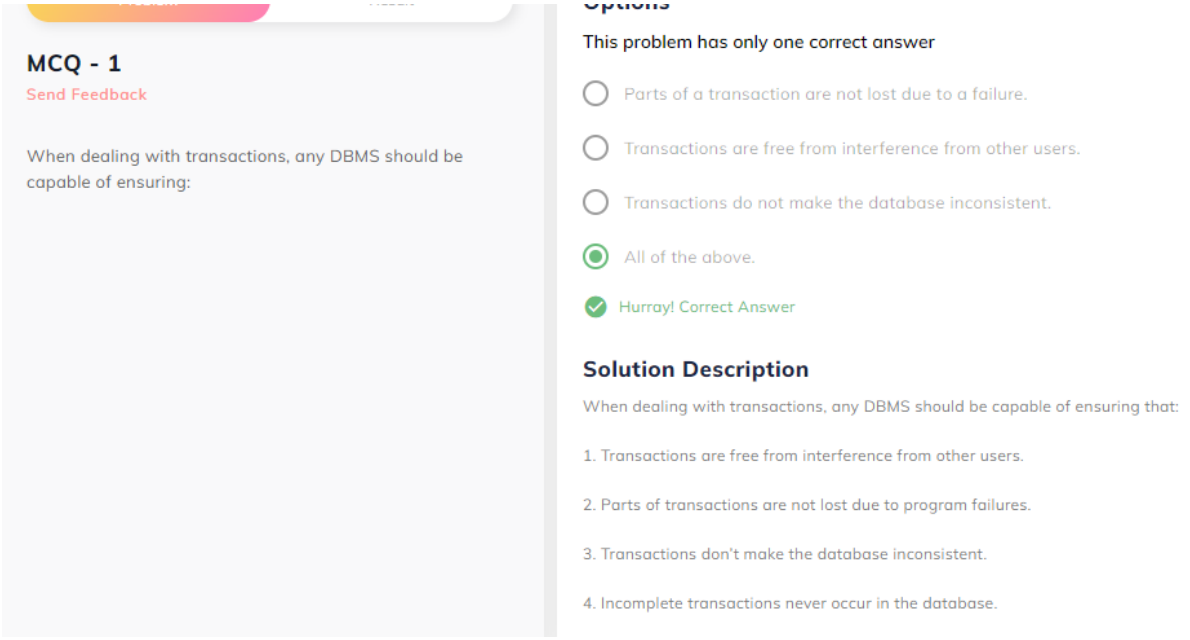
1. 

2. 

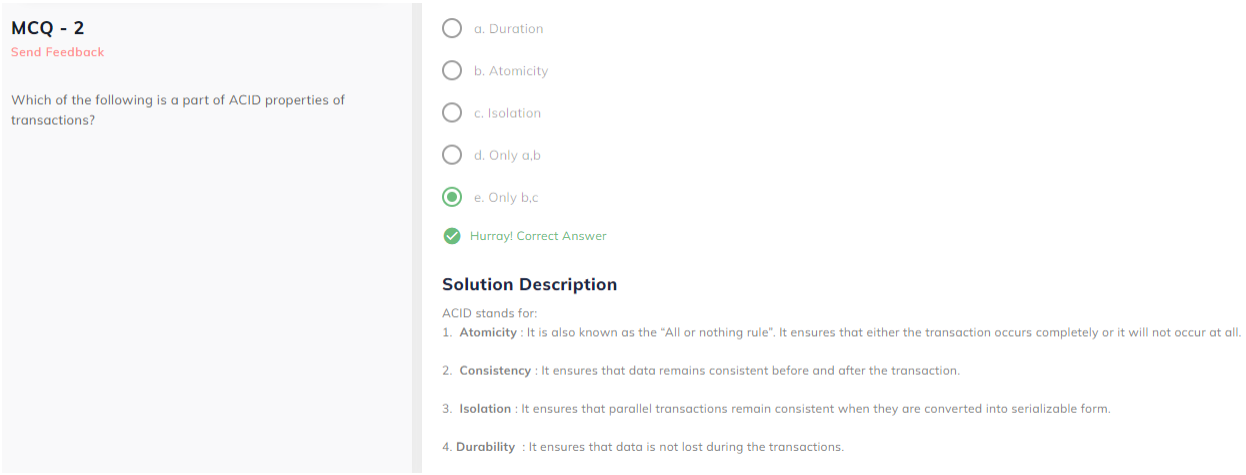
Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-8\DBMS\4.Projects

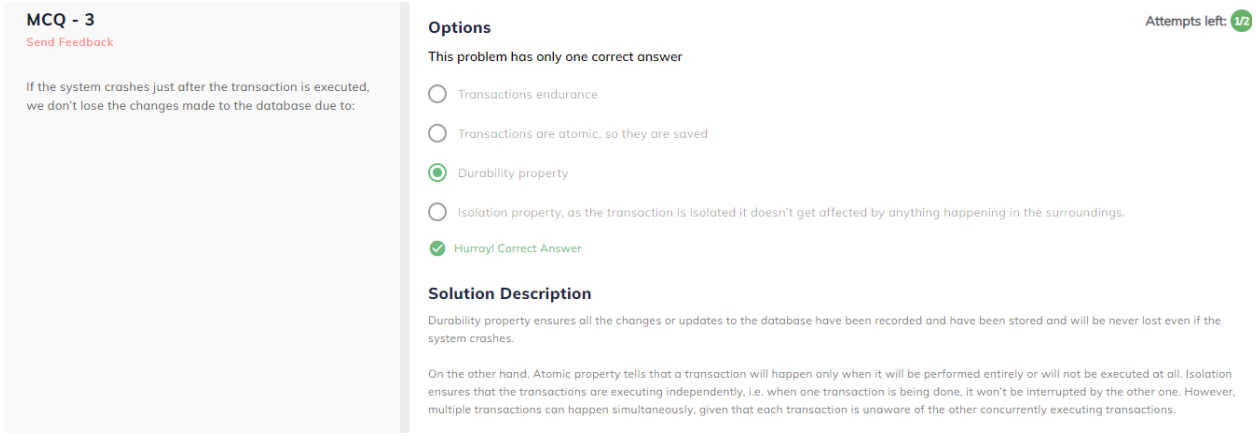
5.Transaction

1.

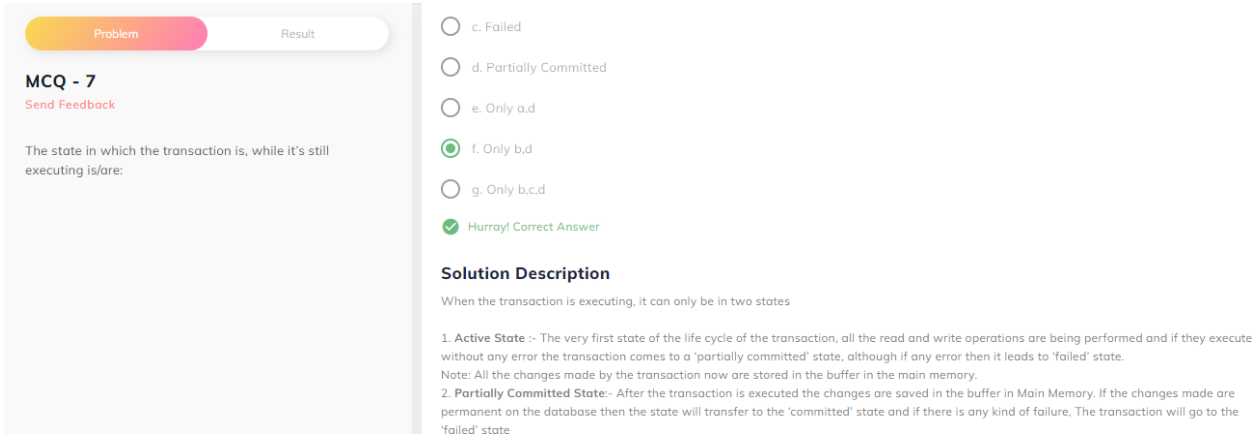


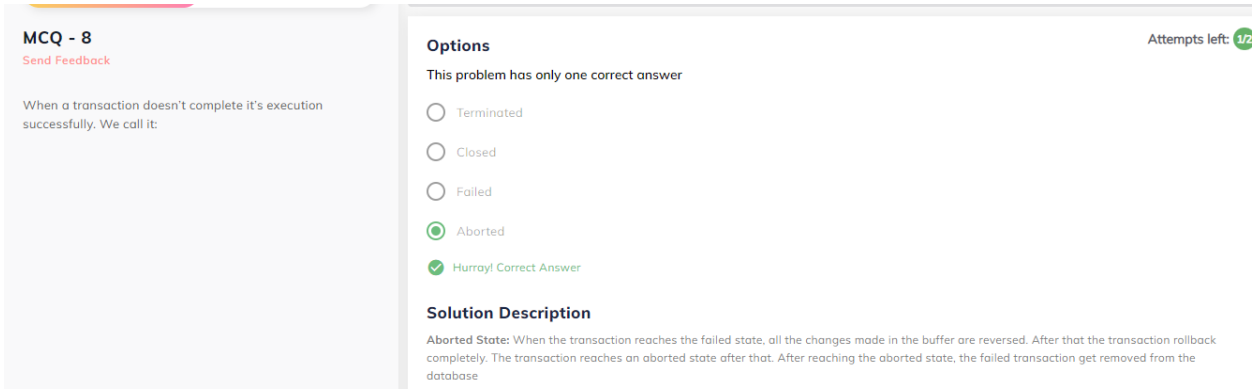
2.



3. 

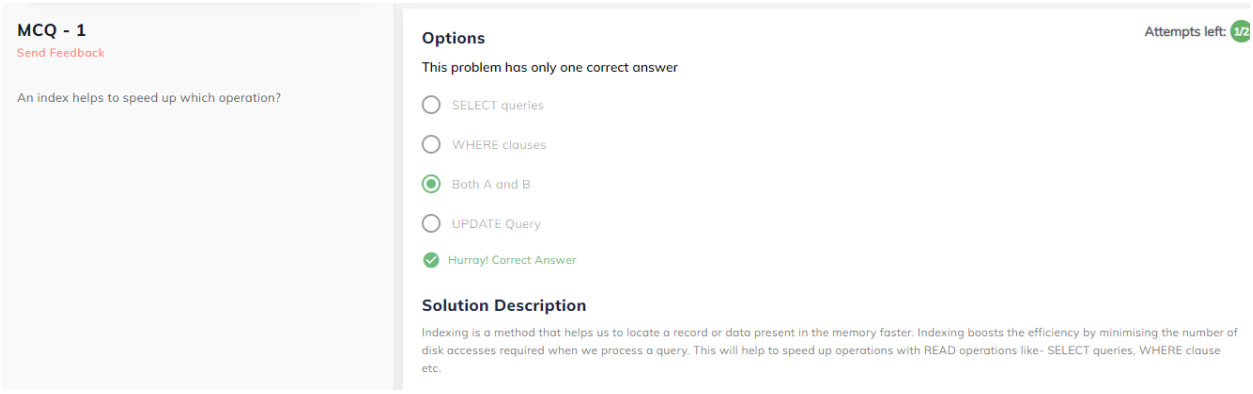
4. At which state is transaction considered permanent in the database?:Committed
5. In case of any shut down during transaction before commit, which of the following statements is done automatically?:-Rollback
6. If the checks by the database recovery system fails, then the transaction is in which state?:Failed

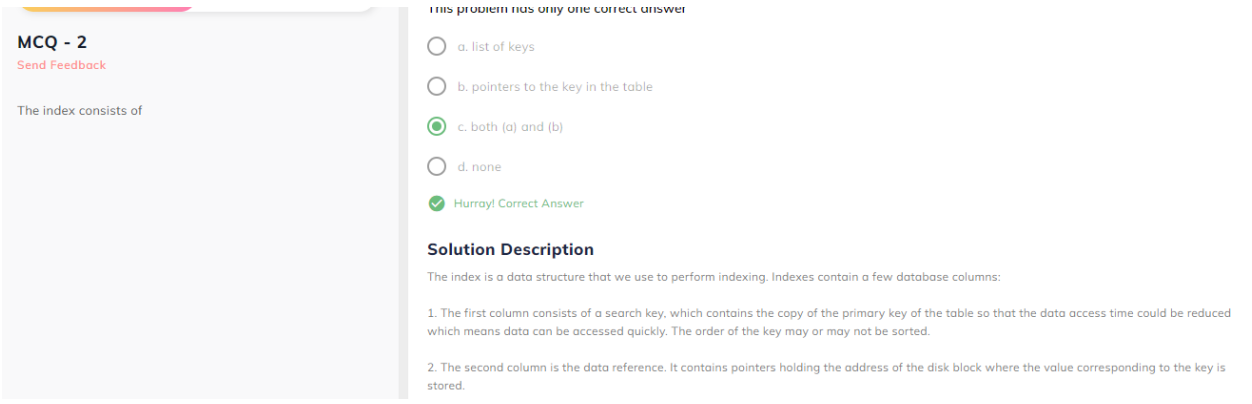
7. 

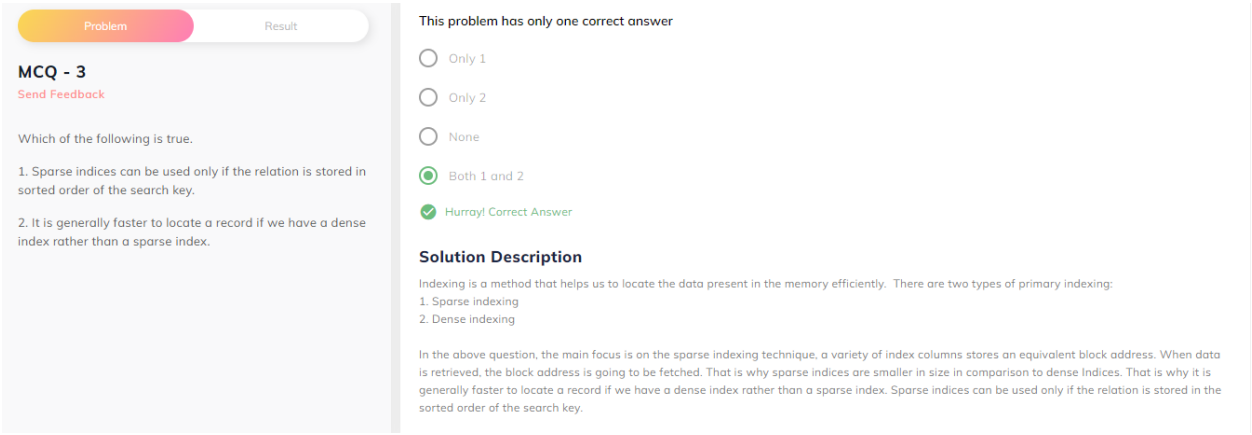
8. 

Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-8\DBMS\5.Transactions

6.Indexing

1. 

2. 

3. 

4.

Problem | Result

MCQ - 4

Send Feedback

Primary index is further divided into dense index and sparse index. Which of the following is true about both.

- (●) Dense index is not space friendly.
- ( ) Sparse index is not space friendly.
- ( ) Sparse index is faster than Dense index.
- ( ) a and c

Hurray! Correct Answer

Solution Description

The difference between dense index and sparse index is shown below:

Dense Index	Sparse Index
Space taken for the index table is large.	Space taken for the index table is smaller.
Time taken to locate the record is less in comparison	Time taken to locate the record is more.
The records in the data file are in specific order and need not be in any kind of cluster or chunk.	The records in the data file are in specific order but the data records are in a cluster or chunk. (i.e. pointers from the index table point to certain data records, and all records between those pointers are considered in one cluster or chunk.)

5.

MCQ - 5 (Indexing Numerical)

Send Feedback

A block can hold either 6 records or 12 key pointers. A database contains 48 records, then how many blocks is required to hold the data file and the dense index?

Answer

Type here

72

Solution Description

Ans: 12

Explanation: We know, the database contains 48 records and a block can hold 6 records or hold 12 key pointers.
Therefore, how many blocks can hold 48 records?
48/6 = 8
Similarly, how many blocks for 12 key pointers?
48/12 = 4

Hence, total blocks = 8+4=12.

6.

MCQ - 6 (Indexing Numerical)

Send Feedback

Suppose a block can hold either 5 records or 10 (key, pointer) pairs. If there are x number of records and dense indexing is used then how many blocks do we need to hold a data file and dense index?

Answer

Type here

15

Solution Description

Ans : 3*x/10

Explanation: Total no. of records given = x.
A block can hold 5 records.

We know in dense indexing the number of rows in the index table is the same as those in the main table.
So,How many blocks to hold x records?
x/5
Similarly, a block can hold 10 key pointers. So,
How many blocks to hold x key pointers?
x/10

Therefore, Total blocks = x/5 + x/10 = 3*x/10

7.

MCQ - 7

Send Feedback

Which of the following indexes is defined on an ordered data file and created on a non-key field?

Options

Attempts left:

This problem has only one correct answer

- ○ Primary index
- ○ Secondary index
- ○ B-trees
- ◉ Clustering index

Hurray! Correct Answer

Solution Description

Clustering Index is the index that is created and ordered on the basis of the non-primary key attributes of the table.These attributes are not unique for each record. In Clustering index, to fetch a record we group two or more attributes together to get the unique values and create an index out of them Clustering index is an ordered data file which is created on a non-key field.

8.

MCQ - 8

Send Feedback

Which of the following will be considered as multi level indexing?

Options

Attempts left: 0/2

This problem has only one correct answer

- Clustering indexing
- Secondary indexing
- Primary Indexing
- All of them

Hurray! Correct Answer

Solution Description

Secondary index is taken into consideration when the size of datafile increases i.e. when the size of the table increases, sparse indexing starts to slow down. To overcome this we introduce another level of indexing that is known as secondary indexing. In this, we select a huge chunk of columns initially and put it up at the first level of indexing which is known as primary level indexing. The data of primary level indexing is stored in primary memory. After this, each chunk is divided into smaller ranges. This is known as the second level of indexing, this is stored in the secondary memory along with the actual data file. Secondary indexing is also known as multilevel indexing.

9.

MCQ - 9

Send Feedback

Which of the following operations does indexing slows down.

1. DELETE
2. INSERT
3. SELECT
4. READ

Options

Attempts

This problem has only one correct answer

- Only 1,3
- Only 2,4
- Only 1,2
- Only 1,2,4

Hurray! Correct Answer

Solution Description

Indexing results in the reduction of the speed of execution of write operations in the memory. Major Write operations are INSERT, UPDATE and DELETE operations.

10.

MCQ - 10

Send Feedback

When the records of the main table are sorted on the basis of search key which is also the primary key, and so is the order of the index table, it's called :

Options

Attempts left: 0

This problem has only one correct answer

- Primary Indexing
- Secondary Indexing with key
- Clustered Indexing
- Secondary Indexing with non-key

Hurray! Correct Answer

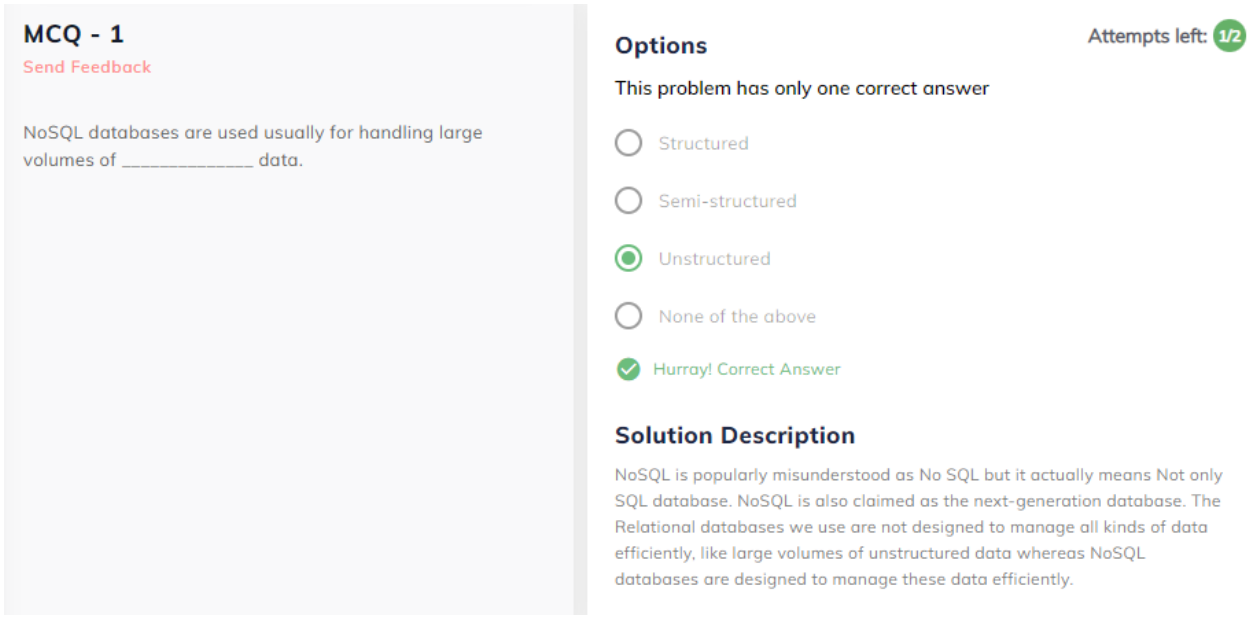
Solution Description

When the indexing is done on the basis of the primary key of the data file it is known as the primary indexing. During the primary indexing, the data file is already ordered to support the primary key. Primary Index is an ordered file whose records are of fixed length with two fields. The primary field of the index replicates the primary key of the information entered in an ordered manner, and therefore the second field of the ordered file contains a pointer that points to the data block where a record containing the keys is available.

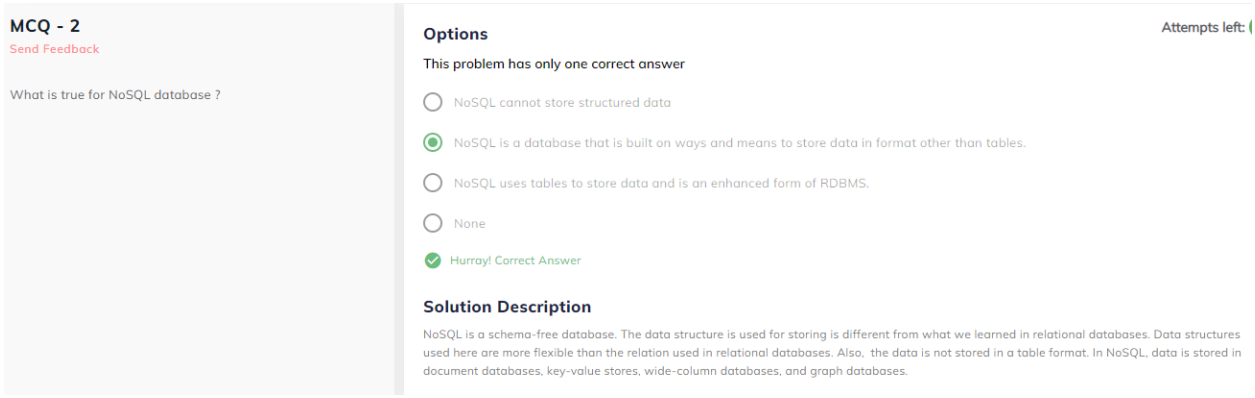
Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-8\DBMS\6.Indexing

7.NoSQL

1.


MCQ - 1
Send Feedback
NoSQL databases are used usually for handling large volumes of _____ data.
Options
Attempts left: 1/2
This problem has only one correct answer
Structured
Semi-structured
Unstructured
None of the above
Hurray! Correct Answer
Solution Description
NoSQL is popularly misunderstood as No SQL but it actually means Not only SQL database. NoSQL is also claimed as the next-generation database. The Relational databases we use are not designed to manage all kinds of data efficiently, like large volumes of unstructured data whereas NoSQL databases are designed to manage these data efficiently.

2.


MCQ - 2
Send Feedback
What is true for NoSQL database ?
Options
Attempts left:
This problem has only one correct answer
NoSQL cannot store structured data
NoSQL is a database that is built on ways and means to store data in format other than tables.
NoSQL uses tables to store data and is an enhanced form of RDBMS.
None
Hurray! Correct Answer
Solution Description
NoSQL is a schema-free database. The data structure is used for storing is different from what we learned in relational databases. Data structures used here are more flexible than the relation used in relational databases. Also, the data is not stored in a table format. In NoSQL, data is stored in document databases, key-value stores, wide-column databases, and graph databases.

3.

MCQ - 3

Send Feedback

NoSQL stands for:

Options

This problem has only one correct answer

- Advance SQL
- Not SQL
- Not Only SQL
- New Optimized SQL

Hurray! Correct Answer

Solution Description

NoSQL, popularly misunderstood as No-SQL but it actually means Not Only SQL database.

4.

MCQ - 4

Send Feedback

NoSQL databases are often referred to as:

Options

Attempts left:

This problem has only one correct answer

- Object-oriented databases
- Network databases
- Relational databases
- Distributed databases

Hurray! Correct Answer

Solution Description

NoSQL Databases are referred to as distributed databases. It's a mechanism for storing and retrieving data and is also claimed as the next-generation database. They are used in real-time web applications and big data and their usage is peaking over time. NoSQL databases go against the conventional attitude of storing information at a single location, instead, it distributes and stores information over a set of multiple servers.

5.

MCQ - 5

Send Feedback

Most NoSQL databases support automatic _____ meaning that you get high availability and disaster recovery.

Options

Attempts l

This problem has only one correct answer

- processing
- scalability
- replication
- all of the mentioned

Hurray! Correct Answer

Solution Description

NoSQL databases are highly available due to their auto replication feature i.e. whenever any kind of failure happens data replicates itself to the preceding consistent state. This helps in high availability and data recovery.

6.

MCQ - 6

Send Feedback

What do we call a phenomenon when we add more computational power to our existing machine?

Options

Attempts

This problem has only one correct answer

- Sharding
- Scale up
- Horizontal Scaling
- None of the above

Hurray! Correct Answer

Solution Description

Explanation: Vertical scaling means that you scale by adding more power (CPU, RAM) to an existing machine. It is also known as Scaling up.

7.

MCQ - 7

Send Feedback

What are the advantages of NoSQL?

- Can scale up to great extent
- All of the above
- None

Hurray! Correct Answer

Solution Description

Advantages of No SQL are

1. **Horizontal Scaling**: Scaling out means distributing the database throughout multiple computers when the load increases. Therefore, it can handle more traffic simply by adding more servers to the database. **It can scale up to great extent.**

2. **High Availability**: NoSQL databases are highly available due to their auto replication feature i.e. whenever any kind of failure happens data replicates itself to the preceding consistent state. **It is available for all types of data including semi-structured and volatile data.**

3.**Less management:** NoSQL databases require minimum to zero management, they are equipped to auto-repair data distribution and due to it having flexible data models that result in reducing administration and performance difficulties. **This results in very high throughput in read/write operations.**

4.**Flexible Schema:** Relational databases are used to have a defined schema, which is quite an issue because in case you need to make any modification or addition to the database we need to change the schema as well every time.

8.

MCQ - 8

Send Feedback

What does RDBMS ensures but NoSQL doesn't ?

Options

Attempts left: 0/2

This problem has only one correct answer

- ACID properties
- No Redundancy
- Both
- None

Hurray! Correct Answer

Solution Description

When compared to SQL or relational databases, NoSQL database is designed for storing data of many types but it lacks functionalities like it doesn't support transaction properties like ACID, etc.
Data Redundancy means having the same copies of data in a database. It is not accomplished in NoSQL but it is done in RDBMS.

9.

MCQ - 9

Send Feedback

Which of the following is usually not a feature in NoSQL?

Options

Attempts left:

This problem has only one correct answer

- Easy scaling
- Creating fixed schema
- High availability
- None

Hurray! Correct Answer

Solution Description

Relational databases are used to have a defined schema, which is quite an issue because in case you need to make any modification or addition to the database we need to change the schema as well every time. To overcome this NoSQL creates a flexible schema.

10.

MCQ - 10

Send Feedback

What are the disadvantages of NoSQL?

- b. If the data requirements are not clear, we can use a flexible schema.
- c. NoSQL databases don't have the reliability functions which Relational Databases have.
- d. a,b
- e. a,c
- f. All of the above
- g. None

Hurray! Correct Answer

Solution Description

The disadvantages of NoSQL:
1. When compared to SQL or relational databases, a NoSQL database is designed for storing data of many types but it lacks functionality like it doesn't support transaction properties like ACID.
2. The process of managing big data on NoSQL is quite complex as compared to RDBMS.
3. It doesn't support data entry with constraints like RDBMS
4. Other concerns for NoSQL are standardization, Interfaces and Interoperability and also less community support.
5. It is also not compatible with SQL, although few NoSQL databases do use SQL but many don't.

11.

MCQ - 11

Send Feedback

Redis is a database type based on:

Options Attempts left:

This problem has only one correct answer

- SQL
- Key-value NoSQL
- Relational data model
- JSON Database

Hurray! Correct Answer

Solution Description

A key-value pair consists of a value that is basically any piece of data or information is saved with a key to identify its location at the time of operation. Database which stores data in the form of key-value pair is known as key-value No-SQL database. Redis is a popular key-value NoSQL database. The other examples of key-value databases are Amazon AWS, DynamoDB, Oracle NoSQL, Aerospike.

12.

MCQ - 12

Send Feedback

Key-value NoSQL, is designed for managing:

Options

This problem has only one correct answer

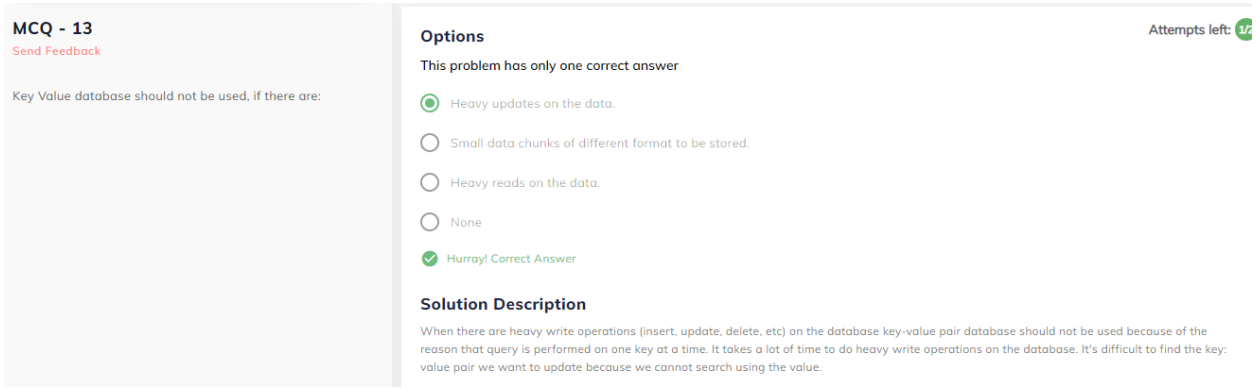
- Associative arrays
- Unstructured data
- Json data files
- All of them

Hurray! Correct Answer

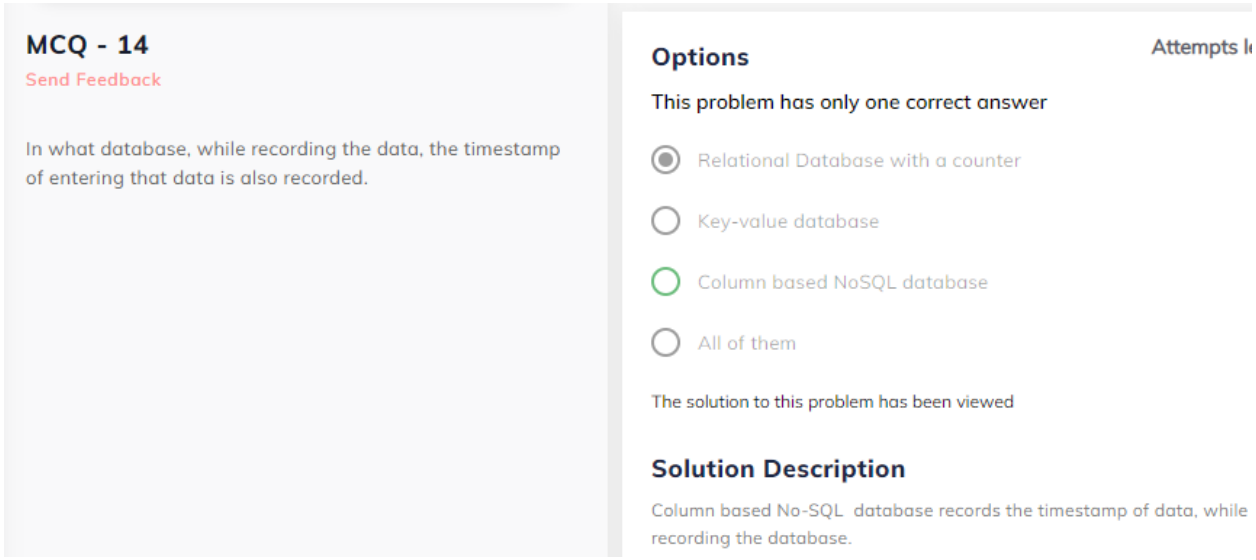
Solution Description

Explanation: In Key-Value database, we can store any type of data in the value.

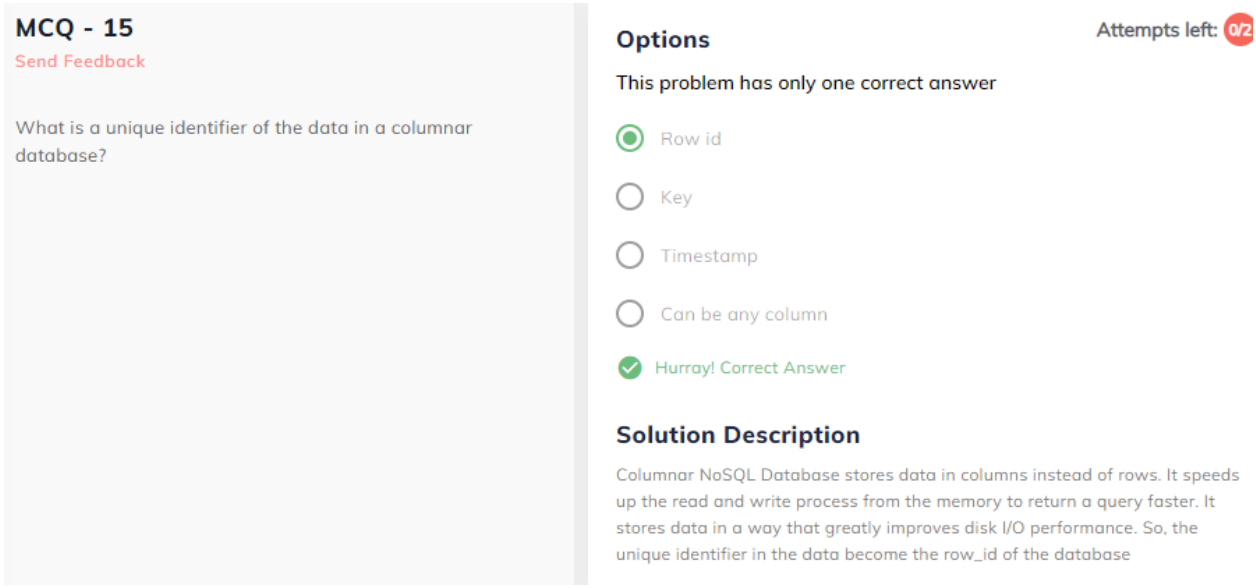
13.


MCQ - 13
Send Feedback
Key Value database should not be used, if there are:
Options
Attempts left:
This problem has only one correct answer
Heavy updates on the data.
Small data chunks of different format to be stored.
Heavy reads on the data.
None
Hurray! Correct Answer
Solution Description
When there are heavy write operations (insert, update, delete, etc) on the database key-value pair database should not be used because of the reason that query is performed on one key at a time. It takes a lot of time to do heavy write operations on the database. It's difficult to find the key: value pair we want to update because we cannot search using the value.

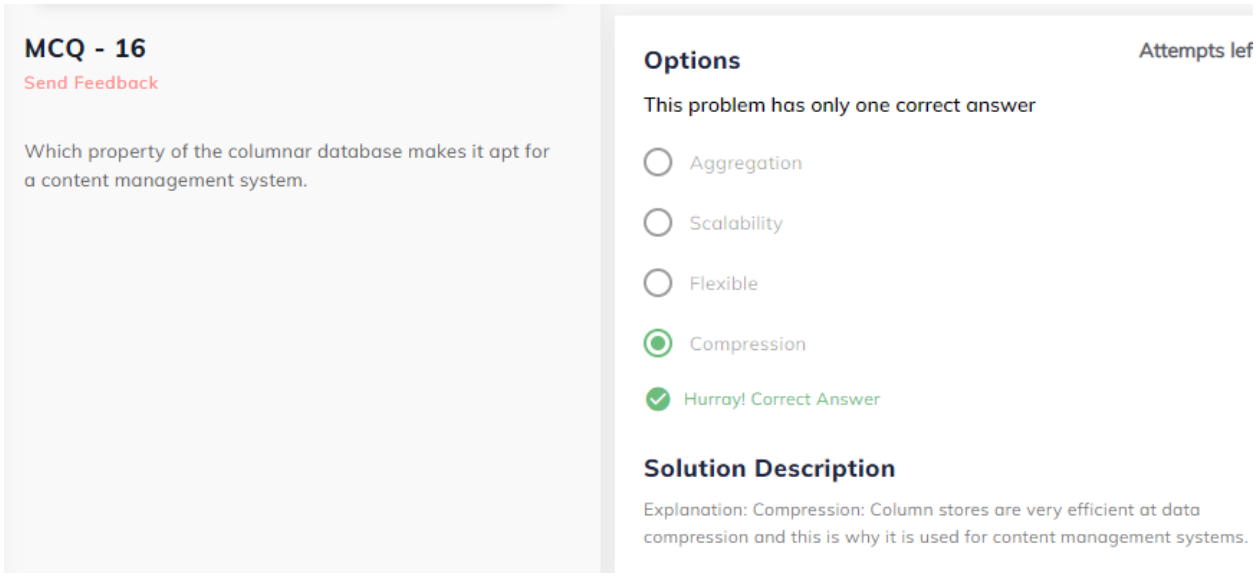
14.


MCQ - 14
Send Feedback
In what database, while recording the data, the timestamp of entering that data is also recorded.
Options
Attempts l
This problem has only one correct answer
Relational Database with a counter
Key-value database
Column based NoSQL database
All of them
The solution to this problem has been viewed
Solution Description
Column based No-SQL database records the timestamp of data, while recording the database.

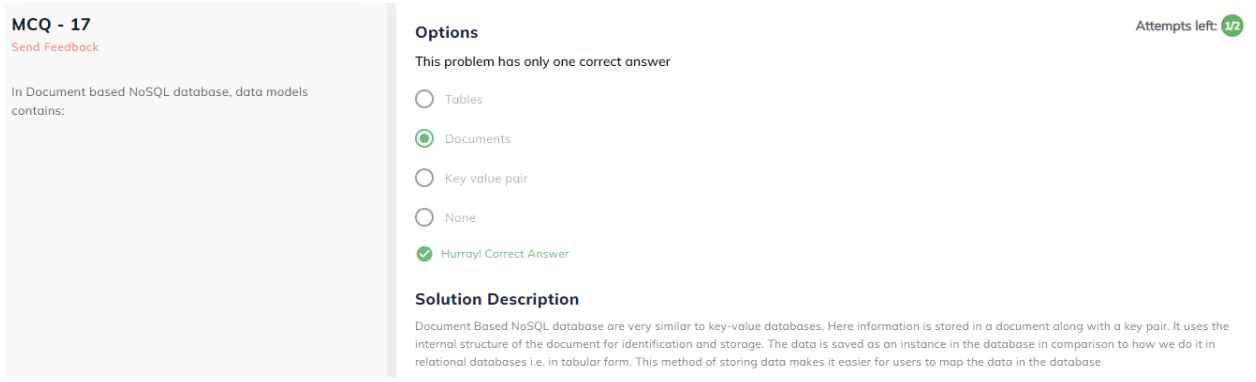
15.


MCQ - 15
Send Feedback
What is a unique identifier of the data in a columnar database?
Options
Attempts left: 0/2
This problem has only one correct answer
Row id
Key
Timestamp
Can be any column
Hurray! Correct Answer
Solution Description
Columnar NoSQL Database stores data in columns instead of rows. It speeds up the read and write process from the memory to return a query faster. It stores data in a way that greatly improves disk I/O performance. So, the unique identifier in the data become the row_id of the database

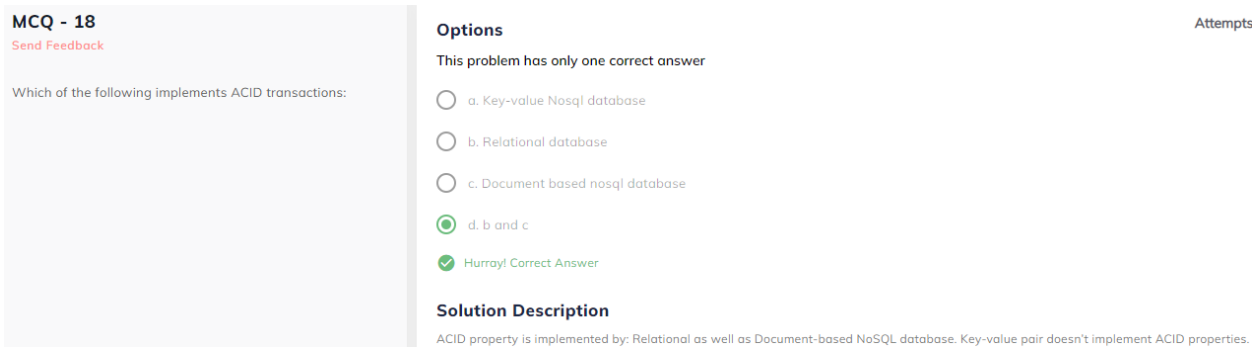
16.


MCQ - 16
Send Feedback
Which property of the columnar database makes it apt for a content management system.
Options
Attempts lef
This problem has only one correct answer
Aggregation
Scalability
Flexible
Compression
Hurray! Correct Answer
Solution Description
Explanation: Compression: Column stores are very efficient at data compression and this is why it is used for content management systems.

17.


MCQ - 17
Send Feedback
In Document based NoSQL database, data models contains:
Options
Attempts left: 1/2
This problem has only one correct answer
Tables
Documents
Key value pair
None
Hurray! Correct Answer
Solution Description
Document Based NoSQL database are very similar to key-value databases. Here information is stored in a document along with a key pair. It uses the internal structure of the document for identification and storage. The data is saved as an instance in the database in comparison to how we do it in relational databases i.e. in tabular form. This method of storing data makes it easier for users to map the data in the database

18.


MCQ - 18
Send Feedback
Which of the following implements ACID transactions:
Options
Attempts
This problem has only one correct answer
a. Key-value Nosql database
b. Relational database
c. Document based nosql database
d. b and c
Hurray! Correct Answer
Solution Description
ACID property is implemented by: Relational as well as Document-based NoSQL database. Key-value pair doesn't implement ACID properties.

19.

MCQ - 19

Send Feedback

eBay has many of its projects running on MongoDB, which kind of database is being used?

Options Attempts left: 1/2

This problem has only one correct answer

- Columnar Nosql database
- Key-value Nosql database
- Document based nosql database
- none

Hurray! Correct Answer

Solution Description

MongoDB is a type of Document type database. It stores data in the form of JSON format. MongoDB is developed by MongoDB Inc. and licensed under the Server Side Public License. Some real-life applications of document-based databases:
1. Blogging sites like Twitter
2. Analytical platforms
3. E-commerce platforms like Amazon, eBay.
4. Content management systems.

20.

MCQ - 20

Send Feedback

Which of the following databases contains edges and nodes?

Options Attempts left: 1/

This problem has only one correct answer

- Columnar NoSQL database
- Key-value NoSQL database
- Document based NoSQL database
- Graph based NoSQL database

Hurray! Correct Answer

Solution Description

Graph Based NoSQL is a collection of related objects. Each node in the graph represents an entity, where all of them are interconnected, the edge through which nodes are connected defines relationships among them.

21.

MCQ - 21

Send Feedback

When we need to store a database of social websites like Facebook, what database should be used?

Options

This problem has only one correct answer

- Columnar NoSQL database
- Graph based NoSQL database
- Key-value NoSQL database
- Document based NoSQL database

Hurray! Correct Answer

Solution Description

Real-Life applications where Graph-based database is used:
1. It can work really well when working on social networks.
2. It can be used to support transportation systems as well.
3. It can be used to detect fraud in transactions.
4. It can be used to store criminal network data.

22.

Problem | Result

MCQ - 22

Send Feedback

Which of the following can be stored using graph-based NoSQL database?

- [x] Medical history of a person
- [x] Fraud Detection
- [x] Recommendation engine
- [x] Network and IT operations

Hurray! Correct Answer

Solution Description

The graph-based representation will help understand all these situations better because it will help define the relationship (if any). Like for network and IT operations, how are employees connected. Professionals these days actively use Linkedin to connect.

For the Recommendation Engine, it will depend upon the searches/purchases we have made, a relationship will be established between them and hence recommendations will be made.

For the medical history of a person, there could be cases where certain diseases make a person prone to other diseases as well. So that relationship could be established. It could also be used to explain a condition if anything is being inherited in the genes.

For Fraud detection, it works if any odd amount of money is being withdrawn from the account. Now to get that judgement of odd, the database contains previous all the transactions made, along with the time they were made.

These form a relationship in-between them and if something is observed out of trend/rules of relationship, fraud is detected.

Any other database will make this process of forming relationships very tedious, hence graph-based databases are used which are quite simple to

23.

MCQ - 23

Send Feedback

Out of the following, which is an apt reason to use an SQL database?

Options

Attempts left:

This problem has only one correct answer

- ( ) It can easily store unstructured data.
- ( ) It can enable development in the cloud
- (•) It's ACID-compliant
- ( ) None

Hurray! Correct Answer

Solution Description

Some of the reasons why we should use SQL databases.

1. SQL databases are long-established with a fixed schema design and a set structure.

2. SQL databases are ideal for applications that require multi-row transactions such as an accounting system or for legacy systems that were built for a relational structure.

3. SQL databases are in accordance with ACID properties.

24.

MCQ - 24

Send Feedback

Which of the following databases is ideal for being used for User's session data retrieval?

Options

Attempts left:

This problem has only one correct answer

- ( ) Columnar Nosql database
- ( ) Graph based nosql database
- (•) Key-value Nosql database
- ( ) Document based nosql database

Hurray! Correct Answer

Solution Description

Explanation: Key-value stores are ideal for storing and retrieving session data at high speeds. The unique Id generated by cookies act as a key while the other information such as user profiles act as a value.

25.

MCQ - 25

Send Feedback

Which situation from the following will be apt to use key-value stores?

This problem has only one correct answer

- Blogging
- Managing Web Advertisements
- Google maps
- Manage data warehouse

Hurray! Correct Answer

Solution Description

Explanation: Key-Value databases are mainly used by web advertisement companies. On the basis of users' online activity, web advertisement companies decide which advertisement to show to the user. It is also important to note that serving advertisements should be fast enough. It is important to target the right advertisement to the right customer in order to receive more clicks and hence to maximize the profits.
Combination of factors such as user's tracked activity online, language and location determine what a user is interested in forms the key while as all other factors that are needed to serve the advertisement better are kept as the value in key-value databases.

26.

MCQ - 26

Send Feedback

Which database is a smart choice for data warehousing and big data processing?

Options

Attempts left:

This problem has only one correct answer

- Columnar Nosql database
- Graph based nosql database
- Key-value Nosql database
- Document based nosql database

Hurray! Correct Answer

Solution Description

Explanation: A columnar database stores data by columns rather than by rows, which makes it suitable for analytical query processing, faster retrieval and thus for data warehouses

27.

MCQ - 27

Send Feedback

Which of the following databases will be the best choice to maintain the Images data if required for any sort of project?

Options

This problem has only one correct answer

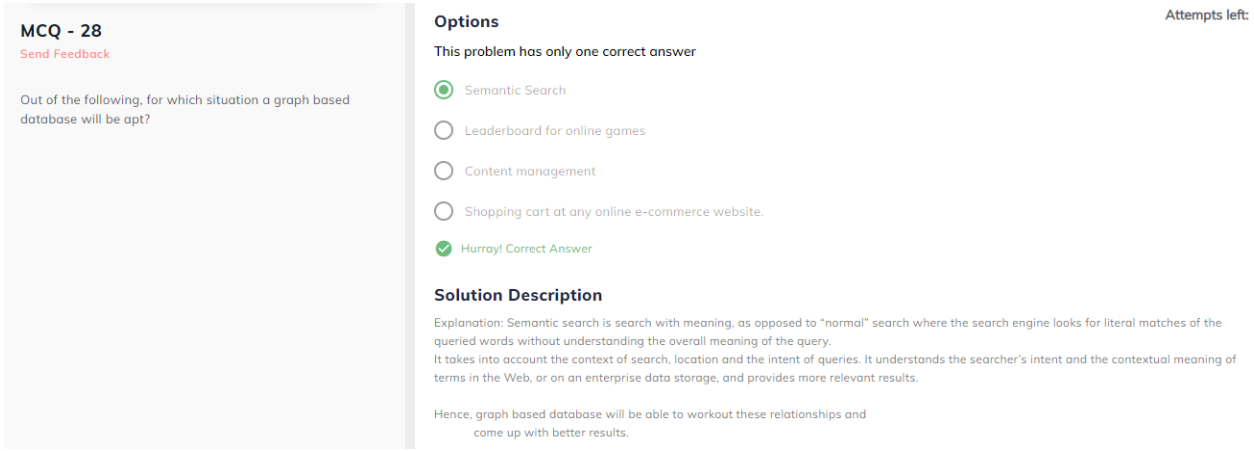
- Columnar Nosql database
- Graph based nosql database
- Key-value Nosql database
- Document based nosql database

Hurray! Correct Answer

Solution Description

Explanation: CouchDB, will contain a bucket for the JSON documents containing the metadata about each image.
Another bucket can also be used to store the thumbnail of the image which might work as key for the data data structure.

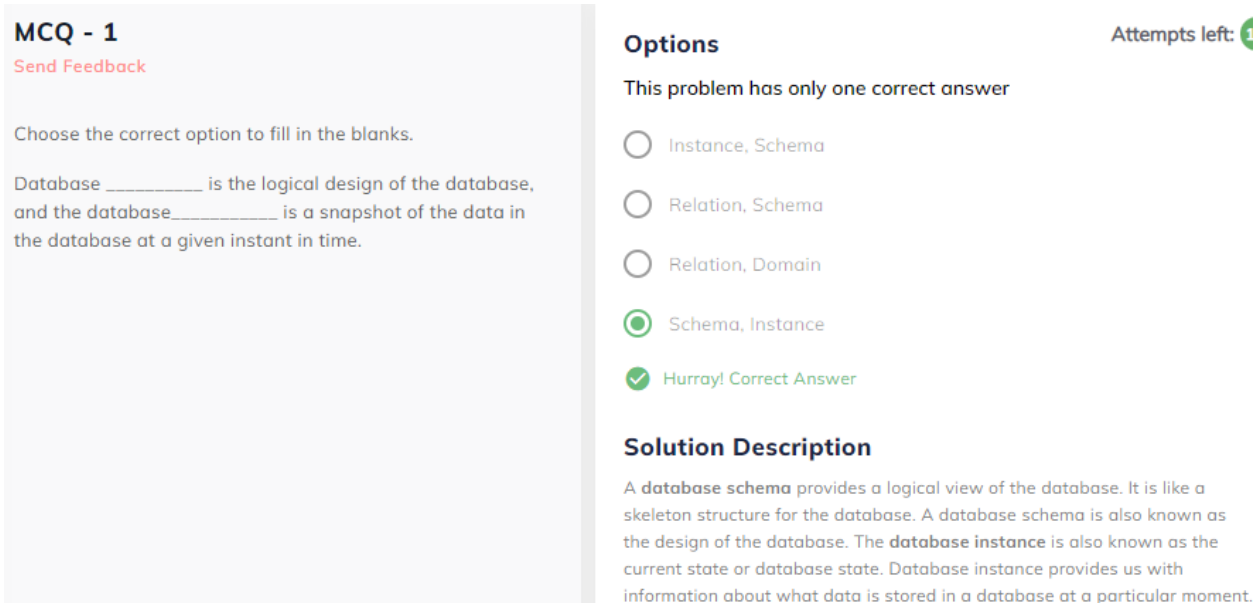
28.



Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-8\DBMS\7.NoSQL

8. Database Types

1.



2.

MCQ - 2

Send Feedback

Which of the following is TRUE regarding Referential Integrity?

Options

Attempts left:

This problem has only one correct answer

- Every primary-key value must match a primary-key value in an associated table
- Every foreign-key value must match a primary-key value in an associated table
- Every foreign-key value must match a foreign-key value in an associated table
- Every primary-key value must match a foreign-key value in an associated table

Hurray! Correct Answer

Solution Description

Referential Integrity Constraint specifies that all the values taken by the foreign key must either be available in relation to the primary key or be null.

3.

MCQ - 3

Send Feedback

Which of the following is true concerning an OODBMS?

Options

This problem has only one correct answer

- They are overtaking RDBMS for all applications.
- They have the ability to store complex data types on the Web.
- They are most useful for traditional, two-dimensional database table applications.
- None of the above

Hurray! Correct Answer

Solution Description

Explanation: OODBMS can handle complex data relations and more variety of data types than standard relational databases.

4.

MCQ - 4

Send Feedback

Which of these is most like a hierarchical database?

Options

Attempts left: 0/2

This problem has only one correct answer

- Spreadsheet
- Family tree
- Book
- All of the above

Hurray! Correct Answer

Solution Description

In the hierarchical database, the data is stored in the form of records and organised into a tree-like structure, in which a node can have as many sub-nodes as it wants, connected through edges. Some examples of hierarchical databases are IBM's Information Management System (IMS) and the RDM Mobile. Hierarchical Databases structurally look like a family tree.

5.

MCQ - 5

Send Feedback

What is the basic relationship in a hierarchical database?

Options

Attempts left

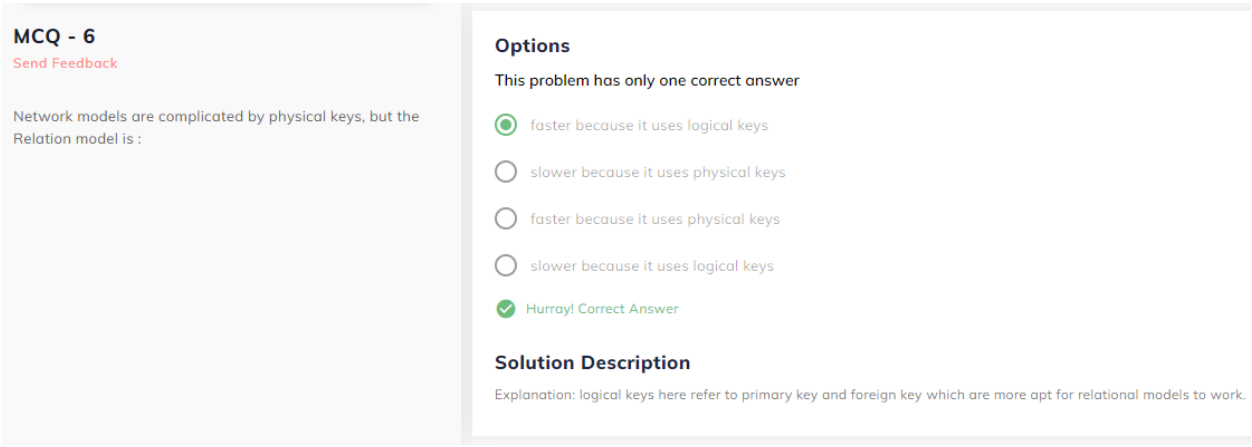
This problem has only one correct answer

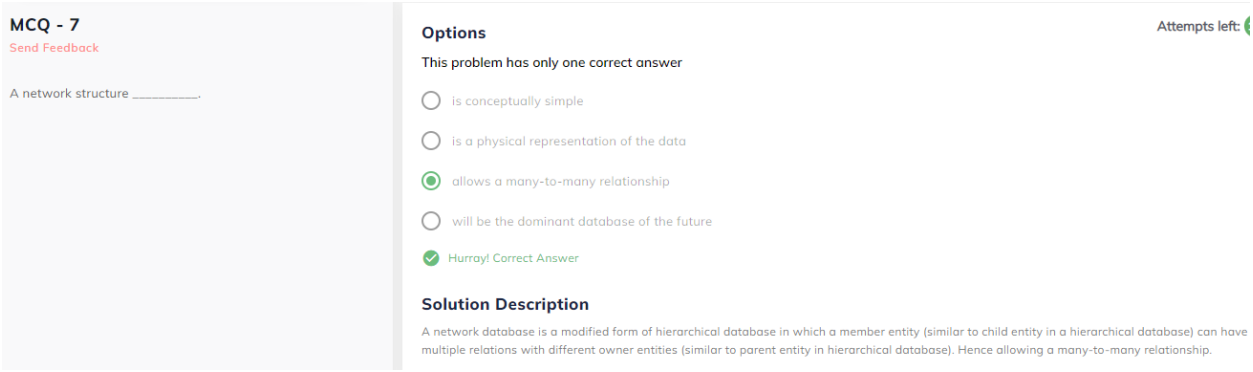
- Siblings
- Grandparent-grandchild
- Data is not related
- Parent-child

Hurray! Correct Answer

Solution Description

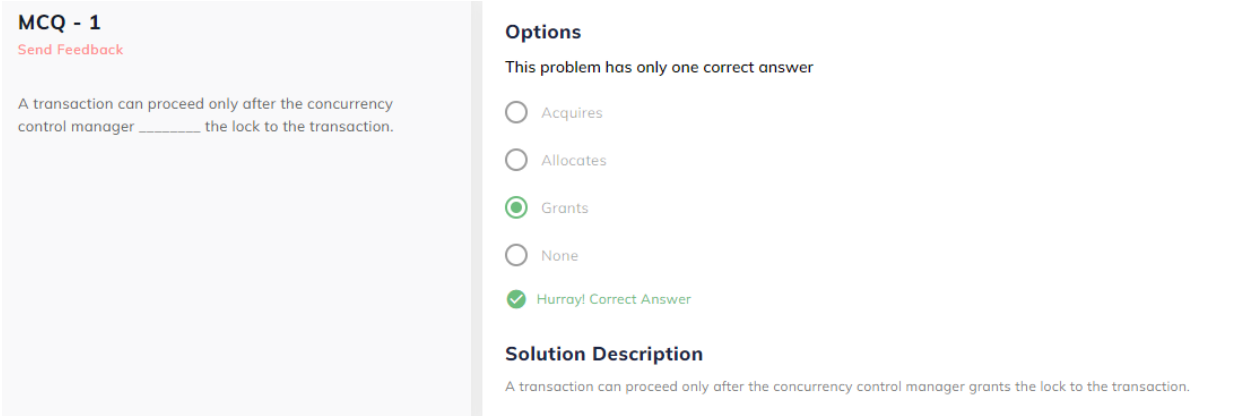
The hierarchical database model mandates that every child record has just one parent, whereas each parent record can have one or more child records. so as to retrieve data from a hierarchical database, the entire tree must be traversed ranging from the basis node.

6. 

7. 

Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-8\DBMS\8.Database Types

9.Database Optimization

1. 

2.

MCQ - 2

Send Feedback

Which of the following concurrency control protocols ensure both conflict serializability and free from deadlock?

This problem has only one correct answer

- a. Timestamp ordering
- b. 2 Phase locking
- c. Both (a) and (b)
- d. None

Hurray! Correct Answer

Solution Description

2-phase locking is a concurrency control method that ensures conflict serializability. The protocol utilizes locks, applied by a transaction to data, which may block other transactions from accessing the same data during the transaction's life. The timestamp-based concurrency control algorithm is a non-lock concurrency control method. This method also ensures conflict serializability.

We know that deadlock is a situation where the transactions try to access lock on already locked data items. So, 2 phase locking may lead to deadlock states that can result in the mutual blocking of two or more transactions.
But in timestamp, each transaction is allocated with the time slot. Hence it can't enter a deadlock. So Timestamp ordering ensures both the conflict serializability and is free from deadlocks

3.

MCQ - 3

Send Feedback

Concurrency control in RDBMS is important for which of the following reasons ?

Options

Attempts left: 1/2

This problem has only one correct answer

- To ensure data integrity when updates occur to the database in a single -user environment.
- To ensure data integrity when reads occur to the database in a single-user environment.
- To ensure data integrity when updates occur to the database in a multi-user environment.
- To ensure data integrity when reads occur to the database in a multi-user environment.

Hurray! Correct Answer

Solution Description

Concurrency control is the management procedure that controls concurrent execution of the multiple operations done by multiple users at the same time on the same database. We need concurrency control to manage these concurrent executions of the operations and help maintain consistency in the database

4.

MCQ - 4

Send Feedback

Consider the transactions:

T1	T2	T3
Read(X)	Read(Z)	Read(X)
Write(Y)	Write(W)	Write(P)
Write(Z)	Read(X)	

Which of these is are in conflict?

This problem has only one correct answer

- T1 and T2, T1 and T3
- T1, T2 and T3
- T1 and T3, T2 and T3
- T1 and T2

Hurray! Correct Answer

Solution Description

Two operations are said to be conflicting if all conditions satisfy:
1. They belong to different transactions.
2. They operate on the same data item.
3. At Least one of them is a write operation.

We can see that T1 is reading X and writing on Y and Z . Similarly T2 is reading Z and X plus writing on W. We can notice that both the transactions have Z in common, which can lead to conflict. While X is also common for both the transactions, it would not lead to conflict as both T1 and T2 are only performing read on it

5.

MCQ - 5

Send Feedback

Which of the following Concurrency controls is prone to deadlocks.

Options

Attempts left: 1/

This problem has only one correct answer

- a. Timestamp Based Concurrency Control
- b. Lock Based Concurrency Control
- c. Both (a) and (b)
- d. None

Hurray! Correct Answer

Solution Description

Explaination: Deadlock, a situation where the transactions try to access lock on already locked data items. Whereas in timestamp, each transaction is allocated with the time slot. Hence it can't enter a deadlock.

6.

MCQ - 6

Send Feedback

Which of the following is not an advantage of database clustering?

- Data Redundancy
- Increased Availability
- Decreased Availability

Hurray! Correct Answer

Solution Description

Clustering is the process of combining more than one server or instance holding the same database. We can say a cluster is a set of replicated servers.
Clustering helps us with a lot of features like

1. **Data Redundancy**: Clustering databases helps with data redundancy, as we store the same data at multiple servers. The redundancy that clustering offers is required and is quite certain due to the synchronization.

2. **Load Balancing**: Clustering of databases also helps the servers with the load balancing i.e., if there's only one server and there are a lot of requests coming in to access the database then it may become difficult for a server to handle all the requests. Clustering helps to reduce load balancing.

3. **Increased Availability**: An availability of a database is defined as the time when we can access the database. Now as we have clusters of servers available, even if one of the databases is going through a transaction, now the other servers can be used to access the database with the help of a load balancer. Also, even if a server fails, the database will be available. Hence, due to clustering, the databases have high availability.

7.

MCQ - 7

Send Feedback

Database uses _____ to support deployments with very large data sets by dividing the data over multiple servers.

Options Attempts le

This problem has only one correct answer

- a. Replication
- b. Sharding
- c. Both (a) and (b)
- d. None

Hurray! Correct Answer

Solution Description

Sharding is a method of partitioning and storing a single logical set of data in multiple databases which is stored on multiple servers. It is an extension of horizontal partitioning. Databases use sharding to support deployments with very large data sets by dividing the data over multiple servers.

8.

MCQ - 8

Send Feedback

Partitioning of the database is usually committed when:

Options Attempts left: 0/2

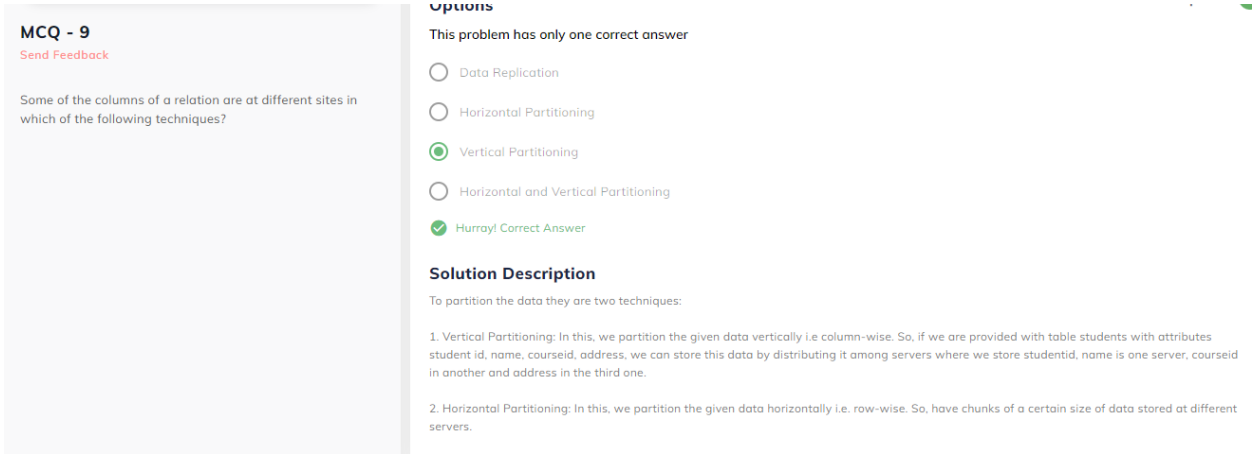
This problem has only one correct answer

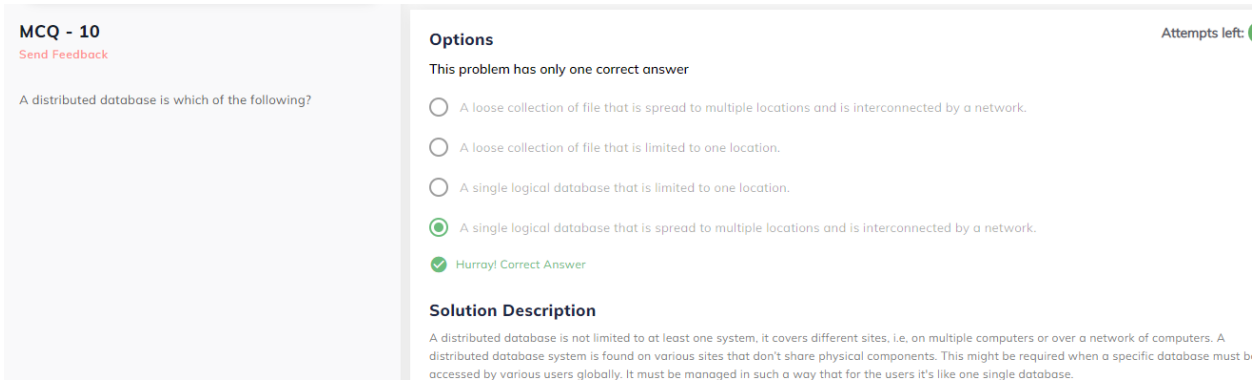
- a. Dealing with huge dataset, which one server alone cannot handle.
- b. The requests to database access are taking longer time to be accepted i.e. long response time.
- c. Both (a) and (b)
- d. None of the Above

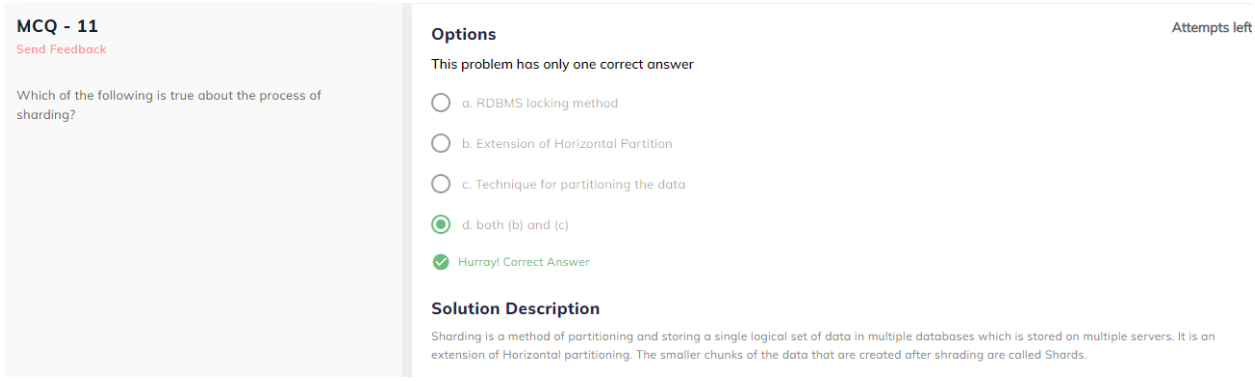
Hurray! Correct Answer

Solution Description

Partitioning is a technique that is used to divide stored database objects into separate servers. Due to this, there is an increase in performance as well as the increase in controllability of the data. We can manage huge chunks of data optimally. Partitioning is committed when we are dealing with a huge dataset or the request are taking more time than expected.

9. 

10. 

11. 

Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-8\DBMS\9.DatabaseOptimization

10.SQL queries Assessment

1. ALTER TABLE transactions ADD COLUMN transaction_type VARCHAR(225);DESC transactions;
2. CREATE TABLE customers (

```
    customer_id VARCHAR(20) PRIMARY KEY,
    customer_name VARCHAR(225),
    phone_no INT,
    city VARCHAR(200),
    pin_code INT
);

DESC customers;
```

3. SELECT * FROM productWHERE seller LIKE '_____n' ;
4. SELECT COUNT(*) AS orders_delivered

   FROM orders

   WHERE YEAR(est_delivery_date) = 2021

   AND MONTH(est_delivery_date) = 12;
5. SELECT COUNT(*) AS orders_delivered

   FROM orders

   WHERE YEAR(est_delivery_date) = 2021

   AND MONTH(est_delivery_date) = 12;
6. CREATE TABLE giftList LIKE product;

   INSERT INTO giftList SELECT * FROM product;

   SELECT table_name, column_name, data_type

   FROM information_schema.columns

   WHERE table_name = 'giftList'

   ORDER BY column_name ASC;

7. SELECT * FROM product LIMIT 3, 6;
8. SELECT price AS maximum_price

   FROM product

   WHERE price < (SELECT MAX(price) FROM product)

   ORDER BY price DESC

   LIMIT 1;

9. SELECT *

   FROM product

   ORDER BY price DESC

   LIMIT 1 OFFSET 6;

10. SELECT *

    FROM product

    WHERE item_id<=(SELECT COUNT(item_id)/3 FROM product);

11. SELECT seller,COUNT(*) AS nop

    FROM product

    GROUP BY seller;

12. SELECT DISTINCT price

    FROM product

    ORDER BY price ASC

    LIMIT 5;

13. SELECT DISTINCT price

    FROM product

    ORDER BY price DESC

    LIMIT 5;

14. SELECT (SELECT COUNT(*) FROM product WHERE youSave > 4000 AND

    INSTOCK = 'Y') * 100 / (SELECT COUNT(*) FROM product WHERE INSTOCK = 'Y')

    AS percentage

15. SELECT * FROM product LIMIT 20,4;
16. SELECT product_id, seller, COUNT(*)

    FROM product

    GROUP BY product_id, seller

    HAVING COUNT(*) > 1;

17. SELECT Distinct p.product_id, p.p_name, p.inStock, p.seller, q.countSame

    FROM product p

    INNER JOIN (SELECT product_id, p_name, inStock, COUNT(*) as countSame

    FROM product

    GROUP BY product_id, p_name, inStock

    HAVING COUNT(*) > 1

    AND inStock = "Y") q

    ON p.product_id =q.product_id

    AND p.p_name = q.p_name

    AND p.inStock = q.inStock

    ORDER BY p.product_id, p.p_name, p.inStock, p.seller;

18. SELECT AVG(youSave) AS AVG(TOTAL)

    FROM orders o

    JOIN product p ON o.product_id = p.product_id

    JOIN seller s ON p.seller_id = s.seller_id

    WHERE s.seller IN ('Maple store', 'Kukreja Telecom Store');

19. SELECT product_id, p_name, MIN(price), (AVG(youSave)*100)/SUM(youSave) AS avgP
    FROM product GROUP BY product_id, p_name HAVING COUNT(*)>1;
20. SELECT DISTINCT p.p_name, o.customer_id, c.customer_name
    FROM product p
    JOIN orders o ON p.product_id = o.product_id
    JOIN customer c ON o.customer_id = c.customer_id;
21. SELECT product_id, count(product_id)
    FROM orders GROUP by product_id;
22. SELECT t.transaction_id, o.product_id
    FROM transactions t
    JOIN orders o ON t.transaction_id = o.transaction_id;
23. SELECT p.p_name, t.payment_date, t.delivery_date
    FROM transactions t
    JOIN orders o ON t.transaction_id = o.transaction_id
    JOIN product p ON o.product_id = p.product_id
    ORDER BY t.delivery_date;
24. SELECT o.order_id,o.product_id,o.customer_id,t.transaction_id
    FROM orders o
    INNER JOIN transactions t ON o.transaction_id = t.transaction_id
    WHERE t.transaction_status = 'not completed';
25. SELECT DISTINCT p.p_name,o.payment_date,o.est_delivery_date,t.transaction_status
    FROM
    product AS p
    INNER JOIN

```
orders AS o
ON p.product_id = o.product_id
INNER JOIN
transactions AS t
ON
o.transaction_id = t.transaction_id
ORDER BY
payment_date;
```

26.
```
SELECT c.customer_name, o.order_id
FROM orders o
JOIN customer c ON o.customer_id = c.customer_id
WHERE c.customer_name LIKE '%d%';
```

27.
```
SELECT c.customer_id, SUM(o.checkout_price) AS totalpayment
FROM customer as c
LEFT JOIN orders as o ON o.customer_id = c.customer_id GROUP BY customer_id;
```

28.
```
-- Create a clone of the "product" table
CREATE TABLE cloneListPro LIKE product;


-- Print the schema of the "cloneListPro" table
SELECT column_name, data_type
FROM information_schema.columns
WHERE table_name = 'cloneListPro'
ORDER BY column_name;
```

Documents:-C:\Users\n1606\Desktop\Rahim_CodingNinjas\MileStone-8\DBMS\10.SQL queries Assessment