

20:17

all 22%

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✗ Incorrect

2/6 Points

3

Mandatory, And

And is a operator that if we want 1(true) all conditio

✗ Incorrect

2/6 Points

4

Optional, Or

Or can true when just a one condition is matching(t

Longer Answer

✓ Correct

8/8 Points

5

Explain the similarities and differences between Relations and Relationships.

Similarities:

Both Relations and relationships gave us how data is organized.

Both are important for efficiency.

Both Are represented in a database schema.

Differences:

Relationship is a connection between two or more tables when they have common attribute.We have several types of relationships (one to one,one to many,many to many)

Relation is a table in a database.Is a database modelling.It's similar to Table.

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Longer Answer

✓ Correct

8/8 Points

5

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✓ Correct

8/8 Points

6

List at least three (3) types of keys and the purpose of each.

Primary Key is a attribute that uniquely identifies

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✓ Correct

8/8 Points

6

List at least three (3) types of keys and the purpose of each.

Primary Key:is a attribute that uniquely identifies each data in a table.I can't be null.For example our Turkish Republic ID number.

Foreign key:is a attribute that refers to the primary key of another table.

Candidate Key:is a potential primary keys for table.Can be one or more .Uniquely identity and suitable for searching the data.

✓ Correct

8/8 Points

7

List at least three (3) types of dependencies and the meaning of each.

Functional Dependency:Exists when the value of attribute or set of attribute determines the value of another (or others)in a table.A->B : A is determinant for B.

Turkey Republic ID-> name,surname

Full Functional Dependency:Exists when a functional dependency between two attributes A and B but no other attributes.A->B: A is ONLY determinant for B.

Transitive Dependency:A->B,B->C A determines B.Bdetermines C.T his can lead to data redundancy, can potentially cause update anomalies. Often we eliminated making normalization.

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7

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E-R Model

The following E-R diagrams each have traps (1 Fan, 1 Chasm). Note the trap and what a potential problem would be. Explain how you would remove the trap.

✓ Correct

1/1 Points

8

Model 2. Is this example a one-to-one relationship?

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14

Select columns below that would be part of a Candidate Key for the ProjectMembers relation if Employees are allowed to work on more than one (1) project.

<input checked="" type="checkbox"/>	(A) Project ID	✓
<input type="checkbox"/>	(B) Project Name	
<input checked="" type="checkbox"/>	(C) Project Manager ID	
<input type="checkbox"/>	(D) Project Manager Name	
<input type="checkbox"/>	(E) Company ID	
<input type="checkbox"/>	(F) Company Name	
<input checked="" type="checkbox"/>	(G) Employee ID	✓
<input type="checkbox"/>	(H) Employee Name	
<input type="checkbox"/>	(I) Hourly Rate	

✗ Incorrect

0/1 Points

15

Select columns below that would be part of a Candidate Key for the ProjectMembers

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X Incorrect 0/1 Points

15

Select columns below that would be part of a Candidate Key for the ProjectMembers relation if Employees are only allowed to work on one (1) project.

<input checked="" type="checkbox"/>	(A) Project ID	
<input type="checkbox"/>	(B) Project Name	
<input type="checkbox"/>	(C) Project Manager ID	
<input type="checkbox"/>	(D) Project Manager Name	
<input type="checkbox"/>	(E) Company ID	
<input type="checkbox"/>	(F) Company Name	
<input checked="" type="checkbox"/>	(G) Employee ID	✓
<input type="checkbox"/>	(H) Employee Name	
<input type="checkbox"/>	(I) Hourly Rate	

✓ Correct 3/3 Points

16

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Correct 8/8 Points

18

If Employees are allowed to work on more than one project,
List the tables that would be created to form the 3NF database. For each, identify the following:
Columns that exist and what datatype they are
Which columns make up the Primary Key
Which columns are Foreign Keys and which tables they reference

NOTE: You may write SQL CREATE statements to answer this question

```
CREATE TABLE Employee(  
EmployeeID INT NOT NULL,  
EmployeeName varchar(50),  
HourlyRate INT,  
PRIMARY KEY(EmployeeID)  
);  
  
CREATE TABLE EmployeeProject(  
EmployeeID INT NOT NULL,  
ProjectID INT NOT NULL,  
PRIMARY KEY(PROJECTID),  
FOREIGN KEY(EmployeeID) REFERENCES  
Employee(EmployeeID)  
);  
  
CREATE TABLE Manager(  
ManagerID INT NOT NULL,  
ManagerName varchar(50),  
PRIMARY KEY(ManagerID)  
);
```

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Incorrect 4/8 Points

19

If Employees are only allowed to work on one project,
List the tables that would be created to form the 3NF database. For each, identify the following:
Columns that exist and what datatype they are
Which columns make up the Primary Key
Which columns are Foreign Keys and which tables they reference

NOTE: You may write SQL CREATE statements to answer this question
NOTE: You only need to identify the tables that would be different from the previous question.

```
CREATE TABLE Employee(  
EmployeeID INT NOT NULL,  
EmployeeName varchar(50),  
HourlyRate INT,  
PRIMARY KEY(EmployeeID)  
);  
  
CREATE TABLE EmployeeProject(  
EmployeeID INT NOT NULL,  
ProjectID INT NOT NULL,  
PRIMARY KEY(PROJECTID),  
FOREIGN KEY(EmployeeID) REFERENCES  
Employee(EmployeeID)  
);
```

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Incorrect 4/8 Points

19

If Employees are only allowed to work on one

```
CREATE TABLE Employee(  
EmployeeID INT NOT NULL,  
EmployeeName varchar(50),  
HourlyRate INT,  
PRIMARY KEY(EmployeeID)  
);  
  
CREATE TABLE EmployeeProject(  
EmployeeID INT NOT NULL,  
ProjectID INT NOT NULL,  
PRIMARY KEY(PROJECTID),  
FOREIGN KEY(EmployeeID) REFERENCES  
Employee(EmployeeID)  
);  
  
CREATE TABLE Manager(  
ManagerID INT NOT NULL,  
ManagerName varchar(50),  
PRIMARY KEY(ManagerID)  
);  
  
CREATE TABLE PROJECT (  
ProjectID INT,  
ProjectName varchar(50),  
ProjectManagerID INT,  
CompanyID INT,  
PRIMARY KEY(ProjectID  
,ProjectManagerID,CompanyID )  
);
```

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Which columns make up the Primary Key
Which columns are Foreign Keys and which tables they reference

NOTE: You may write SQL CREATE statements to answer this question
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PRIMARY KEY(EmployeeID)  
);  
  
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EmployeeID INT NOT NULL,  
ProjectID INT NOT NULL,  
PRIMARY KEY(PROJECTID),  
FOREIGN KEY(EmployeeID) REFERENCES  
Employee(EmployeeID)  
);  
  
CREATE TABLE PROJECT (  
ProjectID INT,  
ProjectName varchar(50),  
CompanyID INT,  
PRIMARY KEY(ProjectID ,CompanyID )  
);
```


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SQL

Using the 3NF database you produced in the previous questions, produce SQL queries to do the following:

If the query to do so would be different based on if employees are allowed to work on only one project or more than one project, show both queries.

Incorrect

1/2 Points

20

Identify how many employees work on Project PCS204

```
SELECT COUNT(*) AS numberOfEmployees
FROM EmployeeProject
WHERE projectID = 'PCS204'
```

Correct

2/2 Points

21

Identify how many employees work for Auburn and have an hourly rate more than 20.

```
SELECT COUNT(*) AS numberOfEmployees
FROM EmployeeProject ep,Project
p,Company c
WHERE e.ID=ep.EmployeeID AND
ep.ProjectID=p.ID AND P.CompanyID=c.ID
AND c.Name='Auburn' AND e.hour>20
```

Incorrect

1/2 Points

23

Remove Tim Wylie from the Company

```
SELECT COUNT(*) AS numberOfEmployees
FROM EmployeeProject ep,Project
p,Company c
WHERE e.ID=ep.EmployeeID AND
```

20:20

25%

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Incorrect

1/2 Points

23

Remove Tim Wylie from the Company Akdeniz and his current project.

```
DELETE FROM employeeProject WHERE
employeeID=333
```

Correct

2/2 Points

24

Add Kate Tucker to the User Interface Project (do not remove her from the Database System Project)

```
INSERT INTO employeeProject
VALUES(332,'PCS101')
```

Incorrect

1/2 Points

25

Give privilege to select from one of your tables to a role called "Supervisor". Allow Supervisors to give this privilege to others.

20:20

25%

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Correct

2/2 Points

21

Identify how many employees work for Auburn and have an hourly rate more than 20.

```
SELECT COUNT(*) AS numberOfEmployees
FROM EmployeeProject ep,Project
p,Company c
WHERE e.ID=ep.EmployeeID AND
ep.ProjectID=p.ID AND P.CompanyID=c.ID
AND c.Name='Auburn' AND e.hour>20
```

Incorrect

1/2 Points

22

Move John Smith from his current project to the "Tax System" project.

```
Update employeeProject set ProjectID='PCS201'
WHERE employeeID=331
```

Incorrect

1/2 Points

23

Remove Tim Wylie from the Company

20:20

25%

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Incorrect

1/2 Points

25

Give privilege to select from one of your tables to a role called "Supervisor". Allow Supervisors to give this privilege to others.

```
GRANT DELETE ON COMPANY TO SUPERVISOR
WITH GRANT OPTION
```

Incorrect

2/5 Points

26

Create a view that gives the Project ID, Project Name, and Manager Name for the project with the greatest average hourly rate (average hourly rate for a project is the average of the hourly rates of all the employees on the project).

```
SELECT p.ID,p.Name,m.Name
FROM Project p,Manager m
WHERE p.ManagerID=m.ID AND
p.ID=(SELECT averageRates.ID
FROM (SELECT
ep.ProjectID,AVG(e.hourlyRate) averageHour
FROM Employee e
,EmployeeProject ep
WHERE e.ID=ep.EmployeeID
GROUP BY ep.ProjectID ) averageRates
```

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28%

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Incorrect

2/5 Points

26

Create a view that gives the Project ID, Project Name, and Manager Name for the project with the greatest average hourly rate (average hourly rate for a project is the average of the hourly rates of all the employees on the project).

```
SELECT p.ID,p.Name,m.Name
FROM Project p,Manager m
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p.ID=(SELECT averageRates.ID
FROM (SELECT
ep.ProjectID,AVG(e.hourlyRate) averageHour
FROM Employee e
,EmployeeProject ep
WHERE e.ID=ep.EmployeeID
GROUP BY ep.ProjectID ) averageRates
WHERE averageRates.averageHour=(SELECT
MAX(averageHour) FROM
(SELECT ep.ProjectID ID ,AVG(e.hourlyRate)
averageHour
FROM Employee e ,Employee Project
ep
WHERE e.ID=ep.employeeID GROUP BY
ep.ProjectID)
```

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