SQL quiz

What does the SQL keyword "DISTINCT" do in a SELECT statement?

- [ ] A. Filters rows based on a specified condition
- [ ] B. Removes duplicate rows from the result set
- [ ] C. Sorts the result set in ascending order
- [ ] D. Performs a case-insensitive search

Which of the following is/are wrong about primary key and unique key?

- [ ] A. Only one primary key is allowed in a database.
- [ ] B. Unique key allows NULLs but primary key does not.
- [ ] C. A column with a foreign key can reference another column with a unique key or a primary key.
- [ ] D. Only one unique key is allowed in a table.
- [ ] E. Primary key allows NULLs but unique key does not.

Given the relation below:

staff

name (varchar(100))	email (varchar(100))	age (int)
Wesley Huang	w.huang@abc.com	27
Sam Shaw	s.shaw@abc.com	31
Chris Lee	c.lee@def.com	47
Steve Shen	s.shen@def.com	22
Craig Johnson	c.johns@gkd.com	51

The degree of this table is [ ], the cardinality is [ ].

After executing "DELETE FROM staff WHERE age > 30 and age < 40;",

the degree of this table becomes [ ] and the cardinality becomes [ ].

SQL stands for:

- A. Synchronized Query Language
- B. Standard Query Language
- C. Sequential Query Language
- D. Structured Query Language

Instead of using NULL, sometimes special values are used to represent missing information. For example, 0 is used when the age of someone is unknown. Which of the following statement(s) is/are correct about these special values?

- [ ] a. Special values can replace NULL in all situations.
- [ ] b. One advantage of using special values over NULL is that they can indicate different types of missing information.
- [ ] c. Special values need to be taken care of whenever WHERE clauses are involved.
- [ ] d. Special values may increase the complexity of update operations because they can be updated accidentally
- [ ] e. Special values reduces the complexity of delete operations because less conditions need to be considered.

Given two tables x and y:

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x

a	b
4	6
3	4
9	9
8	1
2	12

y

a	b
6	6
4	7
6	8
2	4
8	11

The result of query "SELECT x.b + y.a FROM x, y WHERE x.a = y.a + 2;" contains ☐ rows.
The maximum value is ☐ and the minimum value is ☐.

What is the PRIMARY purpose of Entity-Relationship (ER) modeling in database design?

- A. To define the data types for columns in database tables
- B. To optimize SQL queries for database performance
- C. To visualize and define the structure of a database
- D. To create user interfaces for database applications

Given two tables x and y:

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x

a	b
1	10
2	11
3	12
4	13
5	14

y

a	b
3	1
4	1
5	2
6	5
7	3

The result of query "SELECT * FROM x WHERE EXISTS (SELECT * FROM y WHERE b = x.a);" contains [ ] rows. The sum of column 'a' of the query result is [ ].

You are querying a database and want to find all records where a certain column is not NULL. Which SQL clause should you use?

- A. WHERE column IS NULL
- B. WHERE column = NULL
- C. WHERE column NOT NULL
- D. WHERE column <> NULL

Given tables x (a, b) and y (c, d). Assume that columns a and c are primary keys and the following foreign key:

CONSTRAINT FOREIGN KEY (d) REFERENCES x (a) ON DELETE RESTRICT ON UPDATE CASCADE

Which of the following statements is/are correct?

- [ ] A. Changing values in column d into other values will cause the database to automatically update values in a.
- [ ] B. Changing values in column d into NULL will cause the database to automatically update values in a.
- [ ] C. Changing all values in column a into 1 will cause the database to automatically update values in d.
- [ ] D. DELETE rows in table x will cause the database to automatically delete rows in y.
- [ ] E. If both tables contain non-null values, “DROP TABLE y” will cause errors.
- [ ] F. If both tables contain non-null values, “DROP TABLE x” will cause errors.
- [ ] G. DELETE rows in table y will cause the database to automatically delete rows in x.

Given the relation below:

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staff

name (varchar(100))	email (varchar(100))	age (int)
Wesley Huang	w.huang@abc.com	27
Sam Shaw	s.shaw@abc.com	31
Chris Lee	c.lee@def.com	47
Steve Shen	s.shen@def.com	22
Craig Johnson	c.johns@gkd.com	51

After executing all of the following instructions in exactly the same order:

```
INSERT INTO staff VALUES (NULL, 'x@abc.com', 28);
ALTER TABLE staff ADD COLUMN type VARCHAR(10);
UPDATE staff SET type = 'employee' WHERE age < age + 1;
UPDATE staff SET type = 'manager' WHERE name NOT LIKE '%g%';
```

There will be ▢ manager(s) and ▢ employee(s). The whole table will have ▢ tuples in total.

If the query

```
SELECT * FROM staff
WHERE name NOT IN (
    SELECT name FROM staff WHERE email LIKE '%@def.com'
);
```

is executed on the final table, the query results contain ▢ employee(s) and ▢ manager(s) in total.

Which of the following questions are correct about normalisation?

- [ ] A. Both transitive dependency and partial dependency must involve primary key columns
- [ ] B. An 1NF table without partial dependencies may also be in 3NF
- [ ] C. A table in 2NF is also in 3NF if no transitive dependencies are found
- [ ] D. A table in 1NF is also in 3NF if it does not have no transitive dependencies

Given a table Given a table T (a, b, c, d, e, f, g) with (a, b, c) being the primary key and the following additional functional dependencies:

b, c -> d, e, f

e -> d

g - > c

After normalizing this table to 3NF, which of the following tables are NOT in the final result?

- [ ] A. Table (d, e) with primary key (d)
- [ ] B. Table (b, c, e, f) with primary key (b, c)
- [ ] C. Table (a, b, g) with primary key (g)
- [ ] D. Table (a, b, c, g) with primary key (a, b, c)
- [ ] E. Table (c, g) with primary key (g)

Question 1

Not yet answered

Marked out of 8.00

Flag question

Given tables r and s shown below.

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r

a	b
3	2
8	4
2	1

s

b	c	d
2	4	6
4	2	4
5	3	9

In the result of query:

SELECT * FROM r LEFT OUTER JOIN (SELECT b c, c b, d FROM s) t ON (r.b > t.b);

There are [ ] tuples and [ ] NULLs.

The maximum value of column c is [ ].

For column a, the number [ ] appeared more than once.

?

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Which SQL JOIN type returns all rows from both tables, filling in NULL values for non-matching rows?

- A. FULL OUTER JOIN
- B. RIGHT OUTER JOIN
- C. INNER JOIN
- D. LEFT OUTER JOIN