SQL QUIZ TIME

Student(sid, name, dept, age)

```
SELECT S.name, MIN(S.age) AS dept_age
FROM Student S
GROUP BY S.dept
```

- 1. Get the student names and the minimum age in their department
- 2. Get the student names and the minimum age across all departments
- 3. Get the name and age of the student with the minimum age in their department
- 4. This is not a legal SQL query

Student(sid, name, dept, age)

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SELECT S.name, MIN(S.age) AS dept_age
FROM Student S
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```

- 1. Get the student names and the minimum age in their department
- 2. Get the student names and the minimum age across all departments
- 3. Get the name and age of the student with the minimum age in their department
- 4. This is not a legal SQL query



Student(sid, name, dept, age)

Find the student with the highest age

Α

SELECT MAX(S.age)
FROM Student S

B

SELECT S.*, MAX(S.age)
FROM Student S

C

SELECT S.*
 FROM Student S
ORDER BY S.age
LIMIT 1

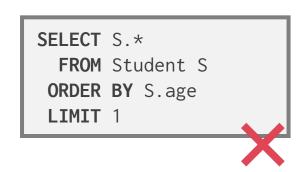
The highest age only

Student(sid, name, dept, age)

Find the student with the highest age



Invalid query



The student with the lowest age

```
Student(sid, name, dept, age)
Enrolled(sid, cid, grade)
```

Find the CS students who have taken at least one course

```
SELECT DISTINCT S.*

FROM Student S, Enrolled E
WHERE S.dept = 'CS'

SELECT DISTINCT S.*

FROM Student S
WHERE S.dept = 'CS' AND ( SELECT COUNT(E.cid)
FROM Enrolled E ) >= 1

SELECT DISTINCT S.*

FROM Student S NATURAL JOIN Enrolled E
WHERE S.dept = 'CS'
```

Student(sid, name, dept, age)
Enrolled(sid, cid, grade)

Find the CS students who have taken at least one course

A

SELECT DISTINCT S.*
FROM Student S, Enrolled E
WHERE S.dept = 'CS'



Missing join condition S.sid = E.sid

В

SELECT DISTINCT S.*
FROM Student S
WHERE S.dept = 'CS' AND (SELECT COUNT(E.cid)
FROM Enrolled E) >= 1



Missing correlation S.sid = E.sid in the subquery

C

SELECT DISTINCT S.*
FROM Student S NATURAL JOIN Enrolled E
WHERE S.dept = 'CS'



Correct

```
Student(sid, name, dept, age)
Enrolled(sid, cid, grade)
```

Find the students who have **not** taken INF-11199

```
A WHERE S.sid NOT IN (SELECT E.* FROM Enrolled E
WHERE E.cid = 'INF-11199')

SELECT S.* FROM Student S
WHERE NOT EXISTS (SELECT E.* FROM Enrolled E
WHERE E.cid = 'INF-11199')

SELECT S.* FROM Student S
WHERE S.sid != ALL (SELECT E.sid FROM Enrolled E
WHERE E.cid = 'INF-11199')
```

B

Student(sid, name, dept, age)
Enrolled(sid, cid, grade)

Find the students who have **not** taken INF-11199

SELECT S.* FROM Student S

WHERE S.sid NOT IN (SELECT E.* FROM Enrolled E

WHERE E.cid = 'INF-11199')

Invalid query. The inner query must return a bag of E.sid values

Missing correlation S.sid = E.sid in the subquery



Correct

Student(sid, name, dept, age)

Find all the students with the highest age

Α

```
SELECT S.*
  FROM Student S
WHERE S.age > ALL
  (SELECT S2.age
     FROM Student S2
)
```

B

```
SELECT S.*
  FROM Student S
WHERE S.age > ANY
  (SELECT S2.age
     FROM Student S2
)
```

 C

```
SELECT S.*
  FROM Student S
WHERE NOT EXISTS
  (SELECT S2.age
     FROM Student S2
  WHERE S2.age > S.age
)
```

Student(sid, name, dept, age)

Find all the students with the highest age

Α

```
SELECT S.*
  FROM Student S
WHERE S.age > ALL
  (SELECT S2.age
     FROM Student S2
)
```

Always empty.

S.age >= ALL (...)

would be correct

B

```
SELECT S.*
FROM Student S
WHERE S.age > ANY
(SELECT S2.age
FROM Student S2
)
```

All except the lowest-age students

 C

```
SELECT S.*
  FROM Student S
WHERE NOT EXISTS
  (SELECT S2.age
    FROM Student S2
  WHERE S2.age > S.age
)
```

No other student has a higher age

Student(sid, name, dept, age)

SELECT S.*
 FROM Student S
WHERE S.age =
 (SELECT MAX(S2.age)
 FROM Student S2)

SELECT S.*
FROM Student S
ORDER BY S.age DESC
LIMIT 1

B

SELECT S.*
 FROM Student S
WHERE S.age >= ALL
 (SELECT S2.age
 FROM Student S2)

Which queries always return the same students (in any order)?

- 1) None
- 2) A and B
- 3) B and C
- 4) A and C
- 5) All

Student(sid, name, dept, age)

A

SELECT S.*
 FROM Student S
WHERE S.age =
 (SELECT MAX(S2.age)
 FROM Student S2)

В

SELECT S.*
FROM Student S
ORDER BY S.age DESC
LIMIT 1

 C

SELECT S.*
 FROM Student S
WHERE S.age >= ALL
 (SELECT S2.age
 FROM Student S2)

Which queries always return the same students (in any order)?

- 1) None
- 2) A and B
- 3) B and C
- 4) A and C
- 5) All

A and C return all students with the highest age.

B returns *one* student with the highest age.

```
Student(sid, name, dept, age)
    Enrolled(sid, cid, grade)
    Course(cid, name, year)
```

```
SELECT S.name FROM Student S
WHERE NOT EXISTS ( SELECT C.cid FROM Course C
WHERE NOT EXISTS ( SELECT 42 FROM Enrolled E
WHERE E.cid = C.cid
AND E.sid = S.sid ) )
```

- 1) Names of students that have taken at least one course
- 2) Names of students that have taken no course
- 3) Names of students that have taken all courses
- 4) Names of students that have not taken all courses
- 5) Nobody really knows

```
Student(sid, name, dept, age)
    Enrolled(sid, cid, grade)
    Course(cid, name, year)
```

```
SELECT S.name FROM Student S
WHERE NOT EXISTS ( SELECT C.cid FROM Course C
WHERE NOT EXISTS ( SELECT 42 FROM Enrolled E
WHERE E.cid = C.cid
AND E.sid = S.sid ) )
```

- 1) Names of students that have taken at least one course
- 2) Names of students that have taken no course
- 3) Names of students that have taken all courses



- 4) Names of students that have not taken all courses
- 5) Nobody really knows

CONGRATULATIONS!