CS 1656 – Introduction to Data Science
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07b – SQL Review: The good, the bad, and the ugly

Assume the following relations (underlined attributes are primary keys):

- **students** (sid, name, email, pet)
- **majors** (sid, major)
- **courses** (cid, major, number, title)
- **courses_taken** (sid, cid, semester, grade)
- **prereqs** (precid, cid) – course precid is a prerequisite for course cid. Assume that if a course cid is included in this table, it would have a prerequisite course (i.e., no NULL values allowed).

(Q8) Assign one of the following labels:

- **A** = query should return a syntax error
  (e.g., not proper SQL or violating the Labrinidis rule)

- **B** = query is syntactically correct, but returns meaningless results
  (e.g., using a cartesian product without a where clause)

- **C** = query is syntactically correct, returns correct results, but is not minimal
  (i.e., it does more work than would be required)

- **D** = query is correct on all aspects

to the following SQL queries:

(1) [A / B / C / D]

```
select *
from students
where student has a dog
```

(2) [A / B / C / D]

```
select students.name
from students
where students.pet = "dog"
```

(3) [A / B / C / D]

```
select name
from (select * from students) as s
where s.pet = "dog"
```

(4) [A / B / C / D]

```
select name
from students, courses
```

(5) [A / B / C / D]
```
select name
from students, courses, courses_taken
```

(6) [A / B / C / D]
```
select sid, count(*)
from courses_taken
```

(7) [A / B / C / D]
```
select count(*)
from courses_taken
group by sid
```

(8) [A / B / C / D]
```
select sid, count(*)
from courses_taken
group by sid
```

(9) [A / B / C / D]
```
select count (*)
from courses_taken
having grade = 'A'
```

(10) [A / B / C / D]
```
select name
from students, courses_taken
where grade = 'A'
```

(11) [A / B / C / D]
```
select name
from students NATURAL JOIN courses_taken
where grade = 'A'
```

(12) [A / B / C / D]
```
select students.sid
from students NATURAL JOIN courses_taken
where grade='A'
```

(13) [A / B / C / D]
```
select students.name
from students NATURAL JOIN courses_taken
        NATURAL JOIN courses
where grade = 'A'
```

Out of the above 13 statements count:

- **how many As:**
- **how many Bs:**
- **how many Cs:**
- **how many Ds:**