1) Find all rooms that can seat at least 100 people.
   
   ```sql
   SELECT name
   FROM Room
   WHERE capacity >= 100;
   ```

2) Find the course or courses with the earliest start time.
   
   ```sql
   SELECT name
   FROM Course
   WHERE start_time = (SELECT MIN(start_time)
                       FROM Course);
   ```

3) Find the number of majors in each department.
   
   ```sql
   SELECT dept, COUNT(*)
   FROM MajorsIn
   GROUP BY dept;
   ```

4) Find all courses taken by CS ('comp sci') majors.
   
   ```sql
   SELECT DISTINCT course
   FROM Enrolled E, MajorsIn M
   WHERE E.student = M.student
     AND dept = 'comp sci';
   ```
5) Create a list of all Students who are not enrolled in a course.

```sql
SELECT name
FROM Student
WHERE ID NOT IN (SELECT student FROM Enrolled);
```

Why won't this work?

```sql
SELECT name
FROM Student, Enrolled
WHERE Student.id != Enrolled.student;
```

6) Find the number of CS majors enrolled in CS 105.

```sql
SELECT COUNT(*)
FROM Enrolled E, MajorsIn M
WHERE E.student = M.student
AND course = 'CS 105' AND dept = 'comp sci';
```

6b) Find the number of CS majors enrolled in a course.

```sql
SELECT COUNT(DISTINCT E.student)
FROM Enrolled E, MajorsIn M
WHERE E.student = M.student
AND dept = 'comp sci';
```
Practice Writing Queries (cont.)

Student(id, name)      Department(name, office)      Room(id, name, capacity)
Course(name, start_time, end_time, room)      MajorsIn(student, dept)
Enrolled(student, course, credit_status)

7) Find the number of majors that each student has declared.

```sql
SELECT id, name, COUNT(dept)
FROM Student LEFT JOIN MajorsIn
    ON Student.id = MajorsIn.student
GROUP BY id, name;
```

The following will *not* work, because it counts the rows, rather than the number of non-NULL values.

```sql
SELECT id, name, COUNT(*)
FROM Student LEFT JOIN MajorsIn
    ON Student.id = MajorsIn.student
GROUP BY id, name;
```

Practice Writing Queries (cont.)

8) For each department with more than one majoring student, output the department's name and the number of majoring students.

```sql
SELECT dept, COUNT(*)
FROM MajorsIn
GROUP BY dept
HAVING COUNT(*) > 1;
```
Practice Writing Queries (cont.)

Student(id, name)      Department(name, office)      Room(id, name, capacity)
Course(name, start_time, end_time, room)      MajorsIn(student, dept)
Enrolled(student, course, credit_status)

9) Find the names of all students who have a course in GCB 204.

SELECT DISTINCT S.id, S.name
FROM Student S, Enrolled E, Course C, Room R
WHERE S.id = E.student
    AND E.course = C.name
    AND C.room = R.id
    AND R.name = 'GCB 204';

here’s a more precise version:

SELECT name
FROM Student
WHERE id IN (SELECT S.id
             FROM Student S, Enrolled E, Course C, Room R
             WHERE S.id = E.student
                 AND E.course = C.name
                 AND C.room = R.id
                 AND R.name = 'GCB 204');