University of Toronto
CSC343, Winter 2017

SQL Exercises: GROUP BY and HAVING

Schema

Student(<u>sID</u>, surName, firstName, campus, email, cgpa)

Course(<u>dept, cNum</u>, name, breadth)

Offering(<u>oID</u>, dept, cNum, term, instructor)

Took(<u>sID, oID</u>, grade)

Offering[dept, cNum] $\subseteq$ Course[dept, cNum]

Took[sID] $\subseteq$ Student[sID]

Took[oID] $\subseteq$ Offering[oID]

Questions

1. Write a query to find the average grade, minimum grade, and maximum grade for each offering.

2. Suppose we wrote

   ```
   SELECT _________________________
   FROM Offering, Took
   WHERE Offering.oID = Took.oID
   group by dept;
   ```

   Which of the following could go in the SELECT clause?

   `sID` `count(sID)` `grade` `avg(grade)` `dept` `count(dept)` `term` `min(term)`

3. Find the sid and minimum grade of each student with an average over 80.

4. Find the sid, surname, and average grade of each student, but keep the data only for those students who have taken at least 3 courses.

5. For each student who has passed at least 10 courses, report their sid and average grade on the courses that they passed.

6. Which of these queries is legal?

```
SELECT dept
FROM Took, Offering
WHERE Took.oID = Offering.oID
GROUP BY dept
HAVING avg(grade) > 75;
```

```
SELECT Took.oID, avg(grade)
FROM Took, Offering
WHERE Took.oID = Offering.oID
GROUP BY Took.oID
HAVING avg(grade) > 75;
```

```
SELECT Took.oID, dept, cNum, avg(grade)
FROM Took, Offering
WHERE Took.oID = Offering.oID
GROUP BY Took.oID
HAVING avg(grade) > 75;
```

```
SELECT oID, avg(grade)
FROM Took
GROUP BY sID
HAVING avg(grade) > 75;
```