

Course ISE 322: Database Systems

Recitation 10: Nested and Aggregate Queries

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Answer the following queries in SQL using nested and aggregate queries. There may be other ways to answer the query, so try them out!

The following queries are based on the following schemas:

Sailors(sid:integer, sname:string, rating:integer, age:real)
Boats(bid:integer, bname:string, color:string)
Reserves(sid:integer, bid:integer, day:date)

and

Student(snum:integer, sname:string, major:string, level:string, age:integer)
Class(name:string, meets_at:time, room:string, fid:integer)
Enrolled(snum:integer, cname:string)
Faculty(fid:integer, fname:string, deptid:integer)

Note: The queries here have appeared previously in Recitations 9a and 9b. Sample answers are available on Telem. The queries which were done together during the recitation session today are marked with a † symbol.

1 Nested Queries

1. Find the names of students not enrolled in any class. †
2. Find the names of any student who is enrolled in two classes that meet at the same time. †
3. Find the names of faculty members who teach in every room in which some class is taught.

2 Aggregate Queries

1. Find the names and ages of the youngest sailors †
2. Find the average age of sailors who are at least 18 years old for each rating level that has at least two sailors (of any age) †
3. Print out the names of sailors who have never reserved the same boat twice.
4. Print the level and the average age of students for that level, for each level.
5. Find the names of faculty members for whom the combined enrollment of the courses that they teach is less than five.

6. Find the names of all classes that either meet in room R128 or have five or more students enrolled.
7. Find the age of the oldest student who is either a History major or enrolled in a course taught by I. Teach.
8. Print the level and the average age of students for that level, for all levels except JR.
9. For each faculty member that has taught classes only in room R128, print the faculty member's name and the total number of classes she or he has taught.
10. Find the names of students enrolled in the maximum number of classes.
11. For each age value that appears in Students, find the level value that appears most often. For example, if there are more FR level students aged 18 than SR, JR, or SO students aged 18, you should print the pair (18, FR).