

Course ISE 322: Database Systems

Recitation 8 Exercise

Relational Algebra

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In this recitation we will do a number of SQL and relational algebra examples from the Ramakrishnan and Gehrke book together. I present the queries in natural language below. We will work on the queries step by step. First I will give you 5-7 minutes to try to write the queries yourselves (alone or in groups of two). After the time is up I will go over the solution on the board.

As in class and in the previous recitations we will use the following sample schema:

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

1 Relational Algebra and SQL Queries

Write relational algebra and SQL queries for each of the following sentences.

1. Show the sids of all of the sailors who reserved zero boats
2. Show the names of all the sailors who reserved at least three different boats.
3. Find the names of the sailors who have reserved boat 103.
4. Find the names of sailors who have reserved a red boat
5. Find the colors of boats reserved by Lubber.
6. Find the names of sailors who have reserved at least one boat.
7. Find the names of sailors who have reserved a red or a green boat
8. Find the names of sailors who have reserved a red and a green boat.
9. Find the names of sailors who have reserved at least two boats
10. Find the sids of sailors with age over 20 who have not reserved a red boat.
11. Find the names of the sailors who have reserved all boats
12. Find the names of sailors who have reserved all boats called Interlake.