EECS-317 Data Management and Information Processing Homework 3: Basic SQL Queries

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Instructions You should submit this homework assignment via Canvas. Acceptable formats are word files, text files, and pdf files. Paper submissions are not allowed and they will receive an automatic zero.

As explained during lecture and in the syllabus, assignments are done in groups. The groups have been created and assigned (randomly) by the instructors. Each group needs to submit only one assignment (i.e., there is no need for both partners to submit individually the same homework assignment).

Each group can submit solutions multiple times (for example, you may discover an error in your earlier submission and choose to submit a new solution set). We will grade only the last submission and ignore earlier ones.

Make sure you submit your solutions before the deadline. The policies governing academic integrity, tardiness and penalties are detailed in the syllabus.

Due Date: Friday October 26, 11:59 pm

Homework Instructions

For this assignment, you will use the program "DB Browser for SQLite" (available at http://sqlitebrowser.org/). This is the same software we have worked with in class. I posted several sample database files on Canvas in the Lecture Slides page. These database files can be opened with the DB Browser for SQLite. The database files we will use for this homework are:

- SalesOrders.sqlite
- SchoolScheduling.sqlite

For every question, we expect to see both your SQL code and the resulting data. Copy and paste both the SQL code and the results into a document and submit it following the submission instructions.

Here is an example question that applies to the SalesOrders.sqlite database:

Question: What bikes cost more than $1000?

Answer:

```
SELECT ProductName, RetailPrice FROM Products WHERE CategoryID = 2 AND RetailPrice > 1000;
```

"Trek 9000 Mountain Bike" "1200" "Eagle FS-3 Mountain Bike" "1800" "GT RTS-2 Mountain Bike" "1650"

Please answer each of the following questions with one query only (the query can have subqueries, if needed). For a correct answer in the example question above, you should replace CategoryID=2 with a subquery as follows:

```
SELECT ProductName, RetailPrice FROM Products WHERE CategoryID = (SELECT CategoryID
FROM Categories WHERE CategoryDescription = "Bikes") AND RetailPrice > 1000;
```

You may find it helpful to use the “Basic SQL Cheat Sheet” posted on Canvas.

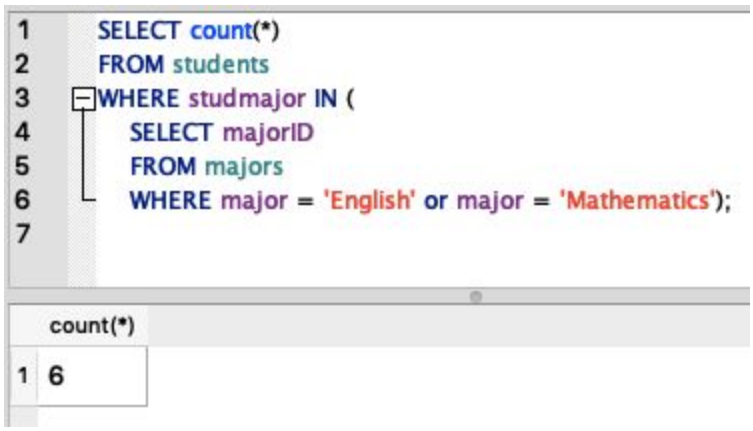
Each one of the questions below is worth 10 points.

SchoolScheduling.sqlite

1) How many students are majoring in English or Mathematics?

Query: select count(*) from students where studmajor in (select majorID from majors where major = 'English' or major = 'Mathematics');

Output: 6



2) What is the percentage of students with majors in English or Mathematics?

Query:

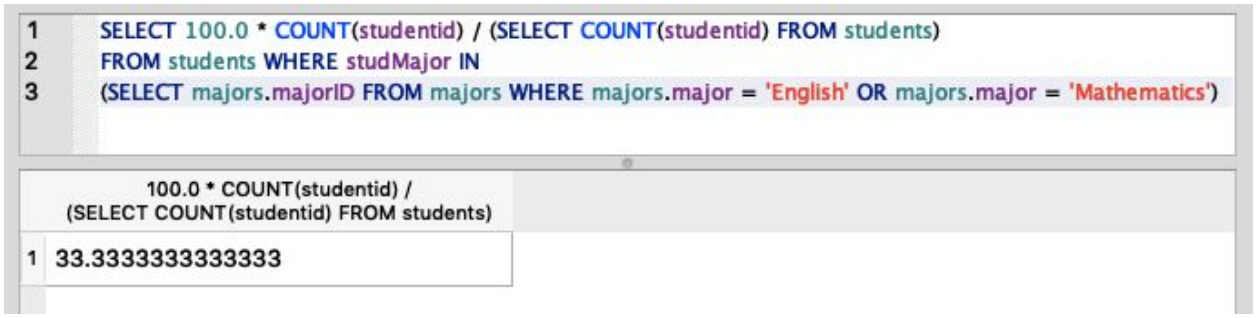
select 100.0 * count(studentid) /

(select count(studentid) from students)

From students where studMajor in

(select majors.majorID from majors where majors.major = 'English' or majors.major = 'Mathematics')

Output: 33.3333333333333



3) How many unique last names does the staff have?

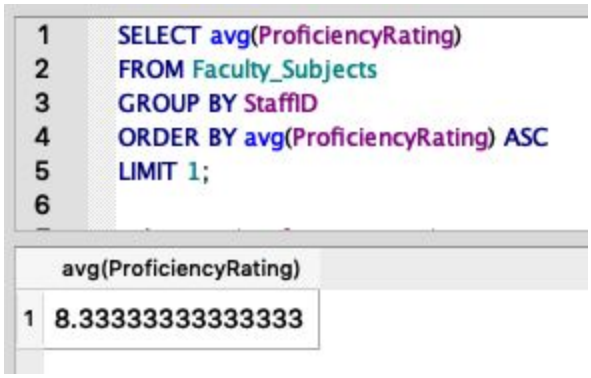
Query: select count(distinct(stflastname)) from Staff;

Output: 19

4) Each staff member has a proficiency rating for a number of subjects. For each staff member we can calculate its average proficiency rating (average across all subjects). What is the minimum value of the average proficiency rating of the staff?

Query: select avg(proficiencyrating) from Faculty_Subjects group by staffid order by avg(proficiencyrating) asc limit 1;

Output: 8.33333333333333



5) In the Staff table, which last names have a length longer than 9 characters?

Query: select stflastname from staff where length(stflastname) > 9;

Output: "Bonnicksen""Rosales III"

```
1  SELECT StfLastName
2  FROM Staff
3  WHERE length(StfLastName) > 9
4
```

	StfLastname
1	Bonnicksen
2	Rosales III

SalesOrders.sqlite

6) How many customers live in TX?

Query: select count(*) from Customers where CustState = 'TX';

Output: 6

```
1  SELECT CustomerID
2  FROM  Customers
3  WHERE CustState = 'TX'
```

	CustomerID
1	1004
2	1010
3	1021
4	1024
5	1025
6	1026

7) What are the top 5 highest revenue amounts that product number 3 has ever generated in a sale?

```
1  SELECT QuotedPrice * QuantityOrdered as Total
2  FROM Order_Details
3  Where ProductNumber = 3
4  ORDER BY Total DESC
5  LIMIT 5
```

	Total
1	363.75
2	225
3	225
4	225
5	225

8) How many orders has a customer named Angel Kennedy placed so far?

```
1  SELECT COUNT(OrderNumber)
2  FROM Orders
3  JOIN Customers ON Orders.CustomerID = Customers.CustomerID
4  WHERE Customers.CustFirstName = "Angel" AND Customers.CustLastName= 'Kennedy'
```

	COUNT(DISTINCT OrderNumber)
1	32

9) What is the total revenue that a customer named Angel Kennedy has brought through product sales?

```
1  SELECT SUM(OrderTotal)
2  FROM Orders
3  JOIN Customers ON Orders.CustomerID = Customers.CustomerID
4  WHERE Customers.CustFirstName = "Angel" AND Customers.CustLastName= 'Kennedy'
```

	SUM(OrderTotal)
1	186217.65

10) In which state do most customers live? Report both the state name and the number of customers living in that state.

Query: select custState, count(*) from customers group by custState order by count(*) desc limit 1;

Output: "WA" 11

```
1  SELECT CustState, COUNT(CustomerID) as CustCount
2  FROM  Customers
3  GROUP BY CustState
4  ORDER BY CustCount DESC
5  LIMIT 1
```

	CustState	CustCount
1	WA	11