

SQL Assignment

Assignment 1:

Consider the following relational schema for a used car database (**primary keys are italicized**):

Note: Create your own instantiations for testing using the appropriate SQL.

CARS (*cid*, mid, cyear)

BUYERS (*bid*, bname, bcity, age)

MANUFACTURERS (*maname*, location)

MODELS (*mid*, maname, model)

SALESPEOPLE (*sid*, sname, years_employed)

TRANSACTIONS (*bid*, *cid*, *sid*, amount, month, day, year)

Express the following queries using SQL. *The SQL queries should not return duplicates.*

1. Print the bname and bcity of all buyers who have purchased a Ford Mustang for an amount less than \$10,000. (*Note: Ford is the manufacturer, Mustang is the model.*)
2. Print the sid of all salespeople who have sold *both* a Ford and a Toyota in 1997.
3. Print the sid of all salespeople who have sold at least one car of *every* manufacturer.
4. Print the sname(s) of all sales people who did not sell any cars in 1997.
5. Print the sname and total sales amount of the salesperson who had the highest total sales (in dollars) for 1997.
6. Print the sname, and average amount per transaction (i.e., average sales amount) for every salesperson who has been working less than 10 years, and who has sold at least 50 cars. Print the result in descending order of the average sales amount.

Assignment 2:

Given the following Schema, answer the following queries:

employee(fname, minit, lname, *ssn*, bdate, address, sex, salary, superssn, dno)

department(dname, *dnumber*, mgrssn, mgrstartdate)

dept_locations(*dnumber*, *dlocation*)

project(*pname*, *pnumber*, plocation, dnum)

works_on(*essn*, *pno*, hours)

dependent(*essn*, *dependent_name*, sex, bdate, relationship)

1. Retrieve the name and address of all employees who work for the
 - a. 'Research' department.
2. For every project located in 'Stafford', list the project number, the
 - a. controlling department number, and the department manager's last name,
 - b. address, and birthdate.
3. Find the names of employees who work on all the projects controlled
 - a. by department number 5.
4. Make a list of project numbers for projects that involve an employee
 - a. whose last name is 'Smith', either as a worker or as a manager of the
 - b. department that controls the project.
5. List the names of all employees with two or more dependents.
6. Retrieve the names of employees who have no dependents.
7. List the names of managers who have at least one dependent.

Assignment 3:

In this assignment, you'll have to come up with SQL queries for the following database schema:

Artists (artistID: int, name: varchar(255))
SimilarArtists (artistID: int, simArtistID: int, weight: int)
Albums (albumID: int, artistID: int, name: varchar(255))
Tracks (trackID: int, artistID: int, name: varchar(255), length: int)
TrackLists (albumID: int, trackID: int, trackNum: int)

All primary keys are underlined. All foreign keys have the same name as the primary key that they are referencing. When asking about the similarity of one Artist to another, you can safely assume that the pair of Artists will only appear in one tuple in the SimilarArtists table.

Please write SQL statements for the following ten queries:

1. Find the names of all Tracks that are more than 10 minutes (600,000 ms) long.
2. Find the names of all Artists who have recorded a self-titled Album (the name of the Album is the same as the name of the Artist).
3. Find the names of all Artists who have recorded an Album on which the first track is named "Intro".
4. Find the names of all Artists who are more similar to Mogwai than to Nirvana (meaning the weight of their similarity to Mogwai is greater).
5. Find the names of all Albums that have more than 30 tracks.
6. Find the names of all Artists who do not have a similarity rating greater than 5 to any other Artist.
7. For all Albums, list the Album's name and the name of its 15th Track. If the Album does not have a 15th Track, list the Track name as null.
8. List the name of each Artist, along with the name and average Track length of their Album that has the highest average Track length.
9. For all Artists that have released a Track with a name beginning with "The", give their name and the name of the Artist who is most similar to them that has released a Track with a name beginning with "Why". If there is a tie, choose the Artist with the lowest artistID. If there are no qualifying Artists, list the Artist name as null.
10. If an Artist is within one degree of Hot Water Music, that means that their similarity to Hot Water Music is at least 5. If an Artist is within N degrees of Hot Water Music, then they have a similarity of at least 5 to an Artist that is within N-1 degrees of Hot Water Music. Find the percent of all Artists that are within 6 (or fewer) degrees of Hot Water Music. (Your answer should also include Hot Water Music themselves! Also, note that the percentage should be an integer between 0 and 100, inclusive.)