Title: Pharmaceutical Sales Database

Scenario:

My database is about the pharmaceutical sales industry. This database explores the schools attended by pharmaceutical sales representatives as well as their sales performance and their study respondent characteristics. This database allows anyone who is using it to determine sales performance by school characteristics versus sales performance and study respondent characteristics versus sales performance. The specific problem addressed by this database was whether students from mixed online, on-ground/and online education environments were as effective in the workplace as their counterparts at on-ground schools. For the SALES PERFORMANCE table, this was an intersection table and the categories used were years in the pharmaceutical sales industry, dollar increase in sales as well as a primary key of SalesPerformanceID and a foreign key of StudyRespondentID and SchoolAttendedID. The reason these columns were chosen for this table is that it was felt that there was a relationship between these two attributes based on sales performance. Dollar increase in sales was used along with years in the pharmaceutical industry to see whether there is a difference between those with less than 10 years of experience versus those with greater than 10 years experience based on dollar increase in sales. The information given tells how many respondents were in each category.

Likewise, the STUDY RESPONDENT CHARACTERISTICS table included Age, Gender, Level of Education and GPA as well as state of residence. State of residence did not have a direct relationship with the other attributes that were included in this table. Because it was felt that this column could be part of this table rather than creating a separate table even though there was not a direct relationship between this attribute and the other attributes in the table, this column was left in the table. In the SCHOOL table, the attributes were chosen based on SchoolType, ProgramType, SchoolState, BusinessSchoolAccreditation and SchoolName. These attributes were chosen based on the fact that it was felt that there was a relationship between the school attended and sales performance based on dollar increase in sales when the attributes in the school table were considered. The attributes that were the most relevant in the SCHOOL table were SchoolType, ProgramType, BusinessSchoolAccreditation, and SchoolName. It was felt that these attributes in the school table were responsible for the level of sales in the SALES PERFORMANCE table.

ASSUMPTIONS/BUSINESS RULES

If a STUDY RESPONDENT CHARACTERISTIC is deleted, for example, then the corresponding row in the SALES PERFORMANCE TABLE can be deleted without affecting the rest of the table data. In addition, with regard to sales performance, there can be one or more sales performances associated with each school. What this means is that if a school is deleted it should not be a problem since a school is only used in the SCHOOL table if there is a corresponding sales performance record associated with that school in the SALES PERFORMANCE TABLE base on the referential integrity constraint. Also, if a record is deleted in either the STUDY RESPONDENT CHARACTERISTICS table and the SCHOOL table the corresponding record in the SALES PERFORMANCE table as it is unnecessary to maintain that record if it is deleted in the other two tables in the database based on the referential integrity constraint between the child table (SALES PERFORMANCE) and the two parent tables. Also, zero or more schools are used in the SCHOOL table and only if there is a corresponding record in the SALES PERFORMANCE TABLE. In this database it is also assumed that each ID in the SalesPerformancID column of the SALES PERFORMANCE table is associated with only one record in the table. Likewise, for the SCHOOL and STUDY RESPONDENT

CHARACTERISTICS table, the relationship between the IDs and each of the records in the table is the same meaning that there is one record for each ID. In addition, every study respondent can be assigned to only one sales performance record while each school can again be assigned to one or more sales performances.

Queries

Order BY

SELECT Age, Gender, StateOfResidence, LevelOfEducation

FROM CSTUDYRESPONDENTCHARACTERISTICS

ORDER BY StateOfResidence DESC , Gender;

SQL ORDER BY			
Age	**Gender**	**StateOfResidence**	**LevelOfEducation**
60-65	Female	WA	Bachelor's
31-35	Female	WA	Master's
60-65	Male	OK	Doctorate
31-35	Female	OH	Master's
46-50	Male	OH	Bachelor's
36-40	Female	NY	Associate's
46-50	Female	NY	Associate's
46-50	Female	GA	Doctorate
36-40	Male	GA	Bachelor's

Order By

SELECT SchoolType, ProgramType, SchoolState, BusinessSchoolAccreditation

FROM BSCHOOL

ORDER BY SchoolState DESC , BusinessSchoolAccreditation;

SQL ORDER BY			
SchoolType	**ProgramType**	**SchoolState**	**BusinessSchoolAccreditation**
Non-profit	Mixed	WA	AACSB
ForProfit	Online	PA	ACBSP
Non-Profit	On-ground	OH	AACSB
NonProfit	On-ground	OH	AACSB
Non-Profit	Mixed	NY	AACSB
For-Profit	Online	MN	ACBSP
Non-Profit	On-ground	MD	ACBSP

SQL ORDER BY			
SchoolType	**ProgramType**	**SchoolState**	**BusinessSchoolAccreditation**
Non-Profit	On-ground	LA	ACBSP
For-Profit	Online	CA	ACBSP

SQL Between

SELECT Age, Gender, StateOfResidence, LevelOfEducation

FROM CSTUDYRESPONDENTCHARACTERISTICS

WHERE StudyRespondentID BETWEEN 2 AND 5;

SQL BETWEEN			
Age	**Gender**	**StateOfResidence**	**LevelOfEducation**
36-40	Male	GA	Bachelor's
46-50	Female	NY	Associate's
60-65	Male	OK	Doctorate
46-50	Female	GA	Doctorate

SQL Group BY

SELECT YearsPharmaceuticalSales, Count (*) AS StudyRespondentID

FROM ASALESPERFORMANCE

GROUP BY YearsPharmaceuticalSales;

SQL GROUP BY	
YearsPharmaceuticalSales	**StudyRespondentID**
<10years	4
10+years	5

SQL JOIN

SELECT YearsPharmaceuticalSales, Age, Gender, GPA

FROM (CSTUDYRESPONDENTCHARACTERISTICS AS C INNER JOIN ASALESPERFORMANCE AS A ON C.StudyRespondentID = A.StudyRespondentID) INNER JOIN BSCHOOL AS B ON B.SchoolAttendedID = A.SchoolAttendedID

ORDER BY A.SchoolAttendedID, C.StudyRespondentID; SELECT YearsPharmaceuticalSales, Age, Gender, GPA

FROM (CSTUDYRESPONDENTCHARACTERISTICS AS C INNER JOIN ASALESPERFORMANCE AS A ON C.StudyRespondentID = A.StudyRespondentID) INNER JOIN BSCHOOL AS B ON B.SchoolAttendedID = A.SchoolAttendedID

ORDER BY A.SchoolAttendedID, C.StudyRespondentID;

SQL JOIN			
YearsPharmaceuticalSales	**Age**	**Gender**	**GPA**
<10years	36-40	Female	3.33-2.68
<10years	46-50	Female	4.0-3.34
10+years	60-65	Female	4.0-3.34
10+years	60-65	Male	3.33-2.68
10+years	46-50	Male	2.67-1.68
10+years	31-35	Female	3.33-2.68
10+years	31-35	Female	3.33-2.68
<10years	46-50	Female	2.67-1.68
<10years	36-40	Male	4.0-3.34

This database allows users to query using the Order by SQL clause to determine the order based on state of residence in descending order and gender the columns of Age, Gender, State of Residence and Level of Education from the STUDY RESPONDENTS CHARACTERISTICS table. This query enables the user to see the state of residence in descending order based on gender as well as the corresponding Age and LevelOfEducation. The second Order By Query is based on SchoolType, ProgramType, SchoolState, and BusinessSchoolAccreditation and ordered by SchoolState and BusinessSchoolAccreditation from the SCHOOL table. This query allows users to see schools by state and business school accreditation and the corresponding school and program type. The third SQL Query is an SQL Between Query and includes data from the STUDY RESPONDENT CHARACTERISTICS table. This table allows users to see Age, Gender, StateOfResidence as well as LevelOfEducation StudyRespondentID between 2 and 5. The fourth table is an SQL Group By table and allows users to query study respondents based on years in the pharmaceutical industry and dollar increase in sales based on StudyRespondentID. Finally, the fifth table is an SQL JOIN table and allows users to combine data from the two parent tables in the database which include the STUDY RESPONDENT CHARACTERISTICS TABLE and the SCHOOL table. This table which is made from the SQL JOIN query allows users to combine data from the STUDY RESPONDENTS CHARACTERISTICS table and the SCHOOL table by using an INNER JOIN with the SALES PERFORMANCE table. This table shows years in pharmaceutical sales, age, gender and GPA.

Summary

I had a difficult time determining how to do the SQL JOIN for the final query , but I ultimately was able to create an appropriate table based on the STUDY RESPONDENT CHARACTERSISTICS table and the SCHOOL table. Because I used an intersection table, I was not able to create a direct query between the STUDY RESPONDENT CHARACTERISTICS table and the SCHOOL table, but there was an example in the

textbook of a query that would allow users of the database to use an INNER JOIN command with the SALES PERFORMANCE table to create a successful query. Also, for the Order By Queries, the data was queried based on StateOfResidence and Gender, and the descending order command was used, but for some reason the data did not query in alphabetical order based on StateOfResidence. It was subsequently determined that the query did not do this based on the fact that the table contained LevelOfEducation data that had to be grouped together as well as Gender data that had to be grouped together as well. It was determined that grouping LevelOfEducation by state caused this to happen. In the other Order By query this was also the case as the data had to be grouped together based on BusinessSchoolAccreditation as well, which affected the ability to order the data alphabetically in descending order. In the SQL Between query, this query worked perfectly due to the fact that it was based on StudyRespondentID and there is a unique ID for each of the study respondents in the STUDY RESPONDENT CHARACTERISTICS table. In the SQL Group By table, the query also worked perfectly since it was base on years in the pharmaceutical industry and it only needed to group together two categories based on the YearsPharmaceuticalSales column in the SALES PERFORMANCE table.