

TITLE: A DATABASE OF PHARMACEUTICAL SALES REPS AND SCHOOL PERFORMANCE COMPARED WITH TOTAL STUDENT LOAN AMOUNTS.

Introduction: As one can see, an attempt to create the tables and enter the data all at once failed, so the result is 9 pages of code and associated print screens of the end results of creating the PHARMA Database piece by piece. The database is chronicled below from start to finish and contains two parent tables, an intersection child table as well as a fourth table devoted to student loan amounts, which is also a child table. The first parent table is the PHARMA_REP table which is devoted to the names and addresses of the pharmaceutical representatives in the database. The second parent table is devoted to SCHOOL_MATRICULATION and contains pertinent information about the school that each pharmaceutical representative attended. The third table is an intersection table devoted to SCHOOL_PERFORMANCE, which again is a child table. The fourth table is devoted to STUDENT_LOANS and contains total student loan amounts.

The purpose of the database is to keep track of student performance based on school attended, the school's accreditation and associated total student loan amounts. This information can be utilized by corporations for determining promotions and to chronicle the amount of student loans each representative was required to pay for their education. This information can be used to ensure that the salespeople are paying down their debt as a program can be set up to have payments deducted from the salesperson's pay before taxes are taken out if a program to do so is approved by the federal government. If the program is approved, funds used for student loan payments would not be taxed.

Body

Again, the issues that occurred were related to attempting to attempting to create the database and insert the data into the database all at once. The business rules are such that there can be one sales representative to exactly one school performance. I did not cascade the pharma rep and school performance tables, but they can be cascaded so that when a pharma rep leaves the industry, his performance in school goes away. The same can be said for the pharma rep and student loans table. Also, schools will not be deleted when school performance for a rep is deleted. The reason for this is that schools should not go away as they are likely to be associated with more than one rep.

In my own research, I discovered that most pharmaceutical representatives are hired from AACSB schools. The reason for this is that these schools are apparently considered the gold standard for business education. If a sales performance table were included, it would be possible to isolate performance level in the pharmaceutical industry versus the school accreditation to determine if there is any real advantage to having an education from an AACSB school. In one study in the accounting profession there was no statistically significant difference in performance in the accounting field for students from AACSB schools who were employed in the accounting profession versus those from schools with the other two accreditations.

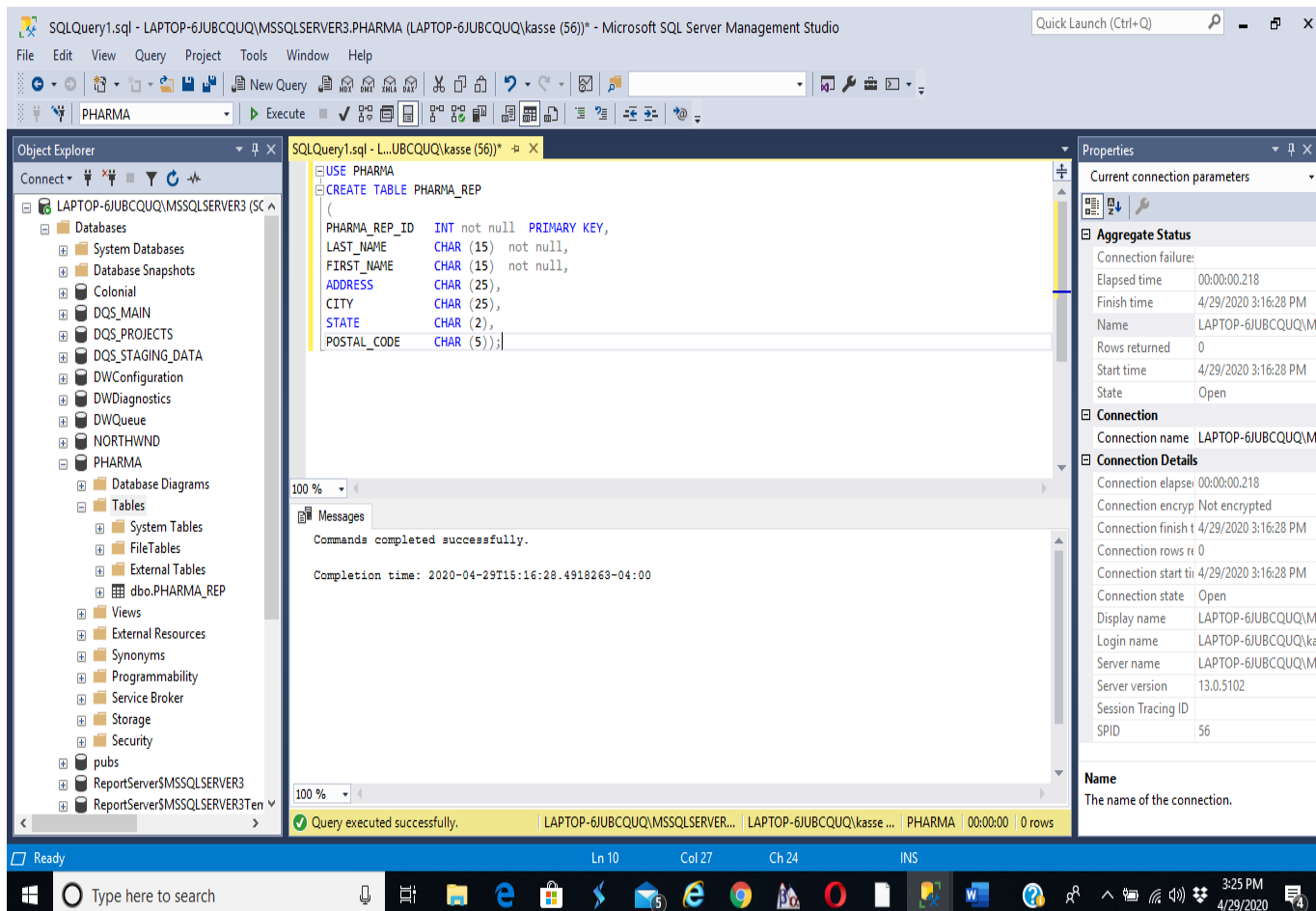
Inner join tables (These tables can be found after the tables showing the construction of the database along with an explanation of what each query depicts). Also included is an example of the business application for which the query can be used. In addition, three aggregate function queries are included as well.

```
PHARMA_REP PARENT TABLE
USE PHARMA
CREATE TABLE PHARMA_REP
(
  PHARMA_REP_ID INT not null PRIMARY KEY,
  LAST_NAME      CHAR (15) not null,
  FIRST_NAME     CHAR (15) not null,
```

```

ADDRESS          CHAR (25),
CITY              CHAR (25),
STATE            CHAR (2),
POSTAL_CODE     CHAR (5));

```



SCHOOL_MATRICULATION PARENT TABLE

```

USE PHARMA
CREATE TABLE SCHOOL_MATRICULATION
(SCHOOL_ID INT not null PRIMARY KEY,
SCHOOL_NAME CHAR (50) not null,
BUSINESS_SCHOOL_ACCREDITATION CHAR (5),
check(BUSINESS_SCHOOL_ACCREDITATION in ('AACSB', 'ACBSP', 'IACBE')),
STATE CHAR (2),
PROGRAM_TYPE CHAR (15),
check(PROGRAM_TYPE in ('Associate', 'Bachelors', 'Masters', 'Doctorate')),
RESEARCH_OR_NONRESEARCH_INSTITUTION CHAR (15),
check(RESEARCH_OR_NONRESEARCH_INSTITUTION in ('Research', 'Non-research'))
);

```

The screenshot displays the Microsoft SQL Server Management Studio interface. The main window shows a SQL query being executed in the PHARMA database. The query is as follows:

```

USE PHARMA
CREATE TABLE SCHOOL_MATRICULATION
(SCHOOL_ID INT not null PRIMARY KEY,
SCHOOL_NAME CHAR (50) not null,
BUSINESS_SCHOOL_ACCREDITATION CHAR (5),
check(BUSINESS_SCHOOL_ACCREDITATION in ('AACSB', 'ACBSP', 'IACBE')),
STATE CHAR (2),
PROGRAM_TYPE CHAR (15),
check(PROGRAM_TYPE in ('Associate', 'Bachelors', 'Masters', 'Doctorate')),
RESEARCH_OR_NONRESEARCH_INSTITUTION CHAR (15),
check(RESEARCH_OR_NONRESEARCH_INSTITUTION in ('Research', 'Non-research'))
);

```

The Properties window on the right shows the following connection details:

Current connection parameters	
Aggregate Status	
Connection failure:	
Elapsed time	00:00:00.382
Finish time	4/29/2020 4:11:06 PM
Name	LAPTOP-6JUBCQUQ\ka
Rows returned	0
Start time	4/29/2020 4:11:06 PM
State	Open
Connection	
Connection name	LAPTOP-6JUBCQUQ\ka
Connection Details	
Connection elapsed:	00:00:00.382
Connection encrypt:	Not encrypted
Connection finish t:	4/29/2020 4:11:06 PM
Connection rows re:	0
Connection start ti:	4/29/2020 4:11:06 PM
Connection state	Open
Display name	LAPTOP-6JUBCQUQ\ka
Login name	LAPTOP-6JUBCQUQ\ka
Server name	LAPTOP-6JUBCQUQ\ka
Server version	13.0.5102
Session Tracing ID	
SPID	53
Name	
The name of the connection.	

The status bar at the bottom indicates that the query was executed successfully, returning 0 rows in 00:00:00.382 seconds.

SCHOOL_PERFORMANCE CHILD INTERSECTION TABLE

```

USE PHARMA
CREATE TABLE SCHOOL_PERFORMANCE
(SCHOOL_PERFORMANCE_ID INT not null PRIMARY KEY,
GPA_CATEGORIES CHAR (15),
PHARMA_REP_ID INT,
SCHOOL_ID INT,
check(GPA_CATEGORIES in ('4.0-3.34', '3.33-2.68', '2.67-1.68', '1.67-.68')),
CONSTRAINT FK_PHARMA_REP FOREIGN KEY (PHARMA_REP_ID) REFERENCES PHARMA_REP
(PHARMA_REP_ID),
CONSTRAINT FK2_SCHOOL_PERFORMANCE FOREIGN KEY (SCHOOL_ID) REFERENCES
SCHOOL_MATRICULATION (SCHOOL_ID));

```

SQLQuery4.sql - LAPTOP-6JUBCQUQ\MSSQLSERVER3.PHARMA (LAPTOP-6JUBCQUQ\kasse (54))* - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

PHARMA

Object Explorer

Connect

SQLQuery5.sql - L...UBCQUQ\kasse (52)*

```

USE PHARMA
CREATE TABLE SCHOOL_PERFORMANCE
(SCHOOL_PERFORMANCE_ID INT not null PRIMARY KEY,
GPA_CATEGORIES CHAR (15),
PHARMA_REP_ID INT,
SCHOOL_ID INT,
check(GPA_CATEGORIES in ('4.0-3.34', '3.33-2.68', '2.67-1.68', '1.67-.68')),
CONSTRAINT FK_PHARMA_REP FOREIGN KEY (PHARMA_REP_ID) REFERENCES PHARMA_REP (PHARMA_REP_ID),
CONSTRAINT FK2_SCHOOL_PERFORMANCE FOREIGN KEY (SCHOOL_ID) REFERENCES SCHOOL_MATRICULATION (SCHOOL_ID));

```

Messages

Commands completed successfully.

Completion time: 2020-04-29T19:49:28.5374352-04:00

Query executed successfully. | LAPTOP-6JUBCQUQ\MSSQLSERVER... | LAPTOP-6JUBCQUQ\kasse... | PHARMA | 00:00:00 | 0 rows

Properties

Current connection parameters

Aggregate Status

Elapsed time 00:00:00.093

Finish time 4/29/2020 7:49:28 PM

Name LAPTOP-6JUBCQUQ\M...

Rows returned 0

Start time 4/29/2020 7:49:28 PM

State Open

Connection

Connection name LAPTOP-6JUBCQUQ\M...

Connection Details

Connection elapsed 00:00:00.093

Connection encrypt Not encrypted

Connection finish t 4/29/2020 7:49:28 PM

Connection rows r 0

Connection start tti 4/29/2020 7:49:28 PM

Connection state Open

Display name LAPTOP-6JUBCQUQ\M...

Login name LAPTOP-6JUBCQUQ\ka...

Server name LAPTOP-6JUBCQUQ\M...

Server version 13.0.5102

Session Tracing ID

SPID 54

Name

The name of the connection.

STUDENT_LOANS CHILD TABLE

USE PHARMA

CREATE TABLE STUDENT_LOANS

(STUDENT_LOAN_ID INT NOT NULL PRIMARY KEY,

TOTAL_STUDENT_LOAN_AMT DECIMAL (8,2),

PHARMA_REP_ID INT

CONSTRAINT FK_STUDENT_LOANS FOREIGN KEY (PHARMA_REP_ID) REFERENCES PHARMA_REP (PHARMA_REP_ID));

SQLQuery6.sql - LAPTOP-6JUBCQUQ\MSSQLSERVER3.PHARMA (LAPTOP-6JUBCQUQ\kasse (59))* - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

PHARMA Execute

Object Explorer

Connect

SQLQuery6.sql - L...UBCQUQ\kasse (59)*

```

USE PHARMA
CREATE TABLE STUDENT_LOANS
(
  STUDENT_LOAN_ID INT NOT NULL PRIMARY KEY,
  TOTAL_STUDENT_LOAN_AMT DECIMAL (8,2),
  PHARMA_REP_ID INT
CONSTRAINT FK_STUDENT_LOANS FOREIGN KEY (PHARMA_REP_ID) REFERENCES PHARMA_REP (PHARMA_REP_ID));

```

Messages

Commands completed successfully.

Completion time: 2020-04-29T20:51:07.5155846-04:00

Query executed successfully. | LAPTOP-6JUBCQUQ\MSSQLSERVER... | LAPTOP-6JUBCQUQ\kasse... | PHARMA | 00:00:00 | 0 rows

Properties

Current connection parameters

Aggregate Status

Connection failure:

Elapsed time 00:00:00.171

Finish time 4/29/2020 8:51:07 PM

Name LAPTOP-6JUBCQUQ\...

Rows returned 0

Start time 4/29/2020 8:51:07 PM

State Open

Connection

Connection name LAPTOP-6JUBCQUQ\...

Connection Details

Connection elapsed 00:00:00.171

Connection encrypt Not encrypted

Connection finish t 4/29/2020 8:51:07 PM

Connection rows re 0

Connection start tti 4/29/2020 8:51:07 PM

Connection state Open

Display name LAPTOP-6JUBCQUQ\...

Login name LAPTOP-6JUBCQUQ\ka...

Server name LAPTOP-6JUBCQUQ\...

Server version 13.0.5102

Session Tracing ID

SPID 59

Name

The name of the connection.

Ready Ln 6 Col 42 Ch 42 INS

Type here to search

8:54 PM 4/29/2020

```
Select * FROM PHARMA_REP
```

```
INSERT INTO PHARMA_REP
```

```
VALUES
```

```
(1, 'Stevens', 'Jennifer', '2356 Fifth Street', 'Stow', 'VT', '47728');
```

```
INSERT INTO PHARMA_REP
```

```
VALUES
```

```
(2, 'Boyers', 'Rita', '282 Pleasant Meadow Blvd.', 'Stow', 'OH', '44224');
```

```
INSERT INTO PHARMA_REP
```

```
VALUES
```

```
(3, 'Green', 'William', '2706 Brown Street', 'Minneapolis', 'MN', '47223');
```

```
INSERT INTO PHARMA_REP
```

```
VALUES
```

```
(4, 'Brown', 'Trevor', '13th Street', 'Los Angeles', 'CA', '07346');
```

```

INSERT INTO PHARMA_REP
VALUES
(5, 'Kanter', 'Phil', '1423 Buckingham Gate Blvd.', 'Cuyahoga Falls', 'OH', '44221');

```

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left displays the server structure, including the PHARMA database and its tables. The central query window shows the following SQL query:

```
Select * FROM PHARMA_REP
```

The Results pane displays the following data:

PHARMA_REP_ID	LAST_NAME	FIRST_NAME	ADDRESS	CITY	STATE	POSTAL_CODE
1	Stevens	Jennifer	2356 Fifth Street	Stow	VT	47728
2	Boyers	Rita	282 Pleasant Meadow Blvd.	Stow	OH	44224
3	Green	William	2706 Brown Street	Minneapolis	MN	47223
4	Brown	Trevor	13th Street	Los Angeles	CA	07346
5	Kanter	Phil	253 Pleasant Meadow Blvd.	Stow	OH	44224

The Properties window on the right shows connection details for the current connection, including connection name, elapsed time, and rows returned (5).

```

INSERT INTO SCHOOL_MATRICULATION
VALUES
(1, 'Northcentral University', 'ACBSP', 'CA', 'Bachelors', 'Non-research');
Insert INTO SCHOOL_MATRICULATION
VALUES
(2, 'Stark State', 'ACBSP', 'OH', 'Associate', 'Non-research');
INSERT INTO SCHOOL_MATRICULATION
VALUES
(3, 'Kent State University', 'AACSB', 'OH', 'Bachelors', 'Research');
INSERT INTO SCHOOL_MATRICULATION
VALUES
(4, 'Andrews University', 'IACBE', 'MI', 'Masters', 'Research');
INSERT INTO SCHOOL_MATRICULATION
VALUES
(5, 'Ball State University', 'AACSB', 'IN', 'Bachelors', 'Research');

```

SQLQuery1.sql - LAPTOP-6JUBCCQUQ\MSSQLSERVER3.PHARMA (LAPTOP-6JUBCCQUQ\kasse (51)) - Microsoft SQL Server Management Studio

```

INSERT INTO SCHOOL_MATRICULATION
VALUES
(1, 'Northcentral University', 'ACBSP', 'CA', 'Bachelors', 'Non-research');
Insert INTO SCHOOL_MATRICULATION
VALUES
(2, 'Stark State', 'ACBSP', 'OH', 'Associate', 'Non-research');
INSERT INTO SCHOOL_MATRICULATION
VALUES
(3, 'Kent State University', 'AACSB', 'OH', 'Bachelors', 'Research');
INSERT INTO SCHOOL_MATRICULATION
VALUES
(4, 'Andrews University', 'IACBE', 'MI', 'Masters', 'Research');
INSERT INTO SCHOOL_MATRICULATION
VALUES
(5, 'Ball State University', 'AACSB', 'IN', 'Bachelors', 'Research');

```

Messages

(1 row affected)

(1 row affected)

(1 row affected)

(1 row affected)

(1 row affected)

Completion time: 2020-04-30T17:40:32.9755907-04:00

Query executed successfully. LAPTOP-6JUBCCQUQ\MSSQLSERVER... LAPTOP-6JUBCCQUQ\kasse... PHARMA 00:00:00 0 rows

Properties

Current connection parameters

Aggregate Status

Connection failure:

Elapsed time 00:00:00.203

Finish time 4/30/2020 5:40:32 PM

Name LAPTOP-6JUBCCQUQ\M

Rows returned 0

Start time 4/30/2020 5:40:32 PM

State Open

Connection

Connection name LAPTOP-6JUBCCQUQ\M

Connection Details

Connection elapse: 00:00:00.203

Connection encryp: Not encrypted

Connection finish t: 4/30/2020 5:40:32 PM

Connection rows r: 0

Connection start tii: 4/30/2020 5:40:32 PM

Connection state: Open

Display name: LAPTOP-6JUBCCQUQ\M

Login name: LAPTOP-6JUBCCQUQ\ka

Server name: LAPTOP-6JUBCCQUQ\M

Server version: 13.0.5102

Session Tracing ID

SPID: 51

Name

The name of the connection.

SELECT *
FROM SCHOOL_MATRICULATION

SQLQuery2.sql - LAPTOP-6JUBCCQUQ\MSSQLSERVER3.PHARMA (LAPTOP-6JUBCCQUQ\kasse (53)) - Microsoft SQL Server Management Studio

```

SELECT *
FROM SCHOOL_MATRICULATION

```

Results

	SCHOOL_ID	SCHOOL_NAME	BUSINESS_SCHOOL_ACCREDITATION	STATE	PROGRAM_TYPE	RESEARCH_OR_NONRESEARCH_INS
1	1	Northcentral University	ACBSP	CA	Bachelors	Non-research
2	2	Stark State	ACBSP	OH	Associate	Non-research
3	3	Kent State University	AACSB	OH	Bachelors	Research
4	4	Andrews University	IACBE	MI	Masters	Research
5	5	Ball State University	AACSB	IN	Bachelors	Research

Query executed successfully. LAPTOP-6JUBCCQUQ\MSSQLSERVER... LAPTOP-6JUBCCQUQ\kasse... PHARMA 00:00:00 5 rows

Properties

Current connection parameters

Aggregate Status

Connection failure:

Elapsed time 00:00:00.557

Finish time 4/30/2020 5:47:28 PM

Name LAPTOP-6JUBCCQUQ\M

Rows returned 5

Start time 4/30/2020 5:47:28 PM

State Open

Connection

Connection name LAPTOP-6JUBCCQUQ\M

Connection Details

Connection elapse: 00:00:00.557

Connection encryp: Not encrypted

Connection finish t: 4/30/2020 5:47:28 PM

Connection rows r: 5

Connection start tii: 4/30/2020 5:47:28 PM

Connection state: Open

Display name: LAPTOP-6JUBCCQUQ\M

Login name: LAPTOP-6JUBCCQUQ\ka

Server name: LAPTOP-6JUBCCQUQ\M

Server version: 13.0.5102

Session Tracing ID

SPID: 53

Name

The name of the connection.

Data inserted into school performance table

```

INSERT INTO SCHOOL_PERFORMANCE
VALUES
(1, '4.0-3.34', 2, 3);
INSERT INTO SCHOOL_PERFORMANCE
VALUES
(2, '4.0-3.34', 1, 2);
INSERT INTO SCHOOL_PERFORMANCE
VALUES
(3, '2.67-1.68', 3, 1);
INSERT INTO SCHOOL_PERFORMANCE
VALUES
(4, '3.33-2.68', 4, 4);
INSERT INTO SCHOOL_PERFORMANCE
VALUES
(5, '3.33-2.68', 5, 5);

```

The screenshot displays the Microsoft SQL Server Management Studio interface. The main window shows a SQL query with five INSERT statements for the SCHOOL_PERFORMANCE table. The Messages pane indicates that each statement successfully affected one row. The Properties pane on the right shows connection details for the current connection.

SQL Query:

```

INSERT INTO SCHOOL_PERFORMANCE
VALUES
(1, '4.0-3.34', 2, 3);
INSERT INTO SCHOOL_PERFORMANCE
VALUES
(2, '4.0-3.34', 1, 2);
INSERT INTO SCHOOL_PERFORMANCE
VALUES
(3, '2.67-1.68', 3, 1);
INSERT INTO SCHOOL_PERFORMANCE
VALUES
(4, '3.33-2.68', 4, 4);
INSERT INTO SCHOOL_PERFORMANCE
VALUES
(5, '3.33-2.68', 5, 5);

```

Messages:

```

(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
Completion time: 2020-04-30T18:07:08.4204607-04:00

```

Properties - Current connection parameters:

- Connection failure: 00:00:00.156
- Elapsed time: 4/30/2020 6:07:08 PM
- Finish time: 4/30/2020 6:07:08 PM
- Name: LAPTOP-6JUBCQUQ\M
- Rows returned: 0
- Start time: 4/30/2020 6:07:08 PM
- State: Open

Connection Details:

- Connection name: LAPTOP-6JUBCQUQ\M
- Connection elapsed: 00:00:00.156
- Connection encrypt: Not encrypted
- Connection finish t: 4/30/2020 6:07:08 PM
- Connection rows r: 0
- Connection start t: 4/30/2020 6:07:08 PM
- Connection state: Open
- Display name: LAPTOP-6JUBCQUQ\M
- Login name: LAPTOP-6JUBCQUQ\ka
- Server name: LAPTOP-6JUBCQUQ\M
- Server version: 13.0.5102
- Session Tracing ID: 57
- SPID: 57

Status Bar: Query executed successfully. | LAPTOP-6JUBCQUQ\MSSQLSERVER... | LAPTOP-6JUBCQUQ\kasse ... | PHARMA | 00:00:00 | 0 rows

SCHOOL_PERFORMANCE TABLE DATA

SQLQuery4.sql - LAPTOP-6IUBCQUQ\MSSQLSERVER3.PHARMA (LAPTOP-6IUBCQUQ)\kasse (58)* - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

PHARMA Execute

Object Explorer

Connect

PHARMA

- Database Diagrams
- Tables
 - System Tables
 - FileTables
 - External Tables
 - dbo.PHARMA_REP
 - dbo.SCHOOL_MATRICULA
 - Columns
 - SCHOOL_ID (PK, in
 - SCHOOL_NAME (c
 - BUSINESS_SCHOOL
 - STATE (char(2), nul
 - PROGRAM_TYPE (c
 - RESEARCH_OR_NO
 - Keys
 - Constraints
 - Triggers
 - Indexes
 - Statistics
 - dbo.SCHOOL_PERFORMA
 - Columns
 - SCHOOL_PERFORM
 - GPA_CATEGORIES
 - PHARMA_REP_ID (I
 - SCHOOL_ID (FK, in
 - Keys
 - Constraints
 - Triggers

SQLQuery4.sql - L...UBCQUQ\kasse (58)* SQLQuery3.sql - L...UBCQUQ\kasse (57)* SQLQuery2.sql - L...UBCQUQ\kasse (53)*

```
SELECT *
FROM SCHOOL_PERFORMANCE
```

Results

SCHOOL_PERFORMANCE_ID	GPA_CATEGORIES	PHARMA_REP_ID	SCHOOL_ID
1	4.0-3.34	2	3
2	4.0-3.34	1	2
3	2.67-1.68	3	1
4	3.33-2.68	4	4
5	3.33-2.68	5	5

Properties

Current connection parameters

Aggregate Status

Connection failure:

Elapsed time 00:00:00.201

Finish time 4/30/2020 6:11:05 PM

Name LAPTOP-6IUBCQUQ\M

Rows returned 5

Start time 4/30/2020 6:11:05 PM

State Open

Connection

Connection name LAPTOP-6IUBCQUQ\M

Connection Details

Connection elapsed 00:00:00.201

Connection encrypt Not encrypted

Connection finish t 4/30/2020 6:11:05 PM

Connection rows re 5

Connection start tii 4/30/2020 6:11:05 PM

Connection state Open

Display name LAPTOP-6IUBCQUQ\M

Login name LAPTOP-6IUBCQUQ\ka

Server name LAPTOP-6IUBCQUQ\M

Server version 13.0.5102

Session Tracing ID

SPID 58

Name

The name of the connection.

Query executed successfully. | LAPTOP-6IUBCQUQ\MSSQLSERVER... | LAPTOP-6IUBCQUQ\kasse ... PHARMA | 00:00:00 | 5 rows

Ready Ln 2 Col 6 Ch 6 INS

Type here to search

6:11 PM 4/30/2020

Student Loans Table Data

```
INSERT INTO STUDENT_LOANS
VALUES
```

```
(1, 38000.00, 3);
```

```
INSERT INTO STUDENT_LOANS
VALUES
```

```
(2, 47000.00, 4);
```

```
INSERT INTO STUDENT_LOANS
VALUES
```

```
(3, 12000.00, 2);
```

```

INSERT INTO STUDENT_LOANS
VALUES
(4, 56000.00, 5);
INSERT INTO STUDENT_LOANS
VALUES
(5, 57200.00, 1);

```

SQLQuery3.sql - LAPTOP-6JUBCQUQ\MSSQLSERVER3.PHARMA (LAPTOP-6JUBCQUQ\kasse (51))* - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

PHARMA Execute

Object Explorer

- SCHOOL_NAME (char)
- BUSINESS_SCHOOL_A
- STATE (char(2), null)
- PROGRAM_TYPE (char)
- RESEARCH_OR_NONR
- Keys
- Constraints
- Triggers
- Indexes
- Statistics
- dbo.SCHOOL_PERFORMANC
- Columns
 - SCHOOL_PERFORMA
 - GPA_CATEGORIES (ch
 - PHARMA_REP_ID (FK
 - SCHOOL_ID (FK, int, n
- Keys
- Constraints
- Triggers
- Indexes
- Statistics
- dbo.STUDENT_LOANS
- Columns
 - STUDENT_LOAN_ID (P
 - TOTAL_STUDENT_LOA
 - PHARMA_REP_ID (FK
- Keys
- Constraints
- Triggers

SQLQuery3.sql - L...UBCQUQ\kasse (51))*

```

INSERT INTO STUDENT_LOANS
VALUES
(1, 38000.00, 3);
INSERT INTO STUDENT_LOANS
VALUES
(2, 47000.00, 4);
INSERT INTO STUDENT_LOANS
VALUES
(3, 12000.00, 2);
INSERT INTO STUDENT_LOANS
VALUES
(4, 56000.00, 5);
INSERT INTO STUDENT_LOANS
VALUES
(5, 57200.00, 1);

```

Messages

(1 row affected)

(1 row affected)

(1 row affected)

(1 row affected)

(1 row affected)

Completion time: 2020-04-30T22:20:07.8370660-04:00

Query executed successfully. LAPTOP-6JUBCQUQ\MSSQLSERVER... | LAPTOP-6JUBCQUQ\kasse... PHARMA | 00:00:00 | 0 rows

Properties

Current connection parameters

Aggregate Status

Connection failure:

Elapsed time 00:00:00.265

Finish time 4/30/2020 10:20:07 PM

Name LAPTOP-6JUBCQUQ\M

Rows returned 0

Start time 4/30/2020 10:20:07 PM

State Open

Connection

Connection name LAPTOP-6JUBCQUQ\M

Connection Details

Connection elapsed 00:00:00.265

Connection encrypt Not encrypted

Connection finish t 4/30/2020 10:20:07 PM

Connection rows r 0

Connection start tii 4/30/2020 10:20:07 PM

Connection state Open

Display name LAPTOP-6JUBCQUQ\M

Login name LAPTOP-6JUBCQUQ\ka

Server name LAPTOP-6JUBCQUQ\M

Server version 13.0.5102

Session Tracing ID

SPID 51

Name

The name of the connection.

Ready Ln 12 Col 18 Ch 18 INS 10:21 PM 4/30/2020

Student Loans Table

The screenshot displays the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure for 'PHARMA', including tables like 'SCHOOL_NAME', 'BUSINESS_SCHOOL_A', 'STATE', 'PROGRAM_TYPE', 'RESEARCH_OR_NONR', 'KEYS', 'CONSTRAINTS', 'TRIGGERS', 'INDEXES', 'STATISTICS', 'dbo.SCHOOL_PERFORMANC', 'dbo.STUDENT_LOANS', and 'GPA_CATEGORIES'. The central query window shows the following SQL query:

```
SELECT *
FROM STUDENT_LOANS
```

The Results pane displays the following data:

STUDENT_LOAN_ID	TOTAL_STUDENT_LOAN_AMT	PHARMA_REP_ID
1	38000.00	3
2	47000.00	4
3	12000.00	2
4	56000.00	5
5	57200.00	1

The Properties pane on the right shows connection details for the current connection, including connection name, elapsed time, finish time, name, rows returned, start time, state, connection name, connection details, connection elapsed, connection encryption, connection finish time, connection rows returned, connection start time, connection state, display name, login name, server name, server version, session tracing ID, and SPID.

The status bar at the bottom indicates that the query was executed successfully, returning 5 rows in 00:00:00 seconds.

INNER JOIN with two tables

```
SELECT LAST_NAME, FIRST_NAME, TOTAL_STUDENT_LOAN_AMT
FROM PHARMA_REP inner JOIN STUDENT_LOANS
ON PHARMA_REP.PHARMA_REP_ID = STUDENT_LOANS.PHARMA_REP_ID
WHERE TOTAL_STUDENT_LOAN_AMT > 30000
```

The screenshot displays the Microsoft SQL Server Management Studio interface. The central pane shows the following SQL query:

```
SELECT LAST_NAME, FIRST_NAME, TOTAL_STUDENT_LOAN_AMT
FROM PHARMA_REP inner JOIN STUDENT_LOANS
ON PHARMA_REP.PHARMA_REP_ID = STUDENT_LOANS.PHARMA_REP_ID
WHERE TOTAL_STUDENT_LOAN_AMT > 30000
```

The Results pane below the query shows the following data:

	LAST_NAME	FIRST_NAME	TOTAL_STUDENT_LOAN_AMT
1	Green	William	38000.00
2	Brown	Trevor	47000.00
3	Kanter	Phil	56000.00
4	Stevens	Jennifer	57200.00

The Properties pane on the right shows connection details for the current connection. The Status section indicates that the connection is successful and that 4 rows were returned. The Connection Details section shows the connection name as 'LAPTOP-6JUBCCQUQ\ka' and the server name as 'LAPTOP-6JUBCCQUQ\M'.

This query is an inner join with two tables which include the pharma rep table and the student loans table. The purpose of this query is to list the first and last names of all the pharmaceutical representatives with student loans over \$30,000. This is an inner join table that joins the tables together through the Pharma Rep ID. This table can be used in a corporation to determine loan payments if the reps are going to have their student loans taken out of their paycheck if they are over a certain amount, such as \$30,000.

INNER JOIN With INTERSECTION TABLE

```

SELECT PHARMA_REP.LAST_NAME
FROM (PHARMA_REP
INNER JOIN SCHOOL_PERFORMANCE
ON SCHOOL_PERFORMANCE.PHARMA_REP_ID =
PHARMA_REP.PHARMA_REP_ID
INNER JOIN SCHOOL_MATRICULATION
ON SCHOOL_MATRICULATION.SCHOOL_ID = SCHOOL_PERFORMANCE.SCHOOL_ID)
WHERE SCHOOL_PERFORMANCE.GPA_CATEGORIES = '4.0-3.34'

```

The screenshot displays the Microsoft SQL Server Management Studio interface. The central pane shows the following SQL query:

```

SELECT PHARMA_REP.LAST_NAME
FROM (PHARMA_REP
INNER JOIN SCHOOL_PERFORMANCE
ON SCHOOL_PERFORMANCE.PHARMA_REP_ID =
PHARMA_REP.PHARMA_REP_ID
INNER JOIN SCHOOL_MATRICULATION
ON SCHOOL_MATRICULATION.SCHOOL_ID = SCHOOL_PERFORMANCE.SCHOOL_ID)
WHERE SCHOOL_PERFORMANCE.GPA_CATEGORIES = '4.0-3.34'

```

The Results pane below the query shows the following data:

LAST_NAME
Boyers
Stevens

The Properties pane on the right shows connection details for the current connection (LAPTOP-6JUBCCQUQ\M). The status indicates that the query executed successfully, returning 2 rows in 00:00:01.249 seconds.

This is an inner join table with an intersection table. The purpose of this table is to list the last names of the reps with a 4.0 – 3.34 grade point average. This might be important to employers who want to know which employees have an A average for promotion purposes. This table was joined on the pharma rep id and the school id. The intersection tables can also be used to do compound searches with the and clause. I have also included a query with an and clause as well.

INNER JOIN WITH INTERSECTION TABLE

```
SELECT LAST_NAME,CITY, BUSINESS_SCHOOL_ACCREDITATION,GPA_CATEGORIES
FROM (PHARMA_REP AS P INNER JOIN SCHOOL_PERFORMANCE AS S
ON P.PHARMA_REP_ID = S.PHARMA_REP_ID)
INNER JOIN SCHOOL_MATRICULATION AS M
ON S.SCHOOL_ID = M.SCHOOL_ID
WHERE BUSINESS_SCHOOL_ACCREDITATION = 'AACSB'
AND GPA_CATEGORIES = '3.33-2.68'
```

The screenshot displays the Microsoft SQL Server Management Studio interface. The central pane shows the following SQL query:

```
SELECT LAST_NAME,CITY, BUSINESS_SCHOOL_ACCREDITATION,GPA_CATEGORIES
FROM (PHARMA_REP AS P INNER JOIN SCHOOL_PERFORMANCE AS S
ON P.PHARMA_REP_ID = S.PHARMA_REP_ID)
INNER JOIN SCHOOL_MATRICULATION AS M
ON S.SCHOOL_ID = M.SCHOOL_ID
WHERE BUSINESS_SCHOOL_ACCREDITATION = 'AACSB'
AND GPA_CATEGORIES = '3.33-2.68'
```

The Results pane shows the following data:

LAST_NAME	CITY	BUSINESS_SCHOOL_ACCREDITATION	GPA_CATEGORIES
Karter	Stow	AACSB	3.33-2.68

The Properties pane on the right shows connection details for the current connection:

- Current connection parameters
- Aggregate Status
 - Connection failure:
 - Elapsed time: 00:00:00.515
 - Finish time: 5/1/2020 1:55:21 AM
 - Name: LAPTOP-6JUBCQUQ\K...
 - Rows returned: 1
 - Start time: 5/1/2020 1:55:20 AM
 - State: Open
- Connection
 - Connection name: LAPTOP-6JUBCQUQ\K...
- Connection Details
 - Connection elapsed: 00:00:00.515
 - Connection encrypt: Not encrypted
 - Connection finish t: 5/1/2020 1:55:21 AM
 - Connection rows re: 1
 - Connection start ti: 5/1/2020 1:55:20 AM
 - Connection state: Open
 - Display name: LAPTOP-6JUBCQUQ\K...
 - Login name: LAPTOP-6JUBCQUQ\ka...
 - Server name: LAPTOP-6JUBCQUQ\K...
 - Server version: 13.0.5102
 - Session Tracing ID:
 - SPID: 54
- Name: The name of the connection.

This is an intersection table inner join query that uses an alias to make the query easier to construct. This query lists last name, city, business school accreditation and GPA for the salespeople with a 3.33-2.68 grade point average. This query might be important to determine those salespeople with a B average but who attended an AACSB school which is considered to have an extremely high level of rigor by some standards. An employer might use this information to consider employees for promotions who might not be considered if only those employees with an A average were being given consideration, for

example. The city where the salesperson lives might also be important to see if it is nearby an open territory where there is a promotion opportunity, for example.

Aggregate function queries

```
SELECT AVG (TOTAL_STUDENT_LOAN_AMT)
AS STUDENT_LOAN_AVG_AMOUNT
FROM STUDENT_LOANS
```

The screenshot displays the Microsoft SQL Server Management Studio interface. The main window shows a query window with the following SQL code:

```
SELECT AVG (TOTAL_STUDENT_LOAN_AMT)
AS STUDENT_LOAN_AVG_AMOUNT
FROM STUDENT_LOANS
```

The Results pane below the query window shows the output of the query:

STUDENT_LOAN_AVG_AMOUNT
42040.000000

The Properties pane on the right side of the window displays connection details for the current connection:

- Current connection parameters**
- Aggregate Status**
 - Connection failure:
 - Elapsed time: 00:00:00.656
 - Finish time: 5/1/2020 7:42:00 PM
 - Name: LAPTOP-6JUBCQUQ\M
 - Rows returned: 1
 - Start time: 5/1/2020 7:41:59 PM
 - State: Open
- Connection**
 - Connection name: LAPTOP-6JUBCQUQ\M
- Connection Details**
 - Connection elapsed: 00:00:00.656
 - Connection encrypt: Not encrypted
 - Connection finish t: 5/1/2020 7:42:00 PM
 - Connection rows re: 1
 - Connection start ti: 5/1/2020 7:41:59 PM
 - Connection state: Open
 - Display name: LAPTOP-6JUBCQUQ\M
 - Login name: LAPTOP-6JUBCQUQ\ka
 - Server name: LAPTOP-6JUBCQUQ\M
 - Server version: 13.0.5102
 - Session Tracing ID:
 - SPID: 56
- Name**
 - The name of the connection.

The status bar at the bottom of the window indicates: "Query executed successfully. LAPTOP-6JUBCQUQ\MSSQLSERVER... LAPTOP-6JUBCQUQ\kasse... PHARMA 00:00:00 | 1 rows"

This was an aggregate function query which provided the average amount of all total student loan amounts in the database. What was great about this query is that you were able to name the result with a label of your choice. This information can be used in the corporate world for employers to get an idea of the average amount of debt employees are taking on to earn their degrees. This information could also be broken down by degree level as well to get an idea of the average amount of debt by degree level if a relationship were created between student loans and school matriculation. Employers

might also want to use this information to design scholarships for students going into pharmaceutical sales to defray the cost of schooling based on scholarship amounts that reflected the average amount of debt incurred by employees to earn their degrees.

AGGREGATE function with A HAVING clause

```
SELECT TOTAL_STUDENT_LOAN_AMT
FROM STUDENT_LOANS
GROUP BY TOTAL_STUDENT_LOAN_AMT
HAVING AVG (TOTAL_STUDENT_LOAN_AMT) >12000
ORDER BY TOTAL_STUDENT_LOAN_AMT
```

The screenshot displays the Microsoft SQL Server Management Studio interface. The central pane shows the following SQL query:

```
SELECT TOTAL_STUDENT_LOAN_AMT
FROM STUDENT_LOANS
GROUP BY TOTAL_STUDENT_LOAN_AMT
HAVING AVG (TOTAL_STUDENT_LOAN_AMT) >12000
ORDER BY TOTAL_STUDENT_LOAN_AMT
```

The Results pane below the query shows the following data:

	TOTAL_STUDENT_LOAN_AMT
1	38000.00
2	47000.00
3	56000.00
4	57200.00

The Properties window on the right shows the following connection details:

- Current connection parameters
- Aggregate Status
 - Connection failure:
 - Elapsed time: 00:00:00.171
 - Finish time: 5/1/2020 8:39:26 PM
 - Name: LAPTOP-6IUBCQUQ\M
 - Rows returned: 4
 - Start time: 5/1/2020 8:39:26 PM
 - State: Open
- Connection
 - Connection name: LAPTOP-6IUBCQUQ\M
- Connection Details
 - Connection elapsed: 00:00:00.171
 - Connection encryp: Not encrypted
 - Connection finish t: 5/1/2020 8:39:26 PM
 - Connection rows r: 4
 - Connection start ti: 5/1/2020 8:39:26 PM
 - Connection state: Open
 - Display name: LAPTOP-6IUBCQUQ\M
 - Login name: LAPTOP-6IUBCQUQ\ka
 - Server name: LAPTOP-6IUBCQUQ\M
 - Server version: 13.0.5102
 - Session Tracing ID
 - SPID: 55
- Name: The name of the connection.

The status bar at the bottom indicates: Query executed successfully. LAPTOP-6IUBCQUQ\MSSQLSERVER... LAPTOP-6IUBCQUQ\kasse ... PHARMA | 00:00:00 | 4 rows

AGGREGATE Function with a HAVING clause

This is a HAVING clause with an aggregate function that lists student loan amounts from smallest to largest for student loan amounts greater than \$12,000. This query can be used by employers to rank order Student Loans over a certain amount. In a large database, a query such as this would show a range of amounts.

Aggregate function with Count function

```
SELECT COUNT (LAST_NAME)
AS SalesRepresentativesOhio
FROM PHARMA_REP
WHERE STATE = 'OH'
```

The screenshot displays the Microsoft SQL Server Management Studio interface. The central pane shows the following SQL query:

```
SELECT COUNT (LAST_NAME)
AS SalesRepresentativesOhio
FROM PHARMA_REP
WHERE STATE = 'OH'
```

The Results pane below the query shows the following output:

1	2
	2

The Properties pane on the right shows the following details for the current connection:

- Current connection parameters**
- Aggregate Status**
 - Connection failure:
 - Elapsed time: 00:00:00.147
 - Finish time: 5/1/2020 9:19:33 PM
 - Name: LAPTOP-6JUBCQUQ\MS
 - Rows returned: 1
 - Start time: 5/1/2020 9:19:33 PM
 - State: Open
- Connection**
 - Connection name: LAPTOP-6JUBCQUQ\MS
- Connection Details**
 - Connection elapsed: 00:00:00.147
 - Connection encrypt: Not encrypted
 - Connection finish t: 5/1/2020 9:19:33 PM
 - Connection rows r: 1
 - Connection start ti: 5/1/2020 9:19:33 PM
 - Connection state: Open
 - Display name: LAPTOP-6JUBCQUQ\MS
 - Login name: LAPTOP-6JUBCQUQ\ka
 - Server name: LAPTOP-6JUBCQUQ\MS
 - Server version: 13.0.5102
 - Session Tracing ID:
 - SPID: 53
- Name**: The name of the connection.

The status bar at the bottom indicates: Query executed successfully. LAPTOP-6JUBCQUQ\MSQLSERVER... LAPTOP-6JUBCQUQ\kasse... PHARMA 00:00:00 1 rows

This query was used to demonstrate how the count function can be used to count the number of sales representatives in each state. This could be done on a state by state basis and then sales in each state could be compared if a sales table were also created, which would enable the ability to determine sales by territory versus GPA, for example. This query as it exists would be used to determine how many reps are in each state, which would enable employers to compare states with similar sales records to determine if more sales representatives should be hired in each state.