

# STSCI 5060, Final Project Report PDF

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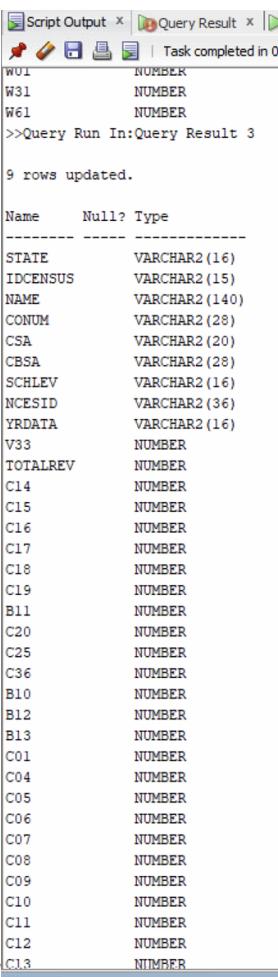
November 27, 2020

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## 1 Creating Oracle Database User

```
title '***** Step 1 *****' skip2
SQL> create user Rigas_Pete_STSCI5060FP identified by password;
User created.
SQL> grant all privileges to Rigas_Pete_STSCI5060FP;
Grant succeeded.
```

## 2 SQL Developer: Creating the State Table



The screenshot shows the SQL Developer interface with two tabs open: 'Script Output' and 'Query Result'. The 'Query Result' tab displays the creation of a table named 'STATE' with 33 columns, all defined as NUMBER type. The columns are listed as follows:

Name	Type
STATE	VARCHAR2(16)
IDCENSUS	VARCHAR2(15)
NAME	VARCHAR2(140)
CONUM	VARCHAR2(28)
CSA	VARCHAR2(20)
CBSA	VARCHAR2(28)
SCHLEV	VARCHAR2(16)
NCESID	VARCHAR2(36)
YRDATA	VARCHAR2(16)
V33	NUMBER
TOTALREV	NUMBER
C14	NUMBER
C15	NUMBER
C16	NUMBER
C17	NUMBER
C18	NUMBER
C19	NUMBER
B11	NUMBER
C20	NUMBER
C25	NUMBER
C36	NUMBER
B10	NUMBER
B12	NUMBER
B13	NUMBER
C01	NUMBER
C04	NUMBER
C05	NUMBER
C06	NUMBER
C07	NUMBER
C08	NUMBER
C09	NUMBER
C10	NUMBER
C11	NUMBER
C12	NUMBER
C13	NUMBER

The status bar at the bottom of the window indicates '(45).png'.

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STATE	IDCENSUS	NAME	CONUM	CSA	CBSA	SCHLEV	NCESID	YRDATA	V33	TOTALREV	C14	C15	C16	C17	C18	C19	B11
1 01	01501700300000	TUSCUMBIA CITY SCHOOL DISTRICT	01033	N	22520	03	0103420	09	1532	14438	361	300	68	6	0	21	0
2 01	01501750100000	MUSCLE SHOALS CITY SCHOOL DISTRICT	01033	N	22520	03	0102520	09	2768	26190	253	428	69	131	0	42	0
3 01	01501800100000	CONECUEH COUNTY SCHOOL DISTRICT	01035	N	N	03	0100870	09	1662	19409	1066	486	158	10	0	50	0
4 01	01501900100000	COOSA COUNTY SCHOOL DISTRICT	01037	388	10760	03	0100900	09	1349	12386	701	412	107	5	0	32	0
5 01	01502000100000	ANDALUSIA CITY SCHOOL DISTRICT	01039	N	N	03	0100060	09	1678	15542	499	441	114	10	0	58	0
6 01	01502000200000	COVINGTON COUNTY SCHOOL DISTRICT	01039	N	N	03	0100930	09	3094	29749	821	770	207	664	4	91	0
7 01	01502000400000	OPP CITY SCHOOL DISTRICT	01039	N	N	03	0102610	09	1393	12683	310	316	88	6	0	21	0
8 01	01502100100000	CRENSHAW COUNTY SCHOOL DISTRICT	01041	N	N	03	0100960	09	2487	21974	811	477	170	384	0	49	0
9 01	01502200100000	CULLMAN CITY SCHOOL DISTRICT	01043	142	18980	03	0100990	09	2868	26262	351	611	120	10	0	50	29
10 01	01502200200000	CULLMAN COUNTY SCHOOL DISTRICT	01043	142	18980	03	0101020	09	9937	94554	2207	2005	504	300	0	150	45

### 3 Oracle: Programmatically creating the state table

#### 3.1 Parts A - D

```
ttitle '*****step 3*****' skip 2
/* For step 3, we will make use of the concatenation
operator to create the desired table, in which
the concatenation operator and substr function
are used. */
UPDATE state_t
set stcode = concat('0', substr(stcode,1,1))
where cast(stcode as int) < 10;

select * from state_t where stcode < 10;
```

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STCODE	STNAME	STABB
1 00	Alabama	AL
2 00	Alaska	AK
3 00	Arizona	AZ
4 00	Arkansas	AR
5 00	California	CA
6 00	Colorado	CO
7 00	Connecticut	CT
8 00	Delaware	DE
9 00	District of Columbia	DC

## 4 SAS: Creating the Libref Final

```
8  /* Fall 2019 STSCI 5060 Final Project */
9  /* Name: Pete Rigas*/
10 /*NetID: pbr43 */
11
12 title '***** Step 4 *****';
13 /* Step 4: We will first create a libref for the final project, and
14 with the specified user and password in the Oracle Database. */
15
16 libname Final 'C:\STSCI5060\FP';
NOTE: Libref FINAL was successfully assigned as follows:
      Engine:      Vg
      Physical Name: C:\STSCI5060\FP
17 libname myoracle oracle user='Rigas_Pete_STSCI5060FP' password=XXXXXXXXXX;
NOTE: Libref MYORACLE was successfully assigned as follows:
      Engine:      ORACLE
      Physical Name:
```

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### 4.1 Describing the School Finance 2010 Table in SQL Developer, from the user created Oracle database

```
title '*****step 4*****' skip 2
/* For step 4, we will display the first 10 rows
of the table, using the hint from a
rownum statement. */
DESCRIBE School_Finance_2010_t;
Select * from School_Finance_2010_t
where rownum <= 10;
```

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STATE	IDCENSUS	NAME	CONUM	CSA	CBSA	SCHLEV	NCESID	YRDATA	V33	TOTALREV	C14	C15	C16	C17	C18	C19	B11
1 01	01501700300000	TUSCUMBIA CITY SCHOOL DISTRICT	01033	N	22520	03	0103420	09	1532	14438	361	300	68	6	0	21	0
2 01	01501750100000	MUSCLE SHOALS CITY SCHOOL DISTRICT	01033	N	22520	03	0102520	09	2768	26190	258	428	69	131	0	42	0
3 01	01501800100000	CONECUT COUNTY SCHOOL DISTRICT	01035	N	N	03	0100870	09	1662	19409	1064	486	158	10	0	50	0
4 01	01501900100000	COOSA COUNTY SCHOOL DISTRICT	01037	384	10760	03	0100900	09	1349	12386	701	412	107	5	0	32	0
5 01	01502000100000	ANDALUSIA CITY SCHOOL DISTRICT	01039	N	N	03	0100060	09	1678	15542	494	441	114	10	0	58	0
6 01	01502000200000	COVINGTON COUNTY SCHOOL DISTRICT	01039	N	N	03	0100930	09	3094	29749	821	770	207	664	4	91	0
7 01	01502000400000	GPP CITY SCHOOL DISTRICT	01039	N	N	03	0102610	09	1393	12693	310	316	88	6	0	21	0
8 01	01502100100000	CRENSHAM COUNTY SCHOOL DISTRICT	01041	N	N	03	0100960	09	2497	21974	811	477	170	384	0	49	0
9 01	01502200100000	CULLMAN CITY SCHOOL DISTRICT	01043	142	18980	03	0100990	09	2848	26262	351	611	120	10	0	50	29
10 01	01502200200000	CULLMAN COUNTY SCHOOL DISTRICT	01043	142	18980	03	0101020	09	9937	94554	2207	2005	504	300	0	150	45

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## 5 Changing Properties of the Finance 2010 Table

### 5.1 Parts A and B

```
ttitle '*****step 5*****' skip 2
/* For part A of step 5, we will
use the varchar2(15) data type. */
ALTER table School_Finance_2010_t
modify IDCENSUS varchar2(15);

/* For part B of step 5, we will
change the name to the varchar2(6)
data type. */
ALTER table School_Finance_2010_t
modify NAME varchar2(60);
```

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```
>>Query Run In:Query Result 5
Table SCHOOL_FINANCE_2010_T altered.

Table SCHOOL_FINANCE_2010_T altered.
```

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## 6 Changing the column names, by renaming them in the Finance 2010 table

```
ttitle '*****step 6*****' skip 2
/* For step 6, we will use the rename statement to
change the column names of the 2010 table. */
ALTER table School_Finance_2010_t RENAME COLUMN NAME TO SD_NAME;
ALTER table School_Finance_2010_t RENAME COLUMN State TO STCODE;
```

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```
Table SCHOOL_FINANCE_2010_T altered.

Table SCHOOL_FINANCE_2010_T altered.
```

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## 7 Creating Tables from the functional dependencies of the 2010 Finance Table

### 7.1 Parts A - D (Each of the 4 tables are created)

```
ttitle *****step 7***** skip 2
/* For step 7, we will create each of the 4 tables below, which specifically
include the columns for each part. */

/* Part A */
CREATE table fedrev_t as (Select idcensus, stcode, (c14+ c15+ c16+ c17+ c18+ c19+ b11+ c20+ c25+ c36+ b10+ b12+
b13) as fed_rev from school_finance_2010_t);

/* Part B */
CREATE table Strev_t as(Select idcensus, stcode, (c01+ c04+ c05+ c06+ c07+ c08+ c09+ c10+ c11+ c12+ c13+ c24+ c35+ c38+
c39) as st_rev from school_finance_2010_t);

/* Part C */
CREATE table Locrev_t as(Select idcensus, stcode, (t02+ t06+ t09+ t15+ t40+ t99+ d11+ d23+ a07+ a08+ a09+ a11+ a13+
a15+ a20+ a40+ u11+ u22+ u30+ u50+ u97) as loc_rev from school_finance_2010_t);

/* Part D */
CREATE table School_t as(select idcensus, stcode, sd_name from school_finance_2010_t);
```

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Table FEDREV\_T created.

Table STREV\_T created.

Table LOCREV\_T created.

Table SCHOOL\_T created.

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## 8 Assigning Primary and Foreign Keys for the given tables

### 8.1 Parts A - D

```
/* For step 8, we will set up the primary and
foreign keys, with the following. */

/* Part A */

ALTER table State_t
ADD constraint PF_State primary key (stcode);

/* Part B */

ALTER table Fedrev_t
ADD constraint pk_fedrev primary key (idcensus);
ALTER table Strev_t
ADD constraint PK_Strev primary key (idcensus);
ALTER table Locrev_t
ADD constraint PK_Locrev primary key (idcensus);
ALTER table School_t
ADD constraint PK_School primary key (idcensus);

/* Part C */

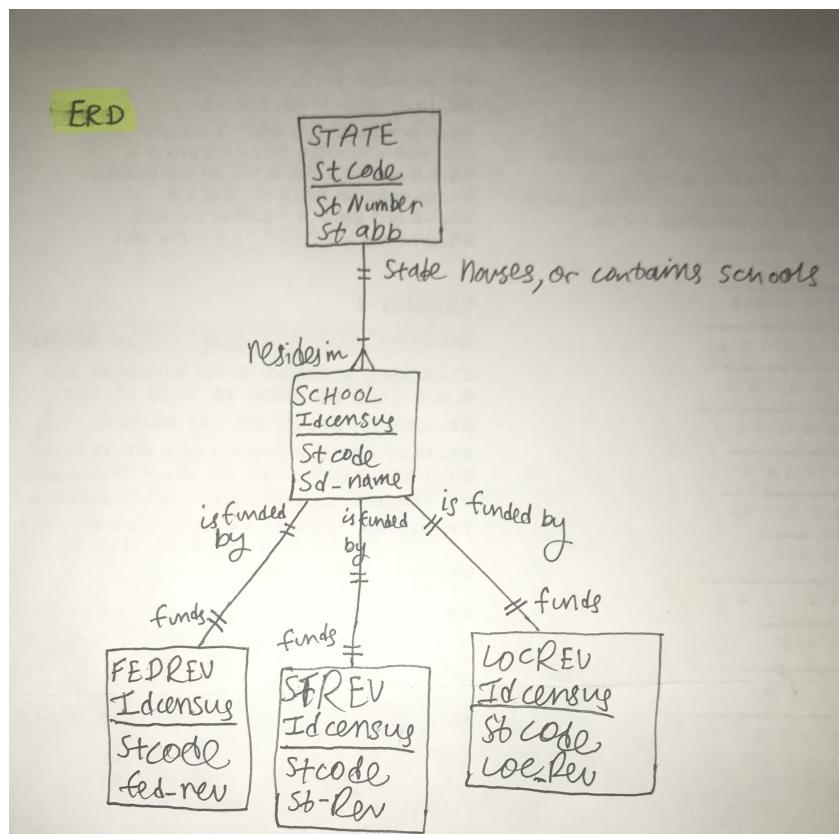
ALTER table Fedrev_t
ADD constraint FK_FedSchool foreign key (idcensus) references School_t(idcensus);
ALTER table Strev_t
ADD constraint FK_StSchool foreign key (idcensus) references School_t(idcensus);
ALTER table Locrev_t
ADD constraint FK_LocSchool foreign key (idcensus) references School_t(idcensus);

/* Part D */

ALTER table School_t
ADD constraint fk_StateSchool foreign key (stcode) references State_t[stcode];
```

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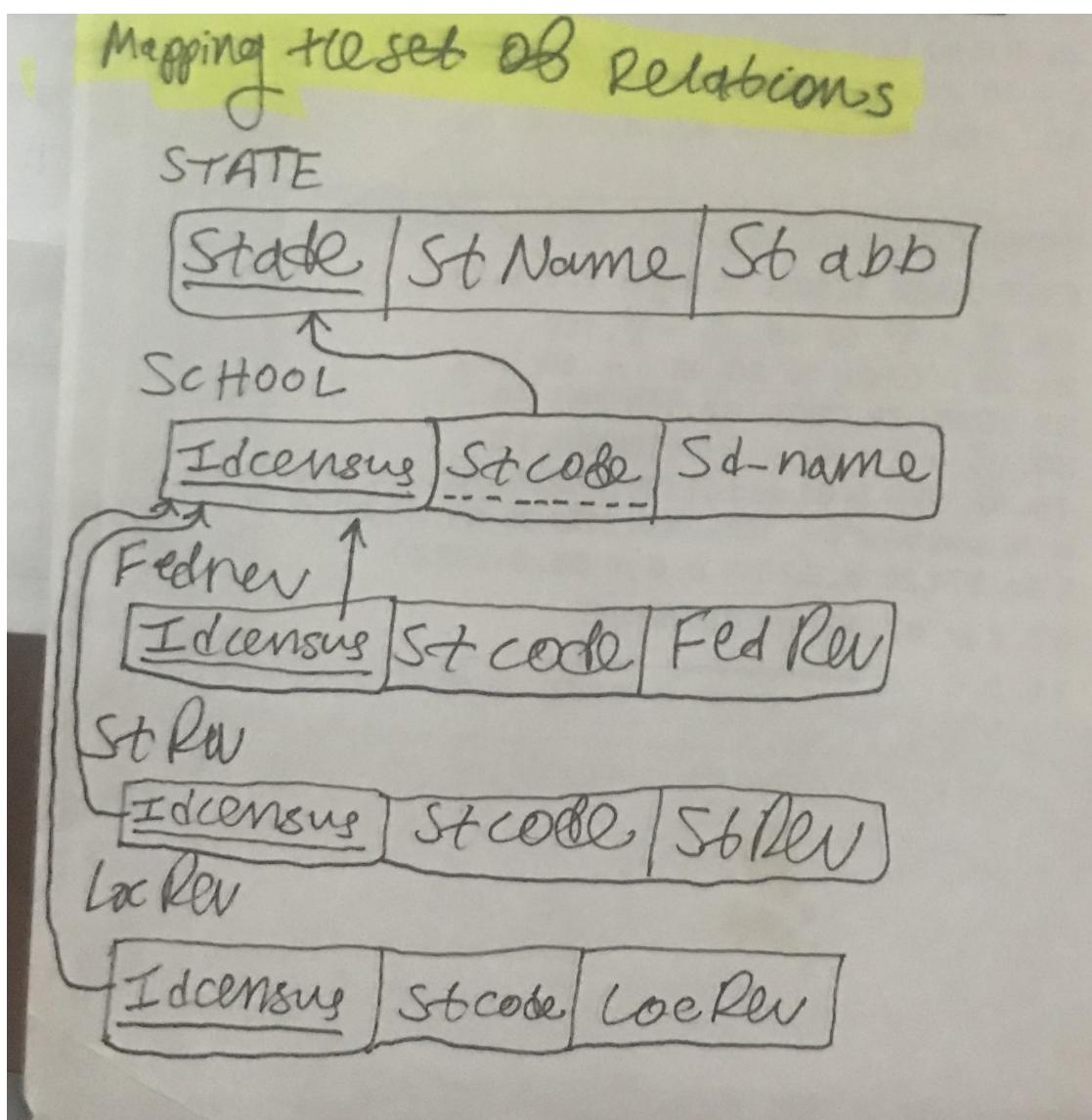
## 9 Drawing the ERD



## 9.1 ERD and Mapping Relations, Summary

- The entities in the ERD above are precisely those that we have altered in the PKs and FKs in the previous problem, demonstrating a business scenario in which the state receives different types of funding for its various education systems.
- From the cardinality of the relationships that we have indicated, we observe that any given state in the US can house several schools, and that different types of schools in a state themselves have relationships with the different funding sources that they receive from.
- From converting the ERD to relations, as shown **below**, we also observe that the state, obviously, has relations to the schools and the type of funding, whether federal, local, or from the state itself, that have relations to the schools, and state, that are indicated. Furthermore, from all of the attributes that we have listed, we have provided a thorough diagram of how we should expect the different entities for funding and school to interact with one another.

## 9.2 Converting the ERD to Relations, from the diagram above



## 10 Listing the schools districts from the federal revenue table

- We have made use of the hint with the to char function in the code below.

```

--title '*****step 10***** skip 3
/* For step 10, we will use the hint with the to_char function,
in which for the 3 given tables, we will only display the
3 columns for the federal revenue from each table. We use
the specified aliases for each of the cases. */
SELECT idcensus, stcode, to_char(fed_rev,'999999999.9') AS fed_revenue FROM Fedrev_t
WHERE fed_rev > 1000000;

SELECT idcensus, stcode, to_char(st_rev,'999999999.9') AS st_revenue FROM Strev_t
WHERE st_rev > 1000000;

SELECT idcensus, stcode, to_char(loc_rev,'999999999.9') AS loc_revenue FROM Locrev_t
WHERE loc_rev > 1000000;

```

>Query Run InQuery Result 5  
>Query Run InQuery Result 6  
>Query Run InQuery Result 7

Script Output: X | Query Result: X | Query Result: X

All Rows Fetched: 3 in 0.005 seconds

IDCENSUS	STCODE	FED_REVENUE
03501905000000 05		1427027.1
14501618000000 14		1182463.1
53203100150100 33		1617770.1

Script Output: X | Query Result: X | Query Result: X

All Rows Fetched: 7 in 0.006 seconds

IDCENSUS	STCODE	ST_REVENUE
03501905000000 05		4407786.1
14501618000000 14		1701323.1
31200000000000 12		2205032.1
21101701600100 21		1042593.1
53203100150100 33		10040719.1
23500200100000 29		1561748.1
33505100100000 39		1479741.1

Script Output: X | Query Result: X | Query Result: X

All Rows Fetched: 12 in 0.005 seconds

IDCENSUS	STCODE	LOC_REVNUDE
03501905000000 05		1061177.0
14501618000000 14		2144485.0
10500600100000 10		1421003.0
10501300100000 10		2093165.0
10504800100000 10		1063827.0
10505000100000 10		1454049.0
21101601550100 21		1814037.0
33203100150100 33		9307205.0
34108200230100 34		1139454.0
29500200100000 29		1331875.0
44510101100000 44		1301088.0
47103003150100 47		1815350.0

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## 11 Creating an Oracle View sd v AND Sorting, and Finding, the highest local, state and federal revenue

### 11.1 Parts A and B

```
title '*****step 11***** skip 1
/* For step 11, we will first create the view below. */
CREATE view sdj_y AS(select sccode, Count(Unique(SD_name)) AS SD# from school_finance_2010_p
GROUP BY sccode
```

**New SBI V created.**

```
SELECT c.statecode, t.state, v.edit FROM edit_v t INNER JOIN state_c c ON v.statecode = c.statecode  
WHERE v.edit = (SELECT MAX(edit) FROM edit_v);
```

STCODE	STABIS	SD#
105	GB	1063

```
Select v.statecode, t.statecode, v.state FROM state_v v INNER JOIN state_t t ON v.statecode = t.statecode  
WHERE t.state = (SELECT statecode FROM state_v);
```

```
title "step 12" skip 2
/* For step 12, we will save the results, by state, for
```

STCODE	STABN	SD#
1 06	DC	1
2 12	HT	1

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- To answer this question, we refer to the tables above, which have the specified columns that we want to output. We can directly read off the states that have received more than the amount of money, 100K, which gives the states that we want.

**12 Determining the school districts who receive more than 1000000 K from state or local resources**

- We have included processing from both SQL and SAS in Step 12.

## 12.1 Part A: SQL, Part B: SAS Merging, Part C: SQL

```
ttitle '*****step 1*****' skip 2
/* For step 12, we will sort the results, by state, for
the highest local, state and federal revenues. */

/* Part A */
CREATE view mfr_v AS(Select stocode, max(fed_rev) AS MAX_FED_REV from fedrev_t
group by stocode)
order by stocode;

CREATE view nar_v AS(Select stocode, max(st_rev) AS MAX_ST_REV from strev_t
group by stocode)
order by stocode;

CREATE view mlr_v AS(Select stocode, max(loc_rev) AS MAX_LOC_REV from locrev_t
group by stocode)
order by stocode;
```

View MFR\_V created.

View NAR\_V created.

View MLR\_V created.

```
24   data myoracle.mfslr_t;
25     MERGE myoracle.mfr_v myoracle.nar_v myoracle.mlrv_y;
26     BY stocode;
27   run;

NOTE: SAS variable labels, formats, and lengths are not written to DBMS tables.
NOTE: There were 51 observations read from the data set MYORACLE.MFR_V.
NOTE: There were 51 observations read from the data set MYORACLE.NAR_V.
NOTE: There were 51 observations read from the data set MYORACLE.MLR_V.
NOTE: The data set MYORACLE.MFSLR_T has 51 observations and 4 variables.
NOTE: Data statement used (Total process time):
      real time          0.85 seconds
      cpu time           0.14 seconds
```

```
data myoracle.mfslr_t;
  MERGE myoracle.mfr_v myoracle.nar_v myoracle.mlrv_y;
  BY stocode;
run;
```

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STCODE	MAX_FED_REV	MAX_ST_REV	MAX_LOC_REV
1 01	76629.0	348746.0	156845.0
2 02	65715.0	364905.0	139037.0
3 03	60749.0	388647.0	366062.0
4 04	80495.0	241971.0	53133.0
5 05	3427027.0	6407786.0	1601177.0
6 06	86261.0	361080.0	630652.0
7 07	43719.0	382542.0	239886.0
8 08	15657.0	327329.0	131719.0
9 09	75856.0	,0	725152.0
10 10	456565.0	962832.0	2093165.0
11 11	112405.0	695935.0	659176.0
12 12	390837.0	3205938.0	91089.0
13 13	19529.0	179721.0	95043.0
14 14	1182405.0	1701325.0	2144435.0
15 15	97300.0	362874.0	132809.0
16 16	48929.0	192816.0	161284.0
17 17	58211.0	360830.0	159446.0
18 18	119409.0	457431.0	515283.0
19 19	199469.0	285926.0	936168.0
20 20	10788.0	34740.0	72099.0
21 21	153921.0	1062595.0	1014037.0
22 22	118789.0	369136.0	860047.0
23 23	249065.0	781878.0	813482.0
24 24	64375.0	409775.0	165174.0
25 25	45573.0	137146.0	35525.0
26 26	84788.0	144918.0	211382.0
27 27	11107.0	43438.0	31909.0
28 28	74600.0	216848.0	259003.0
29 29	186412.0	1561246.0	1330679.0
30 30	31546.0	74532.0	76726.0
31 31	78379.0	936843.0	176654.0
32 32	108711.0	743864.0	182418.0
33 33	1817770.0	10040718.0	9307206.0
34 34	113623.0	728334.0	1139634.0
35 35	12741.0	41410.0	75564.0
36 36	128897.0	584610.0	448072.0
37 37	73010.0	180640.0	159788.0
38 38	75690.0	239709.0	265384.0
39 39	326710.0	1479741.0	564614.0
40 40	66806.0	219382.0	134871.0
41 41	63278.0	341665.0	818997.0
42 42	39904.0	60157.0	110699.0
43 43	150235.0	447301.0	495361.0
44 44	288212.0	509180.0	1501088.0
45 45	70568.0	315917.0	245224.0
46 46	7867.0	47205.0	12953.0
47 47	94869.0	461633.0	1815250.0
48 48	67909.0	302756.0	295896.0
49 49	37905.0	171375.0	110425.0
50 50	187789.0	431991.0	820482.0
51 51	18098.0	215196.0	139112.0

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### 13 Sorting the revenue in decreasing order from the federal revenue of school districts in the state that received the highest federal revenue

```
title *****step 13***** skip 2
/* For step 13, we will sort the output from the
previous question in descending order, in which we
have listed the highest federal revenue. */
SELECT ab.state_code as state_code, ab.state_name, ab.max_fed_rev, cd.sd_name from (Select v.*, s.state_name AS State_Name from mfsalr_t v
INNER join State_t s on s.statecode = v.statecode) ab
INNER join (select qr.*, sf.sd_name from (select f.*, l.idcensus from mfr_v f inner join fedrev_t l on f.statecode = l.statecode
WHERE (l.statecode = f.statecode and f.max_fed_rev = l.fed_rev) qr inner join school_finance_2010_t sf on
qr.idcensus = sf.idcensus) cd on (ab.statecode = cd.statecode and ab.max_fed_rev = cd.max_fed_rev) order by max_fed_rev desc;
```

Script Output x | Query Result x | Query Result 5 x | Query Result 6 x | Query Result 7 x | Query Result 8 x

SQL | Fetched 50 rows in 0.086 seconds

STATE_CODE	STATE_NAME	MAX_FED_REV	SD_NAME
1 33	New York	1817770	NEW YORK CITY SCHOOL DISTRICT
2 05	California	1427027	LOS ANGELES UNIF SCH DIST
3 14	Illinois	1182403	CITY OF CHICAGO SCHOOL DISTRICT 299
4 10	Florida	455555	MIAMI-DADE COUNTY PUBLIC SCHOOL DIS
5 12	Hawaii	392837	HAWAII PUBLIC SCHOOLS
6 39	Pennsylvania	326710	PHILADELPHIA SCHOOL DISTRICT
7 44	Texas	288212	HOUSTON IND SCH DIST 912
8 50	Wisconsin	287789	MILWAUKEE CITY SCHOOL DISTRICT
9 29	Nevada	286412	CLARK COUNTY SCHOOL DISTRICT
10 23	Michigan	249063	DETROIT PUBLIC SCHOOL DISTRICT
11 19	Louisiana	199469	RECOVERY SCHOOL DISTRICT
12 21	Maryland	152921	BALTIMORE CITY SCHOOLS
13 43	Tennessee	150238	MEMPHIS CITY SCHS
14 36	Ohio	128877	CLEVELAND CITY SCH DIST
15 18	Kentucky	119409	JEFFERSON CO SCHOOL DISTRICT
16 22	Massachusetts	118739	BOSTON CITY SCH
17 34	North Carolina	113623	CHARLOTTE-MECKLENBURG SCHOOLS
18 11	Georgia	112405	DEKALB CO SCH DIST
19 32	New Mexico	103711	ALBUQUERQUE SCH DIST
20 15	Indiana	97388	INDIANAPOLIS PUBLIC SCHOOLS
21 47	Virginia	94869	FAIRFAX CO SCHS
22 06	Colorado	88281	DENVER SCH DIST 1
23 31	New Jersey	78379	NEWARK CITY PUBLIC SCHOOLS
24 01	Alabama	76629	MOBILE COUNTY SCHOOL DISTRICT
25 09	District of Columbia	75856	DC PUBLIC SCHOOLS
26 38	Oregon	75690	PORTLAND SCH DIST 1J
27 28	Nebraska	74603	OMAHA CITY SCH DIST 1
28 37	Oklahoma	73010	OKLAHOMA CITY SCH DIST 89

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28	37	Oklahoma	73010 OKLAHOMA CITY SCH DIST 89
29	45	Utah	70568 JORDAN SCH DIST
30	48	Washington	67989 SEATTLE SCH DIST 1
31	40	Rhode Island	66506 PROVIDENCE CITY SCHS
32	02	Alaska	65775 ANCHORAGE SCHOOL DISTRICT
33	24	Minnesota	64173 MINNEAPOLIS SPECIAL SCHOOL DISTRICT
34	41	South Carolina	63278 GREENVILLE COUNTY SCHOOL DISTRICT
35	03	Arizona	60749 TUCSON UNIFIED SCHOOL DISTRICT 1
36	17	Kansas	58211 WICHITA UNIFIED SCHOOL DISTRICT 259
37	26	Missouri	56736 ST LOUIS CITY BD OF EDUCATION
38	16	Iowa	44929 DES MOINES INDEPENDENT COMMUNITY SC
39	07	Connecticut	44779 HARTFORD PUBLIC SCHOOLS
40	25	Mississippi	42573 JACKSON MUN SEP SCH DIST
41	49	West Virginia	37905 KANAWHA CO SCHOOL DISTRICT
42	04	Arkansas	30493 LITTLE ROCK SCH DISTRICT
43	42	South Dakota	23934 SIOUX FALLS SCHOOL DISTRICT 49-5
44	30	New Hampshire	21346 MANCHESTER CITY SCHOOL DISTRICT
45	08	Delaware	18657 CHRISTINA SCHOOL DISTRICT
46	13	Idaho	17528 BOISE CITY IND SCHOOL DISTRICT 1
47	51	Wyoming	15098 NATRONA CO SCH DIST 1
48	35	North Dakota	12741 BELCOURT SCH DISTRICT 7
49	27	Montana	11107 BROWNING ELEM SCH DIST 9
50	20	Maine	10786 PORTLAND CITY SCHOOLS
51	46	Vermont	7867 BURLINGTON CITY SCHS

(67).png

## 14 Creating the total Rev view

```
ttitle '*****step 14*****' skip 2
/* For step 14, we have created the given view below,
by making use of a select statement to include
all of the necessary variables. */
CREATE view Total_Rev_v AS (
SELECT f.idcensus, f.wtcode, f.fed_rev AS tfedrev, s.st_rev AS tatrev, l.loc_rev AS tlcrev From
fedrev_t f inner join strev_t s ON f.idcensus = s.idcensus inner join locrev_t l ON f.idcensus = l.idcensus
);
```

View TOTAL\_REV\_V created.

(68).png

## 15 Calculating the total revenues from the Rev view

```

ttitle *****step 15***** skip 2
/* For step 15, we calculate the total revenue with the given alias. */
SELECT * from (SELECT trv.stcode, s.stname, trv.idcensus,
to_char(trv.tfedrev+trv.tstrev+trv.tlocrev, '999999999.9') AS total_revenue, sf.sd_name
FROM Total_Rev_v trv inner join State_t s on trv.stcode = s.stcode
INNER join school_finance_2010_t sf on trv.idcensus = sf.idcensus
ORDER by total_revenue desc) where rownum <= 100;

```

Script Output x | Query Result x | Query Result 5 x | Query Result 6 x | Query Result 7 x | Query Result 8 x

SQL | Fetched 50 rows in 0.642 seconds

STCODE	STNAME	IDCENSUS	TOTAL_REVENUE	SD_NAME
1 33	New York	33203100130100	21165693.0	NEW YORK CITY SCHOOL DISTRICT
2 05	California	05501905900000	9695990.0	LOS ANGELES UNIF SCH DIST
3 14	Illinois	14501615800000	5028161.0	CITY OF CHICAGO SCHOOL DISTRICT 299
4 10	Florida	10501300100000	3531152.0	MIAMI-DADE COUNTY PUBLIC SCHOOL DIS
5 29	Nevada	29500200100000	3179037.0	CLARK COUNTY SCHOOL DISTRICT
6 12	Hawaii	12000000030000	2689758.0	HAWAII PUBLIC SCHOOLS
7 39	Pennsylvania	39505100100000	2671065.0	PHILADELPHIA SCHOOL DISTRICT
8 10	Florida	10500600100000	2513314.0	BROWARD COUNTY SCHOOL DISTRICT
9 21	Maryland	21101601530100	2508088.0	MONTGOMERY CO SCH
10 47	Virginia	47103003030100	2371152.0	FAIRFAX CO SCHS
11 44	Texas	44510101100000	2098480.0	HOUSTON IND SCH DIST 912
12 34	North Carolina	34109209230100	1945241.0	WAKE COUNTY SCHOOLS
13 10	Florida	10505000100000	1944936.0	PALM BEACH COUNTY SCHOOL DISTRICT
14 21	Maryland	21101701630100	1914801.0	PRINCE GEORGES CO SCHS
15 10	Florida	10502900100000	1905911.0	HILLSBOROUGH COUNTY SCHOOL DISTRICT
16 10	Florida	10504800100000	1810528.0	ORANGE COUNTY SCHOOL DISTRICT
17 34	North Carolina	34106006030100	1699290.0	CHARLOTTE-MECKLENBURG SCHOOLS
18 11	Georgia	11506700200000	1666446.0	GWINNETT CO SCH DIST
19 44	Texas	44505700500000	1615590.0	DALLAS IND SCH DISTRICT 905
20 05	California	05503703900000	1511821.0	SAN DIEGO CITY UNIF SCH DIST
21 21	Maryland	21100300330100	1482453.0	BALTIMORE COUNTY SCHOOLS
22 21	Maryland	21200400130100	1382981.0	BALTIMORE CITY SCHOOLS
23 23	Michigan	23508201400000	1294223.0	DETROIT PUBLIC SCHOOL DISTRICT
24 50	Wisconsin	50504102900000	1240232.0	MILWAUKEE CITY SCHOOL DISTRICT
25 22	Massachusetts	22201300130100	1232829.0	BOSTON CITY SCH
26 11	Georgia	11504400200000	1168643.0	DEKALB CO SCH DIST
27 10	Florida	10501600100000	1148276.0	DUVAL COUNTY SCHOOL DISTRICT
28 31	New Jersey	31000000030200	1136008.0	NEWARK CITY PUBLIC SCHOOLS

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30	18	Kentucky	18505600200000	1095123.0	JEFFERSON CO SCHOOL DISTRICT
31	10	Florida	10505200100000	1068296.0	PINELLAS COUNTY SCHOOL DISTRICT
32	44	Texas	44522700100000	1067343.0	AUSTIN IND SCH DIST 901
33	43	Tennessee	43207900530100	1045848.0	MEMPHIS CITY SCHS
34	11	Georgia	11506000200000	1043327.0	FULTON CO SCHOOL DIST
35	21	Maryland	21100200230100	1031083.0	ANNE ARUNDEL CO SCHS
36	32	New Mexico	32500100100000	1029988.0	ALBUQUERQUE SCH DIST
37	05	California	05101901930200	986677.0	LOS ANGELES CO OFF OF EDUCATION
38	47	Virginia	47107607630100	934669.0	PRINCE WILLIAM CO SCHS
39	10	Florida	10505300100000	915097.0	POLK COUNTY SCHOOL DISTRICT
40	36	Ohio	36501800900000	912022.0	CLEVELAND CITY SCH DIST
41	05	California	05501905800000	906642.0	LONG BEACH UNI SCH DIST
42	36	Ohio	36502500300000	894781.0	COLUMBUS CITY SCH DIST
43	06	Colorado	06501600100000	879654.0	DENVER SCH DIST 1
44	33	New York	33201500530100	867122.0	BUFFALO CITY SCH DIST
45	44	Texas	44510100600000	860846.0	CYPRESS-FAIRBANKS IND SCHOOL DISTRI
46	10	Florida	10503600100000	858184.0	LEE COUNTY SCHOOL DISTRICT
47	11	Georgia	11506000100000	857196.0	ATLANTA PUBLIC SCHOOLS
48	06	Colorado	06503000100000	853041.0	JEFFERSON CO SCH DIST R-1
49	05	California	05501003900000	835948.0	FRESNO UNIFIED SCH DIST
50	21	Maryland	21101401330100	835108.0	HOWARD COUNTY SCHOOLS
51	47	Virginia	47213200130100	830709.0	VIRGINIA BEACH CITY SCHS
52	44	Texas	44501501000000	814677.0	NORTHSIDE IND SCH DIST 915
53	09	District of...	09200100130100	801008.0	DC PUBLIC SCHOOLS

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54	47	Virginia	47105405430100	799102.0	LOUDOUN CO SCHS
55	44	Texas	44522001300000	769865.0	FORT WORTH IND SCH DIST 905
56	34	North Carolina	34104104130300	745883.0	GUILFORD COUNTY SCH
57	43	Tennessee	43201900330100	740320.0	NASHVILLE DAVIDSON CO SCHOOLS
58	05	California	05503800100000	723906.0	SAN FRANCISCO UNIF SCH DIST
59	33	New York	33202800830100	696954.0	ROCHESTER CITY SCH DIST
60	41	South Carolina	41502300100000	687992.0	GREENVILLE COUNTY SCHOOL DISTRICT
61	10	Florida	10500500100000	675705.0	BREVARD COUNTY SCHOOL DISTRICT
62	31	New Jersey	31000000030100	673220.0	JERSEY CITY SCHOOL DISTRICT
63	48	Washington	48501701700000	666643.0	SEATTLE SCH DIST 1
64	44	Texas	44501500900000	655626.0	NORTH EAST IND SCH DIST 910
65	02	Alaska	02200200130100	649717.0	ANCHORAGE SCHOOL DISTRICT
66	29	Nevada	29501600100000	647707.0	WASHOE COUNTY SCHOOL DISTRICT
67	05	California	05503604900000	647553.0	SAN BERNARDINO CITY UNIF SCHOOL DIS
68	10	Florida	10505100100000	647083.0	PASCO COUNTY SCHOOL BOARD
69	47	Virginia	47102102130100	638573.0	CHESTERFIELD CO SCHS
70	44	Texas	44504301800000	637364.0	PLANO IND SCH DIST 910
71	45	Utah	45501800200000	631709.0	JORDAN SCH DIST
72	10	Florida	10506400100000	627597.0	VOLUSIA COUNTY SCHOOL DISTRICT
73	36	Ohio	36503100300000	619978.0	CINCINNATI CITY SCH DIST
74	39	Pennsylvania	39500207800000	616843.0	PITTSBURGH CITY SCH DIST
75	03	Arizona	03500702700000	611366.0	MESA UNIFIED SCHOOL DISTRICT
76	24	Minnesota	24502703100000	609475.0	MINNEAPOLIS SPECIAL SCHOOL DISTRICT
77	21	Maryland	21101101030100	608295.0	FREDERICK CO SCHOOLS
78	05	California	05503050100000	608210.0	SANTA ANA UNI SCH DIST

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77	21	Maryland	21101101030100	608295.0	FREDERICK CO SCHOOLS
78	05	California	05503050100000	608210.0	SANTA ANA UNI SCH DIST
79	44	Texas	44507170100000	607374.0	EL PASO IND SCH DIST 902
80	21	Maryland	21101301230100	603562.0	HARFORD CO SCH
81	24	Minnesota	24506270100000	596664.0	ST PAUL INDEPENDENT SCHOOL DIST 625
82	44	Texas	44507900600000	594526.0	FORT BEND IND SCH DISTRICT 907
83	44	Texas	44510100200000	586222.0	ALDINE IND SCH DISTRICT 902
84	05	California	05503401400000	585025.0	ELK GROVE UNIFIED SCHOOL DISTRICT
85	17	Kansas	17508703700000	583235.0	WICHITA UNIFIED SCHOOL DISTRICT 259
86	15	Indiana	15504900500000	582250.0	INDIANAPOLIS PUBLIC SCHOOLS
87	10	Florida	10505900100000	580536.0	SEMINOLE COUNTY SCHOOL DISTRICT
88	01	Alabama	01504900100000	580220.0	MOBILE COUNTY SCHOOL DISTRICT
89	19	Louisiana	19501700100000	576623.0	EAST BATON ROUGE SCHOOL DISTRICT
90	31	New Jersey	31000000030000	574682.0	PATERSON CITY SCHOOL DISTRICT
91	34	North Carolina	34103403430100	573416.0	FORSYTH CO-WINSTON SALEM SCHOOLS
92	06	Colorado	06501850100000	568232.0	DOUGLAS CO SCH DIST RE 1
93	05	California	05500102700000	552600.0	OAKLAND UNIF SCH DIST
94	28	Nebraska	28502804200000	550528.0	OMAHA CITY SCH DIST 1
95	44	Texas	44501501300000	550221.0	SAN ANTONIO IND SCH DIST 907
96	44	Texas	44522000100000	549822.0	ARLINGTON INDEPENDENT SCHOOL
97	10	Florida	10501100100000	548305.0	COLLIER COUNTY SCHOOL DISTRICT
98	11	Georgia	11503100100000	543400.0	CLAYTON CO SCH DIST
99	05	California	05503403500000	542503.0	SACRAMENTO CITY UNIF SCH DIST
100	34	North Carolina	34109009030200	541444.0	UNION CO SCHOOLS

(72).png

## 16 Total expenditure of school districts (TOTALEXP) for each state, in descending order

Script Output			Query Result	Query Result 5	Query Result 6	Query Result 7	Query Result 8	Query Result 9
STCODE	STNAME	STEXP						
1 05	California	74766086						
2 33	New York	57851481						
3 44	Texas	53575273						
4 10	Florida	28867429						
5 14	Illinois	27716187						
6 39	Pennsylvania	27328680						
7 31	New Jersey	26145334						
8 36	Ohio	22427481						
9 23	Michigan	19992550						
10 11	Georgia	19025136						
11 47	Virginia	15510318						
12 22	Massachusetts	15174814						
13 34	North Carolina	14868070						
14 21	Maryland	12757599						
15 48	Washington	12240632						
16 15	Indiana	11218398						
17 24	Minnesota	11193640						
18 50	Wisconsin	10880480						
19 26	Missouri	10227305						
20 03	Arizona	9580393						
21 07	Connecticut	9323053						
22 06	Colorado	8682489						
23 43	Tennessee	8611178						
24 41	South Carolina	8427391						
25 19	Louisiana	8053960						
26 01	Alabama	7815467						
27 18	Kentucky	6831006						
28 38	Oregon	6715011						
29 37	Oklahoma	5941799						
30 17	Kansas	5827751						

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31	16	Iowa	5732186
32	04	Arkansas	5017352
33	29	Nevada	4577881
34	25	Mississippi	4552756
35	45	Utah	4419750
36	32	New Mexico	3945515
37	28	Nebraska	3523803
38	49	West Virginia	3121728
39	30	New Hampshire	2757401
40	20	Maine	2624504
41	02	Alaska	2396412
42	12	Hawaii	2318671
43	40	Rhode Island	2171376
44	13	Idaho	2078446
45	08	Delaware	1798244
46	46	Vermont	1661019
47	51	Wyoming	1658156
48	27	Montana	1622485
49	42	South Dakota	1273527
50	35	North Dakota	1137260
51	09	District of...	805362

(74).png

## 17 calculating the total amount of money spend on the public school systems

My apologies, the image is a bit blurry but the output is still in my SQL output txt.

- The SQL output below gives the total amount of money that the US spend on public school systems in 2010, from the final project dataset.

```
title *****step 17***** skip 3
/* For step 17, we display the total amount that the US
spent on public school systems in 2010. */
SET heading off;
SELECT CONCAT('The total amount that the United States spent on the public school systems in 2010 was $',
    TO_CHAR(SUM(sf.totalexp), '9999999.9'), ' K.')
FROM SCBOOG_FINANCE_2010 sf;
SET heading on;
```

```
⑤ CONCAT(CONCAT('THE TOTAL AMOUNT THAT THE UNITED STATES SPENT ON THE PUBLIC SCHOOL SYSTEMS IN 2010 WAS $',TO_CHAR(SUM(sf.totalexp), '9999999.9'), ' K.'))
| The total amount that the United States spent on the public school systems in 2010 was $ 616770225.0 K.
```

## 18 Creating 3 views from the federal, state and local revenues

### 18.1 Parts A: fed contribution v

```
CREATE view fed_contribution_v AS(
SELECT f.idcensus, f.stcode, sf.sd_name,
CAST(f.fed_rev/sf.totalexp as decimal(10,4)) AS fed_pcnt
from fedrev_t f inner join school_finance_2010_t sf on f.idcensus = sf.idcensus
WHERE sf.totalexp > 0
);
```

(75).png

```

SELECT * from fed_contribution_v
WHERE fed_pcnt > 1
ORDER by fed_pcnt desc;

```

(76).png

IDCENSUS	STCODE	SD_NAME	FED_PCNT
1 07500820100000 07		EASTERN CONNECTICUT REGIONAL EDUCAT	2.8197
2 14506040100000 14		COLLINSVILLE AREA VOCATIONAL CENTER	2.1736
3 14510030100000 14		WILLIAMSON COUNTY REGIONAL VOCATION	2.0879
4 14505440200000 14		LINCOLN LAND AREA VOCATIONAL CENTER	1.7805
5 03100600630100 03		GREENLEE COUNTY ACCOMODATION SCHOOL	1.5423
6 35503102800000 35		NEW TOWN SCH DIST 1	1.3756
7 07500320200000 07		EDUCATION CONNECTION	1.3463
8 46501240100000 46		BARRE SUPERVISORY UNION	1.2701
9 15506830100000 15		GREATER RANDOLPH INTERLOCAL COOPERA	1.0703
10 35505120100000 35		MINOT AFB 160 SCHOOL DISTRICT	1.0009

(77).png

## 18.2 Part B: st contribution v

```

/* Part B */
CREATE view st_contribution_v as(
SELECT f.idcensus, f.stcode, sf.sd_name, round((f.st_rev / sf.totalexp), 4) AS st_pcnt
FROM strev_t f inner join school_finance_2010_t sf on f.idcensus = sf.idcensus
WHERE sf.totalexp > 0
);

SELECT * from st_contribution_v
WHERE st_pcnt > 1
ORDER by st_pcnt desc;

```

IDCENSUS	STCODE	SD_NAME	ST_PCNT
1 27504200600000 27		BRORSON ELEM DIST 11	5.0513
2 46501200600000 46		DUXBURY CORNER SCH DIST	3.3333
3 35503510100000 35		NORTH CENTRAL AREA CAREER & TECHNIC	3.1077
4 07500620300000 07		LEARN	2.9424
5 07500320200000 07		EDUCATION CONNECTION	2.2392
6 27504240330200 27		SAVAGE H S DIST 2	2.1744
7 27501340100000 27		BAKER K-12 SCHOOL DISTRICT	2.1178
8 36507802600000 36		SOUTHINGTON LOCAL SCHOOL DIST	1.7624
9 07500220100000 07		CAPITOL REGION EDUCATION COUNCIL	1.6705
10 05502990100000 05		TWIN RIDGES ELEM SCH DIST	1.6378
11 36507901500000 36		STRASBURG FRANKLIN SCH DIST	1.5674
12 48500401200000 48		STEHEKIN SCH DIST 69	1.555
13 07500820100000 07		EASTERN CONNECTICUT REGIONAL EDUCAT	1.4817
14 27504240230100 27		LAMBERT ELEM SCH DIST 86	1.4236
15 27504240230200 27		LAMBERT H S DIST 4	1.4139
16 05503603800000 05		NEEDLES UNIF SCH DIST	1.4016
17 15304601630100 15		PRAIRIE TOWNSHIP SCHOOLS	1.3965
18 05505402700000 05		LINDSAY UNIFIED SCH DIST	1.3847
19 27504640400000 27		WESTBY K-12 SCHOOL DISTRICT	1.3806
20 36507800400000 36		BROOKFIELD LOCAL SCH DIST	1.3293

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21	46501002000000	46	WESTMORE TOWN SCH DIST	1.3212
22	07500520100000	07	AREA COOPERATIVE EDUCATIONAL SERVIC	1.3144
23	46500800100000	46	BELVIDERE CENTRAL TOWN SCH DT	1.3052
24	44519800700000	44	MUMFORD IND SCH DIST 906	1.292
25	36503300500000	36	HARDIN NORTHERN SCH DIST	1.2601
26	05502701900000	05	MISSION UNION ELEM SCHOOL DIST	1.2599
27	46500530100000	46	FERDINAND SCHOOL DISTRICT	1.25
28	46500201100000	46	RUPERT TOWN SCH DIST	1.2409
29	46500500900000	46	LEMINGTON TOWN SCH DIST	1.2368
30	46500201200000	46	SANDGATE TOWN SCH DIST	1.2267
31	05505403200000	05	MONSON SULTANA JT UNION ELEM SCHOOL	1.2255
32	44522900500000	44	SPURGER IND SCH DIST 905	1.2126
33	03100700730300	03	MARICOPA COUNTY REGIONAL SCHOOL DIS	1.2061
34	48500700400000	48	STARBUCK SCH DIST 35	1.1951
35	07300801130100	07	SCOTLAND TOWN SCHOOLS	1.1894
36	46500230100000	46	GLASTENBURY SCHOOL DISTRICT	1.1786
37	38501301500000	38	PINE CREEK SCH DIST 5	1.1711

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38	46501490200000	46	CHESTER TOWN SCHOOL DIST	1.1563
39	46500201400000	46	SHAFTSBURY TOWN SCH DIST	1.1512
40	05501030200000	05	CENTRAL VALLEY PRE-SCHOOL JPA	1.1451
41	46501001700000	46	NEWPORT TOWN SCH DIST	1.1418
42	36505500600000	36	NEWTON LOCAL SCH DIST	1.1375
43	13504201000000	13	THREE CREEK JOINT ELEMENTARY SCHOOL	1.1215
44	27501340200000	27	PLEVNA K-12 SCHOOL DISTRICT	1.1207
45	27503640230200	27	SACO H S DIST NO B	1.1167
46	46500200900000	46	POWNAL TOWN SCH DIST	1.1095
47	46501101600000	46	PITTSFIELD TOWN SCH DIST	1.0999
48	46500100200000	46	ADDISON TOWN SCH DIST	1.0981
49	48500100100000	48	BENGE SCH DIST 122	1.0925
50	46501100900000	46	HUBBARDTON TOWN SCH DIST	1.0901
51	46501401400000	46	PLYMOUTH TOWN SCH DIST	1.0888
52	36505001100000	36	SOUTH RANGE LOCAL SCHOOL DISTRICT	1.0844
53	05502001000000	05	CHOWCHILLA UNION HIGH SCHOOL DISTRI	1.0829
54	46500100700000	46	GOSHEN TOWN SCH DIST	1.0807
55	05505000700000	05	GRATTON ELEM SCH DIST	1.0801

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56	46501300400000	46	DOVER TOWN SCH DIST	1.0698
57	05501001900000	05	CHAWANAKEE JOINT UNIFIED SCHOOL DIS	1.0665
58	46500301300000	46	STANNARD TOWN SCH DIST	1.0617
59	05501203200000	05	JACOBY CREEK ELEM SCH DIST	1.0612
60	46500300600000	46	KIRBY TOWN SCH DIST	1.0601
61	46501350100000	46	BRATTLEBORO HIGH SCH DIST 6	1.058
62	46501101400000	46	MT TABOR TOWN SCH DIST	1.0577
63	46501101000000	46	IRA SCHOOL DISTRICT	1.0569
64	46500500600000	46	EAST HAVEN TOWN SCH DIST	1.0549
65	46500200100000	46	BENNINGTON INC SCH DIST	1.0548
66	46500601000000	46	MONTGOMERY TOWN SCH DIST	1.0542
67	46501302200000	46	WINDHAM TOWN SCH DIST	1.0542
68	36500601000000	36	ST MARYS CITY SCH DIST	1.0524
69	38501300700000	38	DOUBLE O SCH DIST 28	1.0519
70	46501390100000	46	BELLOWS FALLS UNION HIGH SCHOOL DIS	1.0517
71	46501102600000	46	WELLS VILLAGE SCH DIST	1.0516
72	36506002100000	36	ZANESVILLE CITY SCH DIST	1.0499

(81).png

73	46501102400000	46	TINMOUTH CENTER SCH DIST	1.0487	
74	46501301500000	46	STRATTON TOWN SCH DIST	1.0453	
75	46500150300000	46	VERGENNES UNION HI SCH DIST 5	1.0448	
76	46500500100000	46	BLOOMFIELD TOWN SCH DIST	1.0435	
77	05505201000000	05	KIRKWOOD ELEM SCH DIST	1.0434	
78	46501000600000	46	COVENTRY VILLAGE SCH DIST	1.0401	
79	46501400800000	46	CAVENDISH TOWN SCH DIST	1.0397	
80	36507200100000	36	CLYDE-GREEN SPRINGS EXMPT VILLGE SC	1.0373	
81	46501001300000	46	JAY VILLAGE SCH DIST	1.0366	
82	05501206000000	05	TRINIDAD UNION ELEM SCH DIST	1.0365	
83	46501402300000	46	WESTON TOWN SCH DIST	1.0365	
84	46501401300000	46	NORWICH TOWN SCH DIST	1.0338	
85	36501100200000	36	GRAHAM LOCAL SCH DIST	1.029	
86	46501400500000	46	BARNARD CENTRAL SCH DIST	1.0272	
87	46501101200000	46	MIDDLETOWN SPRG VILLAGE SCH DIST	1.0268	
(82).png	88	46501201500000	46	ROXBURY VILLAGE SCH DIST	1.0238

IDCENSUS	STCODE	SD_NAME	ST_PCNT		
88	46501201500000	46	ROXBURY VILLAGE SCH DIST	1.0238	
89	46500101200000	46	MONKTON TOWN SCH DIST	1.02	
90	36503102000000	36	NORTH COLLEGE HILL CITY SCHOOL DIST	1.0198	
91	46500600800000	46	GEORGIA TOWN SCH DIST	1.0195	
92	46500960100000	46	UNION SCHOOL DIST 36	1.0175	
93	46500101800000	46	SHOREHAM TOWN SCH DIST	1.016	
94	46500380200000	46	MILLERS RUN UNION SCH DIST 37	1.0132	
95	46500150200000	46	MIDDLEBURY UNION HIGH SCH DISTRICT	1.013	
96	27503640230100	27	SACO ELEMENTARY SCHOOL DIST 12A	1.013	
97	07500120100000	07	COOPERATIVE EDUCATIONAL SERVICES	1.0126	
98	46501400400000	46	BALTIMORE TOWN SCH DIST	1.0119	
99	27500301300000	27	BEAR PAW ELEM DIST 67	1.011	
100	46500280100000	46	MT ANTHONY UNION HIGH SCH DIST 14	1.0096	
101	05502100600000	05	LAGUNA JT ELEM SCH DIST	1.0095	
102	27504240130200	27	FAIRVIEW H S DIST 3	1.0089	
103	46501100500000	46	CHITTENDEN TOWN SCH DIST	1.0073	
104	46500600200000	46	BAKERSFIELD TOWN SCH DIST	1.0062	
105	03500910200000	03	NORTHEAST ARIZONA TECHNOLOGICAL INS	1.0059	
106	14504101500000	14	INA COMMUNITY CONSOLIDATED SCHOOL D	1.0047	
(83).png	107	46501401500000	46	POMFRET TOWN SCH DIST	1.0034

### 18.3 Part C: loc contribution v

```

CREATE view loc_contribution_v AS(
SELECT f.idcensus, f.stcode, sf.sd_name,
cast(f.loc_rev/sf.totalexp as decimal(10,4)) AS loc_pcnt
FROM locrev_t f inner join school_finance_2010_t sf on f.idcensus = sf.idcensus
WHERE sf.totalexp > 0
);

```

(84).png

```

SELECT * from loc_contribution_v
WHERE loc_pcnt > 1
ORDER by loc_pcnt desc;

ttitle '*****step 19*****' skip 2
/* For step 19, we calculate the given
quantities, up to 4 decimal places. */

```

cript Output x | Query Result x | Query Result 5 x | Query Result 6 x | Query Result 7 x

SQL | Fetched 50 rows in 0.04 seconds

IDCENSUS	STCODE	SD_NAME	LOC_PCNT
1 05503130200000	05	SOUTHERN PLACER SCHOOLS TRANSPORTAT	11.6667
2 20301500530100	20	BEDDINGTON TOWN SCHOOLS	4.5
3 07500120100000	07	COOPERATIVE EDUCATIONAL SERVICES	3.2207
4 39500240700000	39	SOUTHEASTERN AREA SPECIAL SCHOOL	2.8885
5 07500520100000	07	AREA COOPERATIVE EDUCATIONAL SERVIC	2.7981
6 07500320200000	07	EDUCATION CONNECTION	2.614
7 07500820100000	07	EASTERN CONNECTICUT REGIONAL EDUCAT	2.513
8 03500201300000	03	FORREST SCHOOL DISTRICT 81	1.973
9 05504102200000	05	SAN BRUNO PARK ELEMENTARY SCHOOL DI	1.929
10 07500620300000	07	LEARN	1.81
11 20300401730100	20	SANDY RIVER PLANTATION SCHOOLS	1.776
12 20301003430100	20	LAKEVILLE PLANTATION SCHOOLS	1.6304
13 22301400530100	22	BERLIN TOWN SCHS	1.6257
14 20301101230100	20	LAKE VIEW PLANTATION SCHOOLS	1.6154
15 39500240600000	39	SOUTH CENTRAL AREA SPECIAL SCHOOL	1.6024
16 20301501730100	20	DEBLOIS TOWN SCHOOLS	1.569
17 20301102030100	20	WILLIMANTIC TOWN SCHOOLS	1.5631
18 05504230100000	05	SANTA BARBARA COUNTY SELPA JPA	1.5541
19 35503510100000	35	NORTH CENTRAL AREA CAREER & TECHNIC	1.5385
(85).png 20 29500600100000	29	EUREKA COUNTY SCHOOL DISTRICT	1.5096

21 07500220100000	07	CAPITOL REGION EDUCATION COUNCIL	1.4663
22 20301003830100	20	LOWELL SCHOOL DEPARTMENT	1.4336
23 23507040100000	23	OTTAWA INTERMEDIATE SCHOOL DIST	1.4281
24 44518000400000	44	WILDORADO IND SCH DIST 904	1.3873
25 05501030600000	05	CENTRAL VALLEY SUPPORT SERVICES JPA	1.3355
26 20300202330100	20	GLENWOOD PLANTATION SCHOOLS	1.3333
27 13501402700000	13	WILDER SCHOOL DISTRICT 133	1.3183
28 05501503400000	05	MCKITTRICK ELEM SCH DIST	1.3132
29 38501290100000	38	GRANT EDUCATION SERV DIST	1.3121
30 35504401600000	35	MARMARTH SCHOOL DISTRICT #12	1.3023
31 05502930200000	05	NEVADA COUNTY SCHOOL BUS AGENCY	1.3
32 14501612700000	14	RIVERSIDE SCHOOL DISTRICT 96	1.2917
33 48503920100000	48	EDUCATIONAL SERVICE DISTRICT 105	1.2712
34 44519800400000	44	FRANKLIN IND SCH DIST 903	1.2654
35 44513300200000	44	DIVIDE COMM SCH DIST 905	1.2597
36 33500400900000	33	SOUTH MOUNTAIN-HICKORY COMMON SCHO	1.2556
37 05501030500000	05	SOUTH COUNTY SUPPORT SERVICES AGENC	1.2304
38 28505203500000	28	KEYA PAHA HIGH SCH DIST 100	1.2218
39 20301180130100	20	MEDFORD TOWN SCHOOLS	1.2194
(86).png 40 14510200600000	14	METAMORA TOWNSHIP HIGH SCHOOL DISTR	1.2079

41	14504902100000	14	GRASS LAKE SCHOOL DISTRICT 36	1.2072
42	03501000500000	03	EMPIRE SCHOOL DISTRICT 37	1.2047
43	20301301630100	20	HIGHLAND PLANTATION SCHOOLS	1.1961
44	23504200300000	23	GRANT TWP SCH DIST 2	1.1867
45	20301001530100	20	DREW PLANTATION SCHOOLS	1.1786
46	50506840100000	50	LAKE COUNTRY SCHOOL DISTRICT	1.1776
47	20300401530100	20	RANGELEY PLANTATION SCHOOLS	1.1762
48	31502000600000	31	KENILWORTH BORO SCH DIST	1.1697
49	20300204930100	20	ORIENT TOWN SCHOOLS	1.1632
50	46501240600000	46	WASHINGTON NORTHEAST SUPERV UNION	1.1631
51	14509902900000	14	REED CUSTER COMMUNITY UNIT DISTRICT	1.1617
52	23501106600000	23	NEW BUFFALO SCH DIST 47	1.1614
53	46500110200000	46	GRANVILLE HANCOCK JOINT CONTRACT DI	1.1605
54	15504140100000	15	CENTRAL NINE VOCATIONAL TECHNICAL S	1.1527
55	31100800830100	31	GLOUCESTER COUNTY VOCATIONAL-TECHNI	1.1494
56	23501500400000	23	BOYNE FALLS PUB SCH DIST	1.1454
57	31501900200000	31	BRANCHVILLE SCH DIST	1.1371
58	05501920700000	05	SAN ANTONIO ROP	1.1365
59	48502920100000	48	NORTHWEST EDUCAL SERV DIST 189	1.1356
60	50506502900000	50	LINN-BLOOMFIELD JOINT SCHOOL DISTRI	1.1355

(87).png

61	31102002030300	31	UNION COUNTY VOCATIONAL TECHNICAL S	1.1324
62	23504900100000	23	BOIS BLANC PINES TWP SCH DIST 1	1.1279
63	20301300730100	20	CARATUNK SCHOOL DEPARTMENT	1.1224
64	05500120100000	05	EDEN AREA ROP	1.1217
65	50506804200000	50	STONE BANK SCHOOL DISTRICT	1.121
66	31501501700000	31	MANTOLOKING BORO SCH DIST	1.1163
67	03500770200000	03	SADDLE MOUNTAIN UNIFIED SCHOOL DIST	1.1115
68	38501130200000	38	NORTH CENTRAL EDUCATION SERVICE DIS	1.1114
69	31501303600000	31	RUMSON BORO SCH DIST	1.1106
70	15501030100000	15	WILLIAM E WILSON EDUCATION CENTER	1.1086
71	03500600400000	03	MORENI SCHOOL DISTRICT 18	1.1057
72	20300400530100	20	DALLAS PLANTATION SCHOOLS	1.1044
73	39502840100000	39	FRANKLIN LEARNING CENTER	1.1035
74	27505640400000	27	HUNTLEY PROJECT K-12 DISTRICT	1.0999
75	05503620100000	05	BALDY VIEW ROP	1.0955
76	23502101100000	23	MID PENINSULA SCHOOL	1.0953
77	14509900500000	14	CHANNAHON SCHOOL DISTRICT 17	1.0898
78	20300310130100	20	CHEBEAGUE ISLAND SCHOOL DEPARTMENT	1.0896
79	14501604600000	14	SKOKIE-FAIRVIEW SCHOOL DISTRICT 72	1.0895
80	35500401200000	35	BILLINGS SCH DIST 1	1.0866
81	27502940100000	27	ENNIS K-12 SCHOOL DISTRICT	1.0744

(88).png

82	14501604900000	14	FOREST PARK SCHOOL DISTRICT 91	1.0735
83	05504202300000	05	MONTECITO ELEM SCH DIST	1.0708
84	50506400800000	50	PHELPS SCHOOL DISTRICT	1.0692
85	14501610300000	14	OAK PARK RIVER FOREST HIGH SCHOOL D	1.0689
86	50506550200000	50	BIG FOOT HIGH SCHOOL DISTRICT	1.0677
87	06501050100000	06	CLEAR CREEK SCH DIST RE-1	1.0657
88	28503503900000	28	GARDEN CO HIGH SCH DIST 1	1.0631
89	27500540330200	27	FROMBERG HIGH SCH DIST 6	1.062
90	14504901200000	14	DEERFIELD ELEMENTARY SCHOOL DISTRIC	1.0613
91	42504902400000	42	CARTHAGE SCHOOL DISTRICT 48-2	1.0604
92	05501020200000	05	VALLEY ROP	1.0603
93	14504350100000	14	SCALES MOUND COMMUNITY UNIT SCHOOL	1.0566
94	31500500900000	31	WEST WILDWOOD BORO SCH DIST	1.056
95	22300500630100	22	GEORGETOWN TOWN SCHS	1.0558
96	20300903230100	20	UPTON TOWN SCHOOLS	1.0556
97	28500600100000	28	BOONE COUNTY SCHOOL DISTRICT 1	1.0525
98	14505602500000	14	RILEY COMMUNITY CONSOLIDATED SCHOOL	1.0521
99	31100100130200	31	ATLANTIC COUNTY SPECIAL SERVICES DI	1.051
100	06505700800000	06	TELLURIDE SCH DIST R-1	1.0506

(89).png

## 19 Creating the fsl contribution view

- From this view, we list all of the schools that received total revenues **3 times** what they spent last year, in addition to the school districts that received total revenues up to 30 percent of the total money that the schools spend in the last year.

```
title '*****step 19*****' skip 2
/* For step 19, we calculate the given
quantities, up to 4 decimal places. */
CREATE view fsl_contribution_v as
SELECT f.idcensus, f.stcode, f.sd_name, (fed_pcnt + st_pcnt + loc_pcnt) as fsl_pcnt
FROM fed_contribution_v f inner join st_contribution_v s on f.idcensus = s.idcensus
INNER join loc_contribution_v l on f.idcensus = l.idcensus
```

(90).png

```
/* Part A */
SELECT * from fsl_contribution_v
WHERE fsl_pcnt > 3
ORDER by fsl_pcnt desc;

/* Part B */
SELECT * from fsl_contribution_v
WHERE fsl_pcnt < .3
ORDER by fsl_pcnt desc;
```

Script Output x | Query Result x | Query Result 5 x | Query Result 6 x | Query Result 7  
SQL | All Rows Fetched: 13 in 0.144 seconds

IDCENSUS	STCODE	SD_NAME	FSL_PCNT
1 05503130200000 05		SOUTHERN PLACER SCHOOLS TRANSPORTAT	11.6667
2 07500820100000 07		EASTERN CONNECTICUT REGIONAL EDUCAT	6.8144
3 07500320200000 07		EDUCATION CONNECTION	6.1995
4 27504200600000 27		BRORSON ELEM DIST 11	5.3462
5 07500620300000 07		LEARN	4.9732
6 35503510100000 35		NORTH CENTRAL AREA CAREER & TECHNIC	4.6462
7 20301500530100 20		BEDDINGTON TOWN SCHOOLS	4.5
8 07500120100000 07		COOPERATIVE EDUCATIONAL SERVICES	4.4081
9 07500520100000 07		AREA COOPERATIVE EDUCATIONAL SERVIC	4.2265
10 46501200600000 46		DUXBURY CORNER SCH DIST	3.3333
11 07500220100000 07		CAPITOL REGION EDUCATION COUNCIL	3.2148
12 14505440200000 14		LINCOLN LAND AREA VOCATIONAL CENTER	3.0136
13 14506040100000 14		COLLINSVILLE AREA VOCATIONAL CENTER	3.0013

(91).png

/\* Example \*/  
 SELECT \* from fsl\_contribution\_v  
 WHERE fsl\_pcnt < .3  
 ORDER by fsl\_pcnt desc;

Script Output | Query Result | Query Result 5 | Query Result 6 | Query Result 7 | SQL | All Rows Fetched: 23 in 0.156 seconds

IDCENSUS	STCODE	SD_NAME	FSL_PCNT
1 13500800500000	13	GARDEN VALLEY SCHOOL DISTRICT 71	0.2956
2 03500202200000	03	RUCKER SCHOOL DISTRICT 66	0.2941
3 14501630400000	14	CAREER DEVELOPMENT SYSTEM	0.2717
4 20500510000000	20	PENINSULA COMMUNITY SCHOOL DISTRICT	0.2664
5 39502691900000	39	NORTH FAYETTE COUNTY AVTS	0.247
6 22300202630100	22	TYRINGHAM TOWN SCHS	0.2111
7 14504530200000	14	VALLEY EDUCATION FOR EMPLOYMENT SYS	0.2081
8 14505430100000	14	LINCOLNLAND REGIONAL VOCATIONAL DEL	0.2047
9 23503201100000	23	BLOOMFIELD TWP SD 7F	0.1876
10 42505380100000	42	NORTHWEST SCHOOL DISTRICT 52-3	0.185
11 27502301200000	27	RAYNESFORD ELEM DIST 49	0.1794
12 14500830200000	14	EAGLE RIDGE VOCATIONAL DELIVERY SYS	0.1618
13 27502701000000	27	SYLVANITE ELEM DIST 23	0.1563
14 14509930100000	14	THREE RIVERS EDUCATION FOR EMPLOYME	0.1406
15 14506020200000	14	MADISON COUNTY CAREER TECHNICAL EDU	0.1211
(92).png			
NORTHFIELD TOWN SCHOOLS			
16 20301503130100	20	NORTHFIELD TOWN SCHOOLS	0.1206
17 14501920200000	14	DEKALB COUNTY SPECIAL EDUCATION ASS	0.0983
18 20500780100000	20	SCHOOL ADMIN DIST 65	0.0769
19 14504840200000	14	GALESBURG AREA VOCATIONAL CENTER	0.0032
20 20301303430100	20	WEST FORKS PLANTATION SCHOOL DEPART	0
21 20301301030100	20	DENNISTOWN PLANTATION SCHOOL	0
22 05504200900000	05	CASMALIA ELEM SCH DIST	0
23 14501615900000	14	WILMETTE COMM SP ED AGREEMENT	0

16 20301503130100	20	NORTHFIELD TOWN SCHOOLS	0.1206
17 14501920200000	14	DEKALB COUNTY SPECIAL EDUCATION ASS	0.0983
18 20500780100000	20	SCHOOL ADMIN DIST 65	0.0769
19 14504840200000	14	GALESBURG AREA VOCATIONAL CENTER	0.0032
20 20301303430100	20	WEST FORKS PLANTATION SCHOOL DEPART	0
21 20301301030100	20	DENNISTOWN PLANTATION SCHOOL	0
22 05504200900000	05	CASMALIA ELEM SCH DIST	0
23 14501615900000	14	WILMETTE COMM SP ED AGREEMENT	0

## 20 Creating total rev with PROC SQL

```
/* Step 20: From SASUSER, we can query
the Oracle Database information to obtain the
following SAS dataset, given below. */
PROC sql;
  CREATE table sasuser.Total_Rev AS (
    SELECT * from myoracle.Total_Rev_v);
quit;
```

```
28  PROC sql;
29    CREATE table sasuser.Total_Rev AS (
30      SELECT * from myoracle.Total_Rev_v);
NOTE: Table SASUSER.TOTAL_REV created, with 14633 rows and 5 columns.

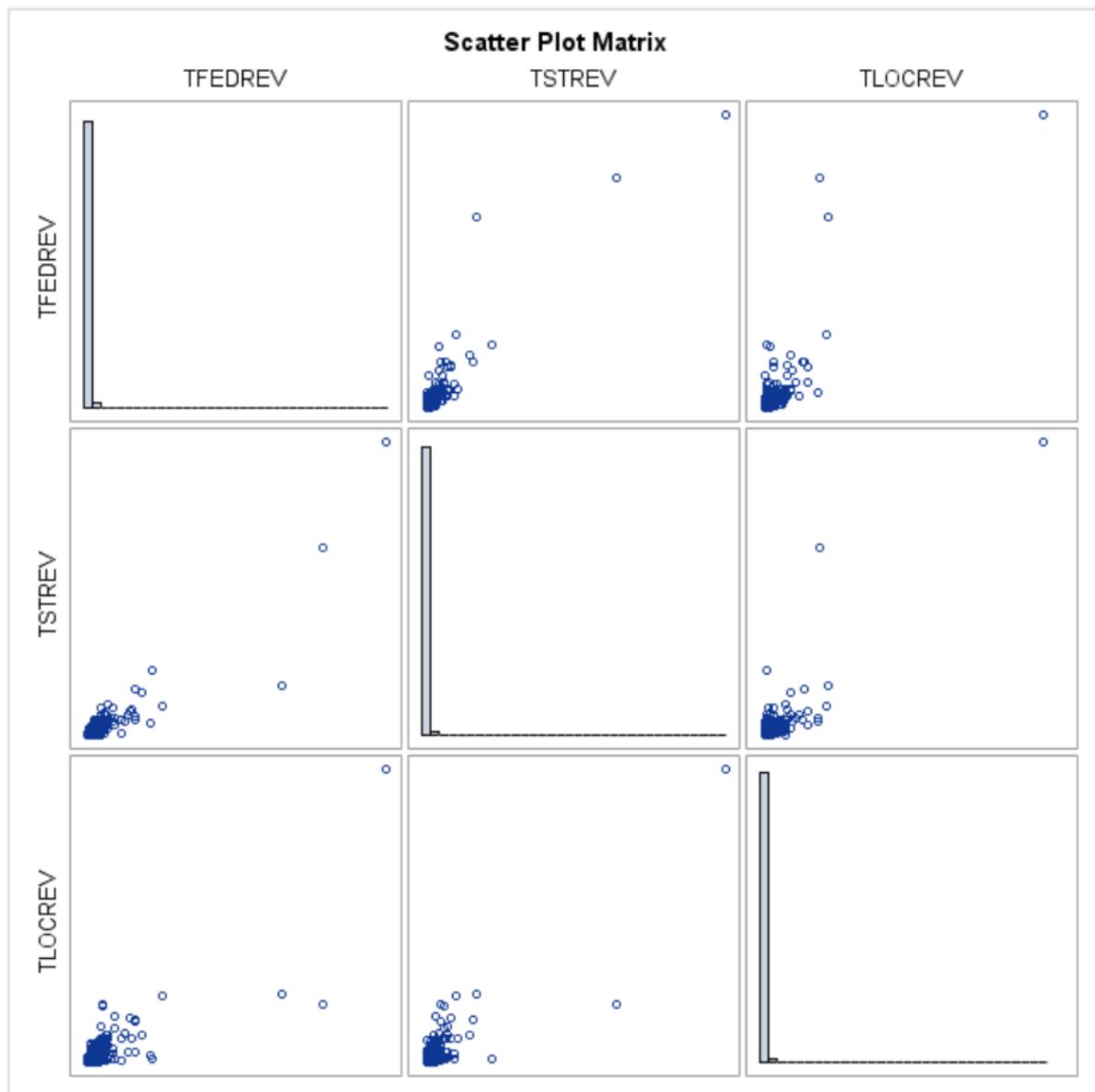
31  quit;
NOTE: PROCEDURE SQL used (Total process time):
      real time          0.65 seconds
      cpu time           0.03 seconds
```

## 21 Proc Corr Analysis in SAS

The CORR Procedure								
3 Variables: TFEDREV TSTREV TLOCREV								
Simple Statistics								
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label	
TFEDREV	14633	3820	24852	55900112	0	1817770	TFEDREV	
TSTREV	14633	18872	111949	276153850	0	10040718	TSTREV	
TLOCREV	14633	18358	98453	268630351	0	9307205	TLOCREV	

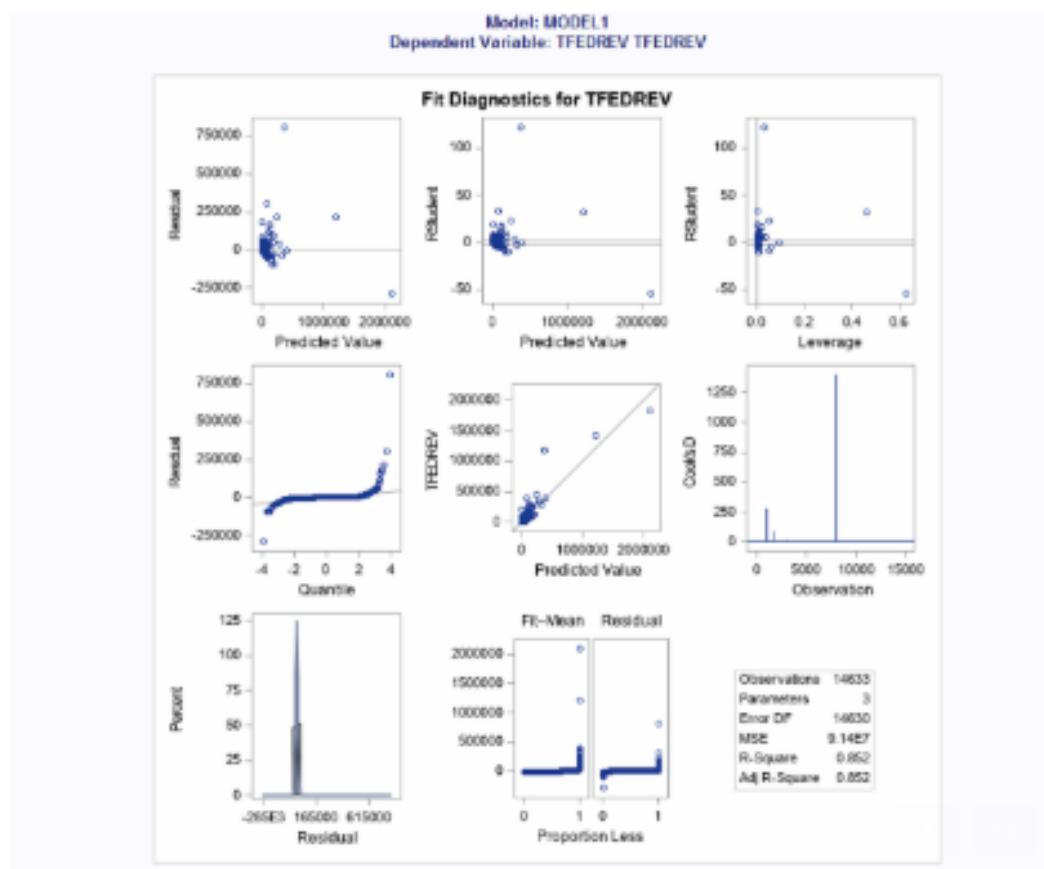
Pearson Correlation Coefficients, N = 14633 Prob >  r  under H0: Rho=0			
	TFEDREV	TSTREV	TLOCREV
TFEDREV	1.00000	0.92063 <.0001	0.82441 <.0001
TSTREV	0.92063 <.0001	1.00000	0.85822 <.0001
TLOCREV	0.82441 <.0001	0.85822 <.0001	1.00000

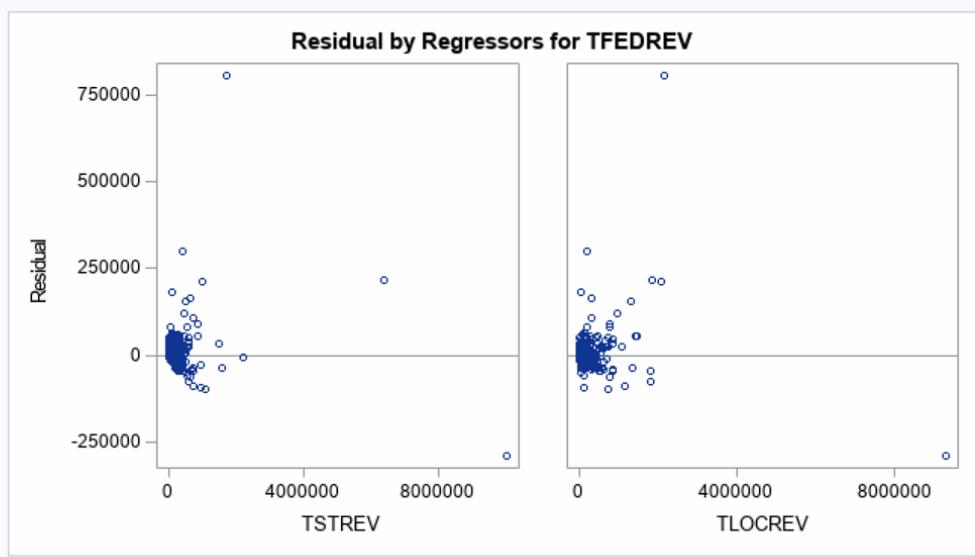


```

PROC corr data=sasuser.Total_Rev
plots(maxpoints=NONE)=matrix(histogram);
  VAR tfedrev tstrev tlocrev;
run;

```

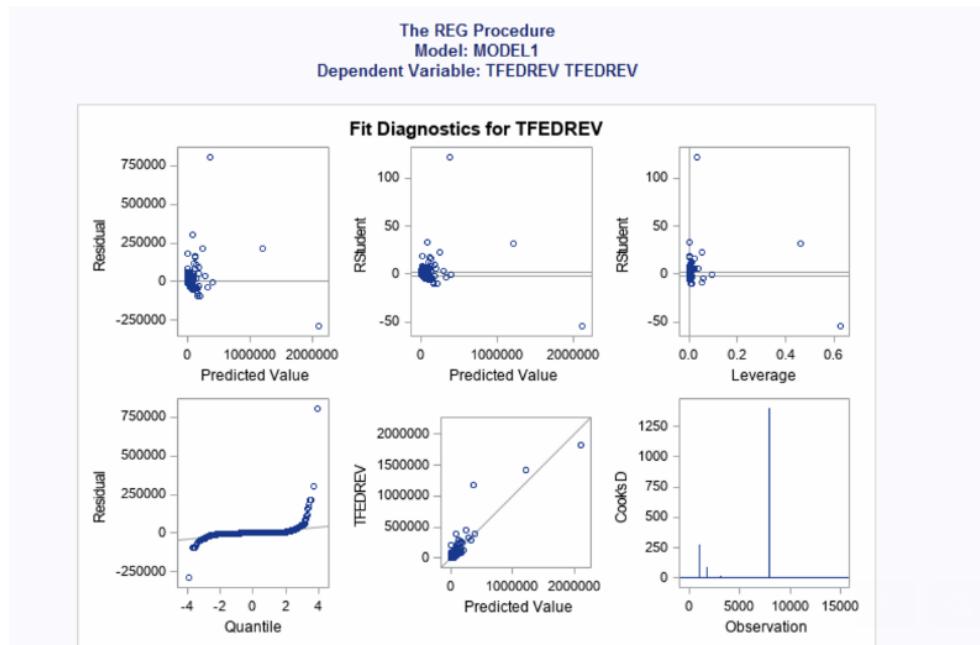




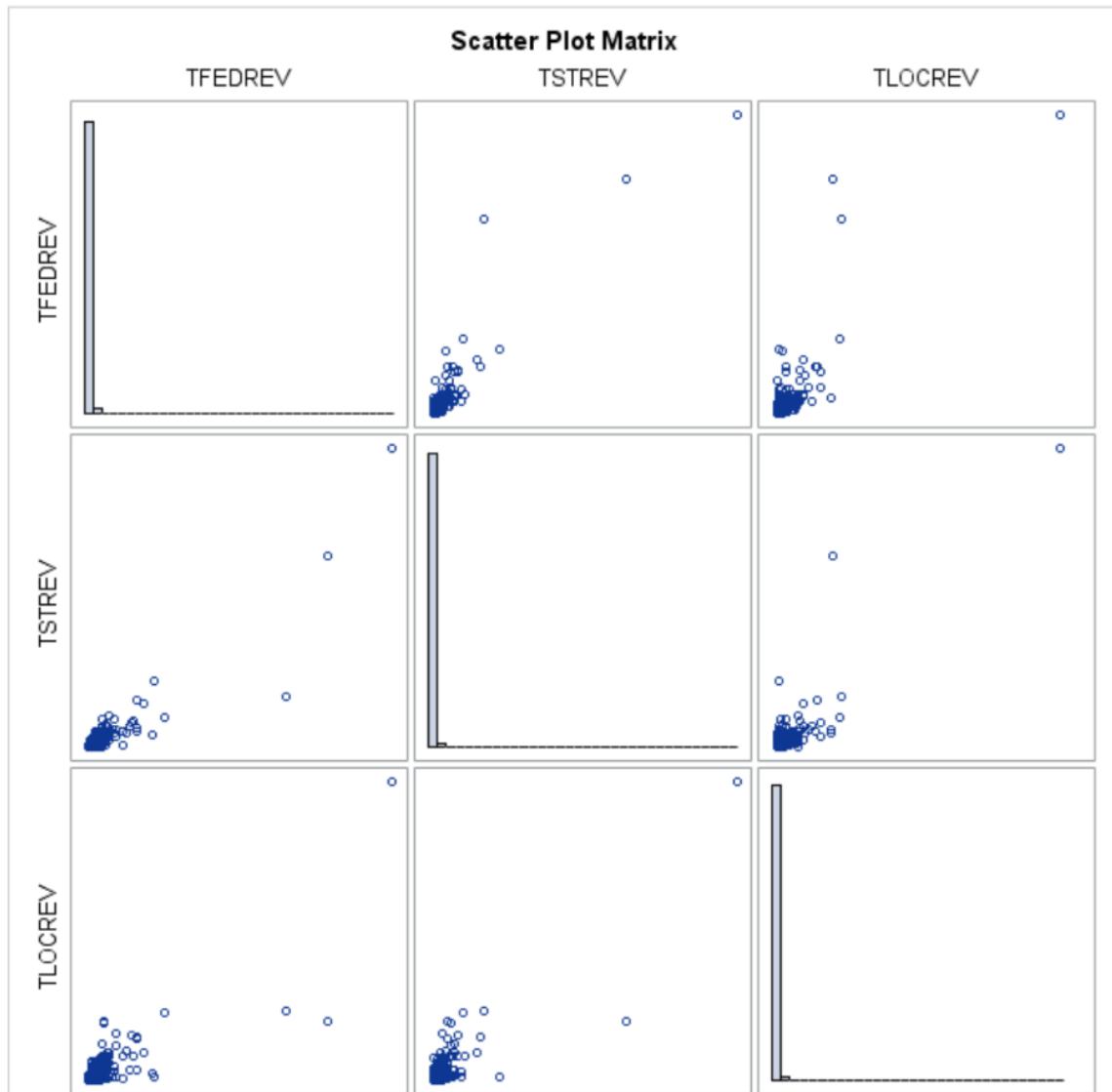
- To comment on the results of the correlation analysis above, we observe the following. By calling the proc correlation procedure in SAS, we are attempting to determine whether the three given variables are highly correlated or not. From the formula of the correlation between two observations, we even know that the variables may appear to be correlated with one another. However, after examining the output, and even the residual regression from the correlation that we have provided above, it is evident that although one could expect that the correlation between different types of funding for schools in different states of the US are not correlated. The large difference in the summation of the local versus federal revenue may suggest, in a similar light of the business rules that the federal government uses allocate money and resources, that federal money (or funding) for schools is not distributed often if the government perceives that states, or local authorities themselves, can provide the funding on their own.

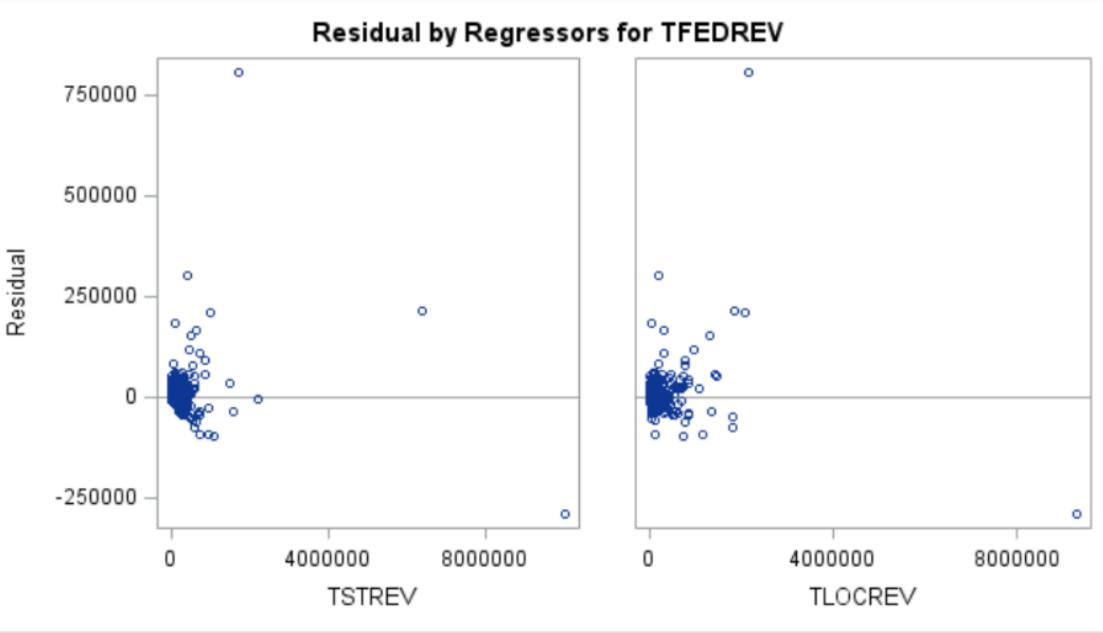
## 22 Proc Regression Analysis in SAS

```
proc reg data = sasuser.Total_Rev
plots(maxpoints=NONE);
MODEL tfedrev = tstrev tlocrev;
run;
```



*image.png*





- To comment on whether the regression analysis reflects what we would expect, we refer to the plots directly above. From this information, we can conclude that the results, upon performing regression on the independent variables and dependent variables given, are adequate. That is, plots from the regression analysis, demonstrate that the variables federal revenue, and other types of funding for schools, are important factors when analysing the variability, or expected change in response, of the total revenue for different school districts.

## 23 Correlation and Regression Analysis at the same time

- From the code below, we observe that this type of processing is an example of **in-database processing**, because SAS is processing the tables that we have created in previous steps, each of which contains data for different types of funding, that is being processed as an **Oracle** data set.

```

title '***** Step 23 *****';
/* Step 23: We perform, as requested,
the correlation and regression analysis. */
proc corr data=myoracle.Total_Rev_v
plots(maxpoints=NONE)=matrix(histogram);
  VAR tfedrev tstrev tlocrev;
run;

proc reg data=myoracle.Total_Rev_v
plots(maxpoints=NONE);
  MODEL tfedrev=tstrev tlocrev;
run;

```

```

63  proc sql;
64    CREATE table myoracle.School_Finance_2015_t as
65      (SELECT * from final.School_Finance_2015);
NOTE: SAS variable labels, formats, and lengths are not written to DBMS tables.
NOTE: Table MYORACLE.SCHOOL_FINANCE_2015_T created, with 14376 rows and 138 columns.

66  quit;
NOTE: PROCEDURE SQL used (Total process time):
      real time           4.49 seconds
      cpu time            0.42 seconds

```

## 24 Querying the SAS Data Set

```

title '***** Step 24 *****';
/* Step 24: Finally, we create an Oracle database,
after querying through the Finance 2015
data set. */
proc sql;
CREATE table myoracle.School_Finance_2015_t as
  (SELECT * from final.School_Finance_2015);
quit;

```

## 25 Using SQL Plus to determine the state code, state name, IDCENSUS, etc

### Comments

- With the SQL plus code below, we use a select statement to get the appropriate observations that we want.
- Additionally, we have set the page sizes to the appropriate format so that the printing of the tables appears good on the page outputs in the command line.
- The SQL+ plus code below obtains the state code, state name, etc (and all other relevant information) for displaying the change percentage.

```

title '***** Step 25 *****' skip2
SQL> set pagesize 1000;
SQL> set linesize 5000;
SQL> SELECT * from (select df.stcode, s.stname, df.idcensus, df.sd_name, (df.rev_2014 - df.rev_2010)/df.rev_2010, 1) as
2 rev_pct_dif
3 FROM state_t s inner join (select
a.stcode, a.idcensus, a.sd_name, CAST(a.totalrev AS decimal) AS rev_2010, b.totalrev
as rev_2014
4 FROM SCHOOL_FINANCE_2010_T a inner join school_finance_2014_t b on a.idcensus = b.idcensus) df
5 ON s.stcode = df.stcode
6 WHERE df.rev_2010 != 0
7 ORDER by revdif desc) where rownum <= 10;
STCODE STNAME IDCENSUS SD_NAME REVDIR REV_PCT_DIF

```

## 25.1 SQL Plus Output I

```
STCODE STNAME IDCENSUS SD_NAME REVDIR
REV_PCT_DIF
-----
---
33 New York 33203100130100 NEW YORK CITY SCHOOL DISTRICT
3.05E+006 14.4
43 Tennessee 43107907930100 SHELBY CO SCHOOL DISTRICT
1.089E+006 286
09 District of Columbia 09200100130100 DC PUBLIC SCHOOLS
5.412E+005 67.6
14 Illinois 14501615800000 CITY OF CHICAGO SCHOOL DISTRICT 299
4.084E+005 8.1
21 Maryland 21101601530100 MONTGOMERY CO SCH
3.313E+005 13.2
06 Colorado 06501600100000 DENVER SCH DIST 1 2.416E+005
27.5
47 Virginia 47105405430100 LOUDOUN CO SCHS 2.2E+005
27.5
07 Connecticut 07500220100000 CAPITOL REGION EDUCATION COUNCIL
2.175E+005 193.2
10 Florida 10504800100000 ORANGE COUNTY SCHOOL DISTRICT
2.059E+005 11.4
47 Virginia 47103003030100 FAIRFAX CO SCHS 2.038E+005
8.6
```

10 rows selected.

```
SQL> SELECT * from (select df.stcode, s.state_name, df.idcensus, df.sd_name, (df.rev_2014 -
df.rev_2010) as
revdif,
2 ROUND((100*(df.rev_2014 - df.rev_2010)
/df.rev_2010), 1) as rev_pct_dif
3 FROM state_t s inner join (select a.state_code,
a.idcensus, a.sd_name, cast(a.totalrev as decimal) as
rev_2010, b.totalrev as rev_2014
4 FROM SCHOOL_FINANCE_2010_T a inner
join school_finance_2014_t b on a.idcensus = b.idcensus) df
5 ON s.state_code = df.state_code

6 WHERE df.rev_2010 != 0
7 ORDER by revdif asc) where rownum <= 10;
```

### Comments

- The SQL Plus code below gives the values from the output above, specifically with the values sorted, as required.
- With an ORDER by statement in SQL Plus, we are able to group all of the observations, with the stipulation that the row numbers are 10. Of course, we use a SQL Plus command in order to order the observations of the data set below in the specified order.

## 25.2 SQL Plus Output II

```
STCODE STNAME IDCENSUS SD_NAME REVDIR
REV_PCT_DIF
```

---

05 California 05501905900000 LOS ANGELES UNIF SCH DIST -1.13E+006  
-11.6

34 North Carolina 34109209230100 WAKE COUNTY SCHOOLS -  
4.93E+005 -25.3

23 Michigan 23508201400000 DETROIT PUBLIC SCHOOL DISTRICT -  
4.58E+005 -35.4

34 North Carolina 34106006030100 CHARLOTTE-MECKLENBURG SCHOOLS -  
2.81E+005 -16.5

05 California 05101901930200 LOS ANGELES CO OFF OF EDUCATION -  
2.57E+005 -26

45 Utah 45501800200000 JORDAN SCH DIST -2.47E+005 -  
39.1

34 North Carolina 34109009030200 UNION CO SCHOOLS -2.09E+005  
-38.6

29 Nevada 29500200100000 CLARK COUNTY SCHOOL DISTRICT -  
1.5E+005 -4.7

15 Indiana 15504900500000 INDIANAPOLIS PUBLIC SCHOOLS -  
1.05E+005 -18

19 Louisiana 19000000030100 RECOVERY SCHOOL DISTRICT -  
1.04E+005 -30.8

10 rows selected.

## 26 Screenshots of the SQL Developer: Tables, Views

