BUDT 703 Fall 2021 Homework #4 – SQL DML

Due by 11:59pm, Monday, October 25th, 2021

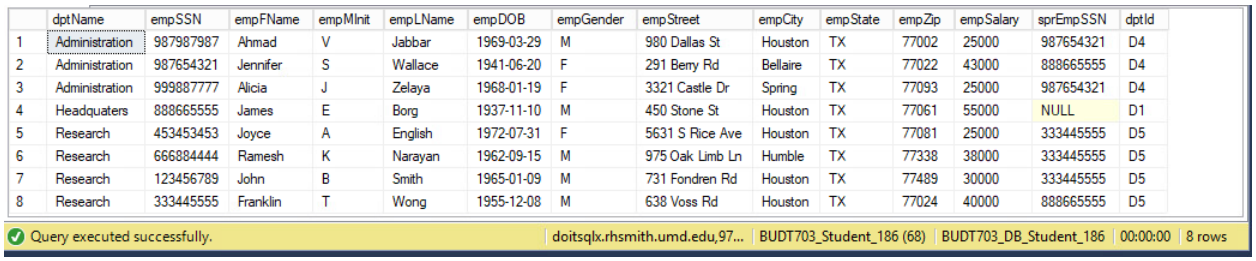
Note: The file name must be renamed to **HW4_Challa_Adarsh.docx**.

Follow the following steps to answer user queries for the **Terps Enterprise, Inc.** database.

1. Download file **HW 4 – Enterprise.sql** (not what you submitted for Homework #3)
2. Execute DROP TABLE, CREATE TABLE, INSERT INTO, and ALTER TABLE statements to create six tables inserted with corresponding data.
3. Compose SQL SELECT FROM statements to answer user queries below.
4. Take screenshots on the result tables of up to the first eight rows with the status bar showing total number of rows on the lower-right corner. Do NOT attach the entire result table containing more than eight rows.
5. Copy and paste each of your SQL SELECT FROM statements (in plain text) and screenshots to the corresponding question below, and submit only this document.

SQL queries:

1. What are the full details of all employees in the alphabetical order of last then first names within every department?

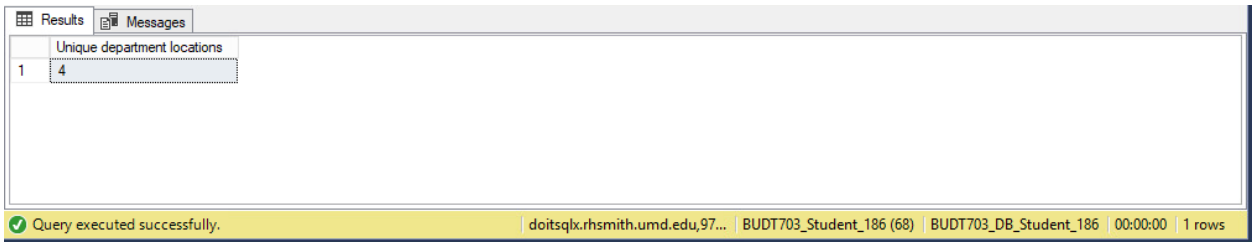


	dptName	empSSN	empFName	empMInit	empLName	empDOB	empGender	empStreet	empCity	empState	empZip	empSalary	sprEmpSSN	dptId
1	Administration	987987987	Ahmad	V	Jabbar	1969-03-29	M	980 Dallas St	Houston	TX	77002	25000	987654321	D4
2	Administration	987654321	Jennifer	S	Wallace	1941-06-20	F	291 Berry Rd	Bellaire	TX	77022	43000	888665555	D4
3	Administration	999887777	Alicia	J	Zelaya	1968-01-19	F	3321 Castle Dr	Spring	TX	77093	25000	987654321	D4
4	Headquaters	888665555	James	E	Borg	1937-11-10	M	450 Stone St	Houston	TX	77061	55000	NULL	D1
5	Research	453453453	Joyce	A	English	1972-07-31	F	5631 S Rice Ave	Houston	TX	77081	25000	333445555	D5
6	Research	666884444	Ramesh	K	Narayan	1962-09-15	M	975 Oak Limb Ln	Humble	TX	77338	38000	333445555	D5
7	Research	123456789	John	B	Smith	1965-01-09	M	731 Fondren Rd	Houston	TX	77489	30000	333445555	D5
8	Research	333445555	Franklin	T	Wong	1955-12-08	M	638 Voss Rd	Houston	TX	77024	40000	888665555	D5

Query executed successfully. | doitsqlx.rhsmith.umd.edu,97... | BUDT703_Student_186 (68) | BUDT703_DB_Student_186 | 00:00:00 | 8 rows

```
SELECT d.dptName ,e.*
FROM [Enterprise.Employee] e, [Enterprise.Department] d
WHERE e.dptId=d.dptId
ORDER BY d.dptName, e.empLName, e.empFName
```

2. How many unique department locations?



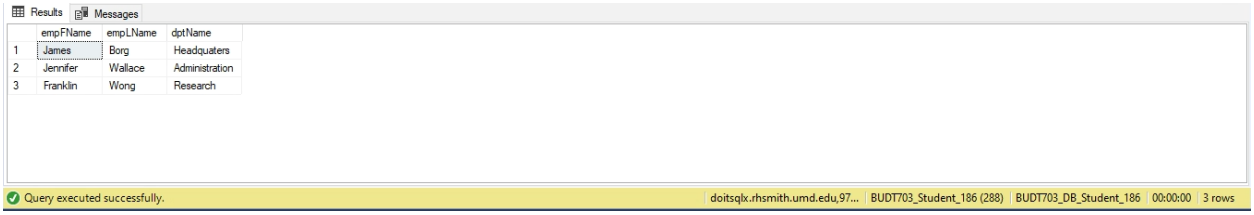
Results | Messages

	Unique department locations
1	4

Query executed successfully. | doitsqlx.rhsmith.umd.edu,97... | BUDT703_Student_186 (68) | BUDT703_DB_Student_186 | 00:00:00 | 1 rows

```
SELECT COUNT ( DISTINCT l.dptLoc) AS 'Unique department locations'
FROM [Enterprise.DepartmentLocation] l
```

3. What are the managers' names and the corresponding department names, in the alphabetical order of last then first names?



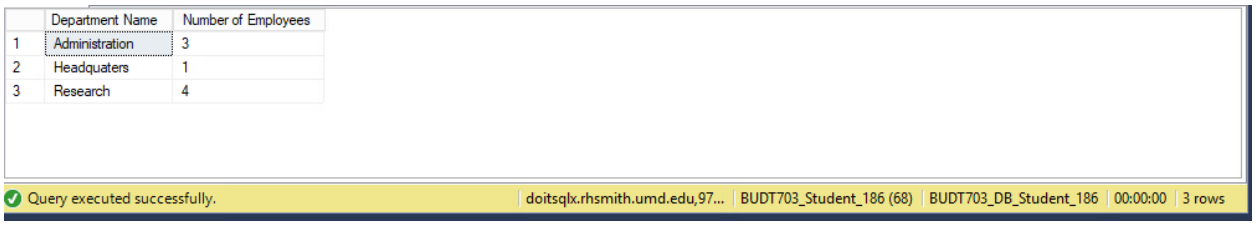
Results Messages

	empFName	empLName	dptName
1	James	Borg	Headquaters
2	Jennifer	Wallace	Administration
3	Franklin	Wong	Research

Query executed successfully. doitsqlx.rhsmith.umd.edu,97... BUDT703_Student_186 (288) BUDT703_DB_Student_186 00:00:00 3 rows

```
SELECT DISTINCT e.empFName, e.empLName,d.dptName
FROM [Enterprise.Department] d, [Enterprise.Employee] e
WHERE d.mgrEmpSSN= e.empSSN
ORDER BY e.empLName, e.empFName
```

4. For each department name, how many employees in the department, in the order of department names?

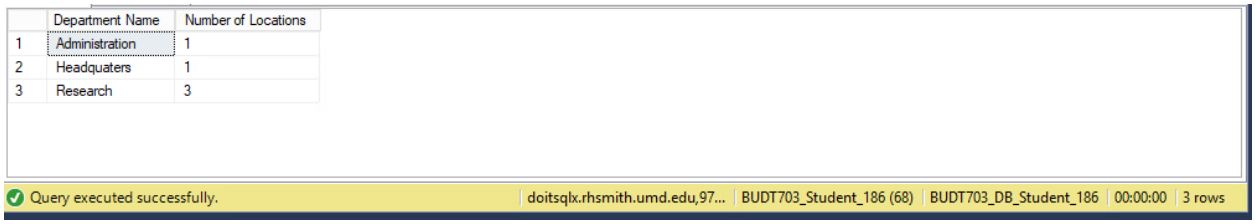


	Department Name	Number of Employees
1	Administration	3
2	Headquaters	1
3	Research	4

Query executed successfully. doitsqlx.rhsmith.umd.edu,97... BUDT703_Student_186 (68) BUDT703_DB_Student_186 00:00:00 3 rows

```
SELECT d.dptName AS 'Department Name',count(e.empSSN) AS ' Number of Employees'
FROM [Enterprise.Employee] e, [Enterprise.Department] d
WHERE e.dptId=d.dptId
GROUP BY d.dptName
ORDER BY dptName
```

5. For each department name, how many locations in the department, in the order of department names?



	Department Name	Number of Locations
1	Administration	1
2	Headquaters	1
3	Research	3

Query executed successfully. doitsqlx.rhsmith.umd.edu,97... BUDT703_Student_186 (68) BUDT703_DB_Student_186 00:00:00 3 rows

```
SELECT d.dptName AS 'Department Name' ,COUNT(dl.dptLoc) AS ' Number of Locations'
FROM [Enterprise.Department] d, [Enterprise.DepartmentLocation] dl
```

```
WHERE d.dptId=dl.dptId
GROUP BY d.dptName
ORDER BY d.dptName
```

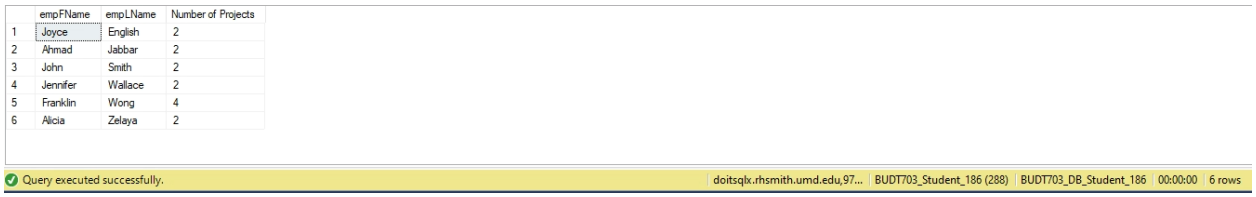
6. What are employee names, in the alphabetical order of their last then first names, who work on projects organized by the research department?

	empFName	empLName	Department Name
1	Joyce	English	Research
2	Ramesh	Narayan	Research
3	John	Smith	Research
4	Franklin	Wong	Research

Query executed successfully. | doitsqlx.rhsmith.umd.edu,97... | BUDT703_Student_186 (288) | BUDT703_DB_Student_186 | 00:00:00 | 4 rows

```
SELECT e.empFName, e.empLName,d.dptName AS 'Department Name'
FROM [Enterprise.Department] d, [Enterprise.Employee] e
WHERE  e.dptId= d.dptId AND dptName = 'Research'
ORDER BY e.empLName, e.empFName
```

7. What are employee names, in the alphabetical order of their last then first names, and numbers of worked projects, where the employee worked on at least two projects?

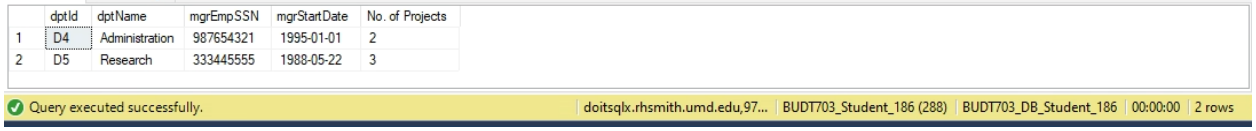


	empFName	empLName	Number of Projects
1	Joyce	English	2
2	Ahmad	Jabbar	2
3	John	Smith	2
4	Jennifer	Wallace	2
5	Franklin	Wong	4
6	Alicia	Zelaya	2

Query executed successfully. | doitsqlx.rhsmith.umd.edu,97... | BUDT703_Student_186 (288) | BUDT703_DB_Student_186 | 00:00:00 | 6 rows

```
SELECT e.empFName, e.empLName, f.[Number of Projects]
FROM (SELECT DISTINCT w.empSSN , COUNT(w.empSSN) AS 'Number of Projects'
FROM [Enterprise.Work] w
GROUP BY w.empSSN HAVING COUNT(w.empSSN) >= 2) f, [Enterprise.Employee] e
WHERE e.empSSN=f.empSSN
ORDER BY e.empLName, e.empFName
```

8. What are all details of a department, which organizes more than one project?

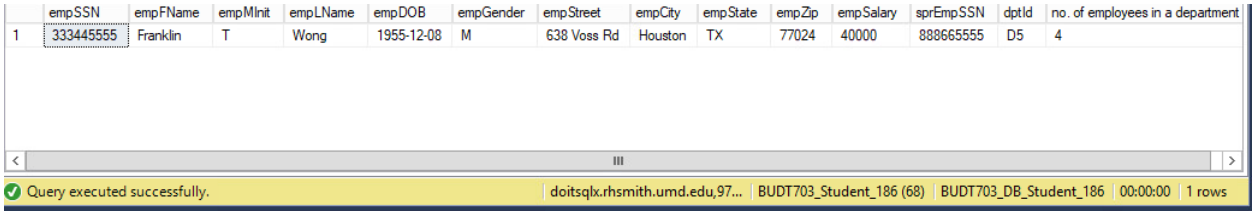


	dptId	dptName	mgrEmpSSN	mgrStartDate	No. of Projects
1	D4	Administration	987654321	1995-01-01	2
2	D5	Research	333445555	1988-05-22	3

Query executed successfully. | doitsqlx.rhsmith.umd.edu,97... | BUDT703_Student_186 (288) | BUDT703_DB_Student_186 | 00:00:00 | 2 rows

```
SELECT d.* , COUNT(d.dptName) AS 'No. of Projects'
FROM [Enterprise.Department] d, [Enterprise.Project] p
WHERE d.dptId = p.dptId
GROUP BY d.dptName, d.dptId, d.mgrEmpSSN, d.mgrStartDate
HAVING COUNT(d.dptName) > 1
```

9. What are all details of managers in the departments, for which more than three employees work in?

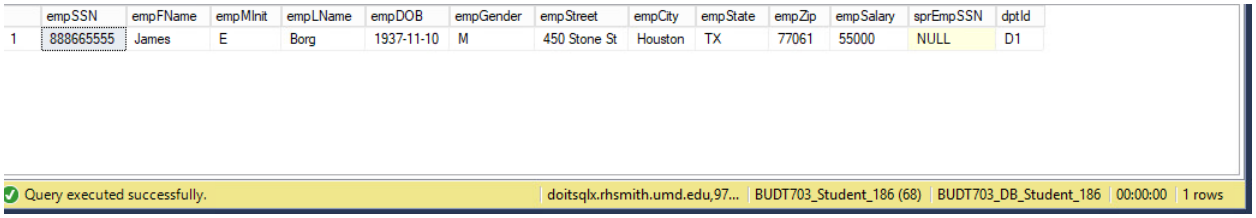


	empSSN	empFName	empMInit	empLName	empDOB	empGender	empStreet	empCity	empState	empZip	empSalary	sprEmpSSN	dptId	no. of employees in a department
1	333445555	Franklin	T	Wong	1955-12-08	M	638 Voss Rd	Houston	TX	77024	40000	888665555	D5	4

Query executed successfully. | doitsqlx.rhsmith.umd.edu,97... | BUDT703_Student_186 (68) | BUDT703_DB_Student_186 | 00:00:00 | 1 rows

```
SELECT e.*, x.[no. of employees in a department]
FROM [Enterprise.Department] d,[Enterprise.Employee] e, (SELECT dptId, COUNT(dptId) AS 'no. of employees in a department' FROM [Enterprise.Employee] e GROUP BY dptId HAVING COUNT(dptId) >3)  x
WHERE x.dptId = d.dptId AND (e.empSSN = d.mgrEmpSSN)
```

10. What are all details about the oldest employee?

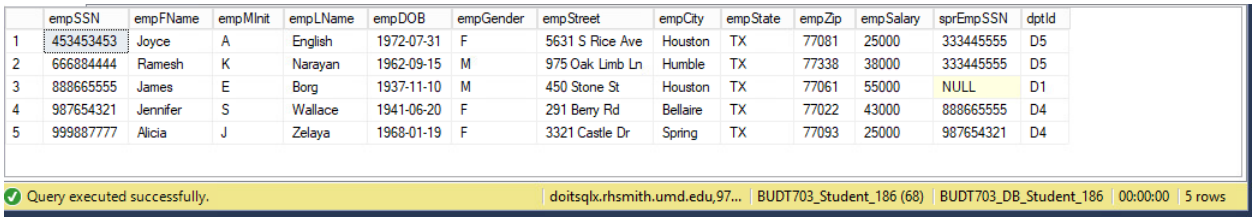


	empSSN	empFName	empMInit	empLName	empDOB	empGender	empStreet	empCity	empState	empZip	empSalary	sprEmpSSN	dptId
1	888665555	James	E	Borg	1937-11-10	M	450 Stone St	Houston	TX	77061	55000	NULL	D1

Query executed successfully. | doitsqlx.rhsmith.umd.edu,97... | BUDT703_Student_186 (68) | BUDT703_DB_Student_186 | 00:00:00 | 1 rows

```
SELECT *
FROM [Enterprise.Employee] e
WHERE e.empDOB = SELECT MIN(e.empDOB) FROM [Enterprise.Employee] e)
```

11. What are all details about employees, who have letter 'e' in the name?

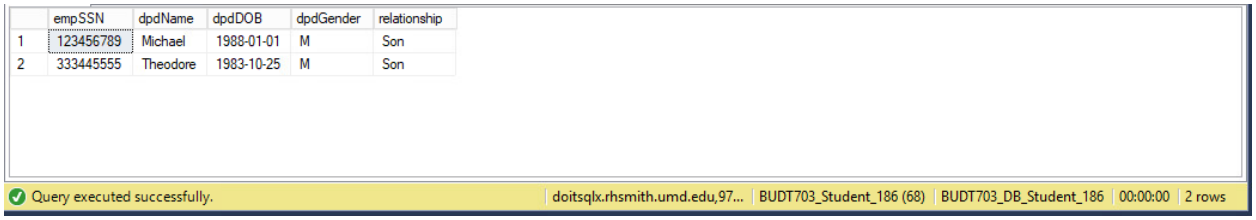


	empSSN	empFName	empMInit	empLName	empDOB	empGender	empStreet	empCity	empState	empZip	empSalary	sprEmpSSN	dptId
1	453453453	Joyce	A	English	1972-07-31	F	5631 S Rice Ave	Houston	TX	77081	25000	333445555	D5
2	666884444	Ramesh	K	Narayan	1962-09-15	M	975 Oak Limb Ln	Humble	TX	77338	38000	333445555	D5
3	888665555	James	E	Borg	1937-11-10	M	450 Stone St	Houston	TX	77061	55000	NULL	D1
4	987654321	Jennifer	S	Wallace	1941-06-20	F	291 Berry Rd	Bellaire	TX	77022	43000	888665555	D4
5	999887777	Alicia	J	Zelaya	1968-01-19	F	3321 Castle Dr	Spring	TX	77093	25000	987654321	D4

Query executed successfully. | doitsqlx.rhsmith.umd.edu,97... | BUDT703_Student_186 (68) | BUDT703_DB_Student_186 | 00:00:00 | 5 rows

```
SELECT e.*
FROM [Enterprise.Employee] e
WHERE e.empFName LIKE '%e%' OR e.empMInit LIKE '%e%' OR e.empLName LIKE '%e%'
```

12. What are all details of a dependent, who has the same gender as the corresponding employee, using correlated subquery?

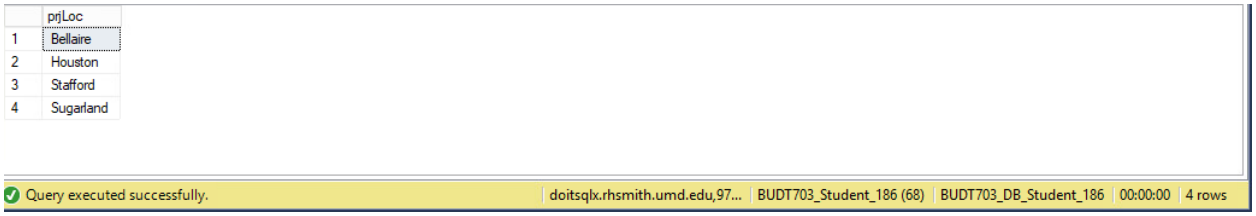


	empSSN	dpdName	dpdDOB	dpdGender	relationship
1	123456789	Michael	1988-01-01	M	Son
2	333445555	Theodore	1983-10-25	M	Son

Query executed successfully. | doitsqlx.rhsmith.umd.edu,97... | BUDT703_Student_186 (68) | BUDT703_DB_Student_186 | 00:00:00 | 2 rows

```
SELECT distinct  d.*
FROM [Enterprise.Dependent] d
INNER JOIN [Enterprise.Employee] e
ON e.empGender = d.dpdGender
WHERE d.empSSN= e.empSSN;
```

13. What are the cities, where there is either a department or a project?

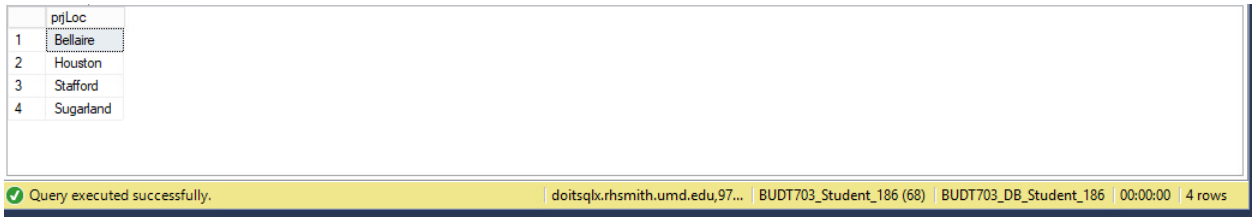


	prjLoc
1	Bellaire
2	Houston
3	Stafford
4	Sugarland

Query executed successfully. | doitsqlx.rhsmith.umd.edu,97... | BUDT703_Student_186 (68) | BUDT703_DB_Student_186 | 00:00:00 | 4 rows

```
SELECT  p.prjLoc as 'city'
FROM [Enterprise.Project] p
UNION
SELECT dl.dptLoc
FROM [Enterprise.DepartmentLocation] dl ;
```

14. What are the cities, where there is both department and project?

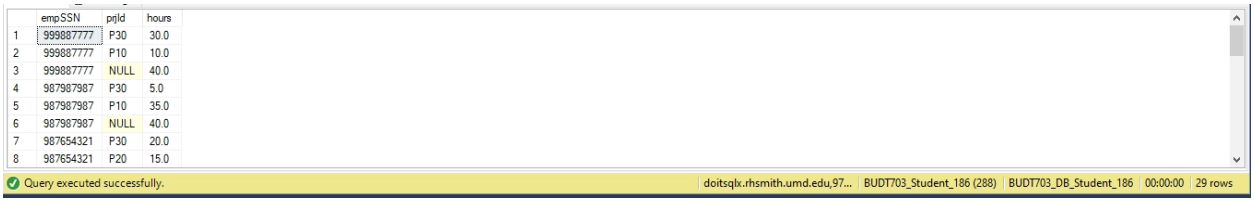


	prjLoc
1	Bellaire
2	Houston
3	Stafford
4	Sugarland

Query executed successfully. | doitsqlx.rhsmith.umd.edu,97... | BUDT703_Student_186 (68) | BUDT703_DB_Student_186 | 00:00:00 | 4 rows

```
SELECT  p.prjLoc
FROM [Enterprise.Project] p
INTERSECT
SELECT dl.dptLoc
FROM [Enterprise.DepartmentLocation] dl ;
```

15. What are the numbers of work hours for all possible combinations of employees and then projects? (Hints: This is an OLAP query using GROUP BY CUBE. Work hours canNOT be NULL. The results should be sorted by the employee SSNs then the project ids.)



	empSSN	prjId	hours
1	999887777	P30	30.0
2	999887777	P10	10.0
3	999887777	NULL	40.0
4	987987987	P30	5.0
5	987987987	P10	35.0
6	987987987	NULL	40.0
7	987654321	P30	20.0
8	987654321	P20	15.0


```
SELECT
   w.empSSN, w.prjId, sum(w.hours) as hours
FROM
   [Enterprise.Work] w

WHERE (w.hours) IS NOT NULL
GROUP BY
   CUBE(w.empSSN,w.prjId )

ORDER by w.empSSN DESC, w.prjId DESC;
```