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_YourLastName_YourFirstName.docx**.

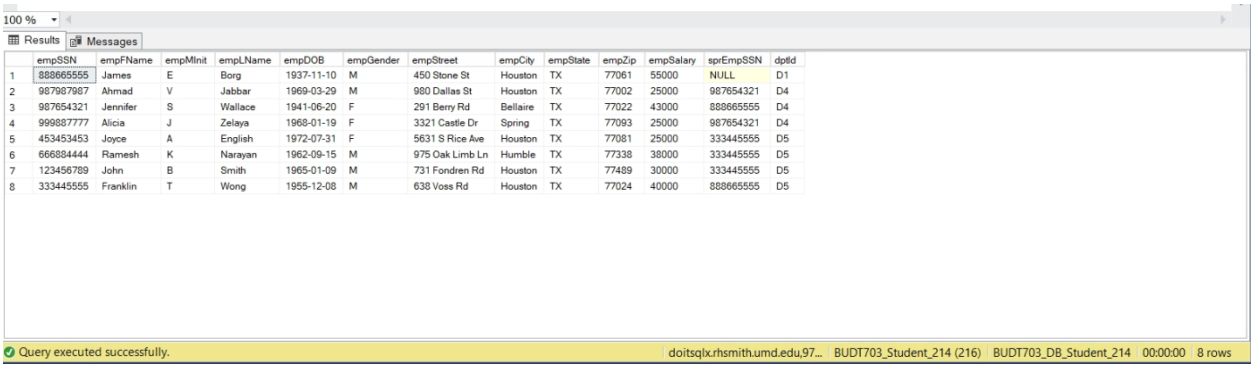
Follow the following steps to answer user queries for the **Terps Enterprise, Inc.** database.

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?

```
SELECT *
FROM dbo.[Enterprise.Employee] e
ORDER BY e.dptId, e.empLName,e.empFName ;
```



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Results | Messages

	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
2	987987987	Ahmad	V	Jabbar	1969-03-29	M	980 Dallas St	Houston	TX	77002	25000	987654321	D4
3	987654321	Jennifer	S	Wallace	1941-06-20	F	291 Berry Rd	Bellaire	TX	77022	43000	888665555	D4
4	999887777	Alicia	J	Zelaya	1968-01-19	F	3321 Castle Dr	Spring	TX	77093	25000	987654321	D4
5	453453453	Joyce	A	English	1972-07-31	F	5631 S Rice Ave	Houston	TX	77081	25000	333445555	D5
6	666884444	Ramesh	K	Narayan	1962-09-15	M	975 Oak Limb Ln	Humble	TX	77338	38000	333445555	D5
7	123456789	John	B	Smith	1965-01-09	M	731 Fondren Rd	Houston	TX	77489	30000	333445555	D5
8	333445555	Franklin	T	Wong	1955-12-08	M	638 Voss Rd	Houston	TX	77024	40000	888665555	D5

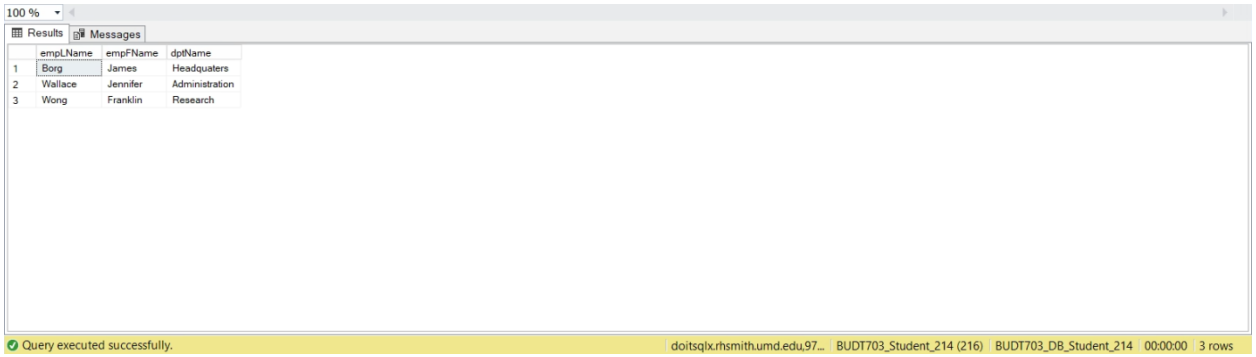
Query executed successfully. doitsqlx.rhsmith.umd.edu,97... BUDT703_Student_214 (216) BUDT703_DB_Student_214 00:00:00 8 rows

2. How many unique department locations?

```
SELECT COUNT(DISTINCT dl.dptLoc) as 'Number of Department Locations'
FROM dbo.[Enterprise.DepartmentLocation] dl;
```

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

```
SELECT e.empLName,e.empFName,d.dptName
FROM dbo.[Enterprise.Department] d,dbo.[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?

```
SELECT d.dptName,COUNT(e.empSSN) as 'Number of Employees'
FROM dbo.[Enterprise.Department] d,
dbo.[Enterprise.Employee] e
WHERE d.dptId=e.dptId
GROUP BY d.dptName
ORDER BY d.dptName;
```

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

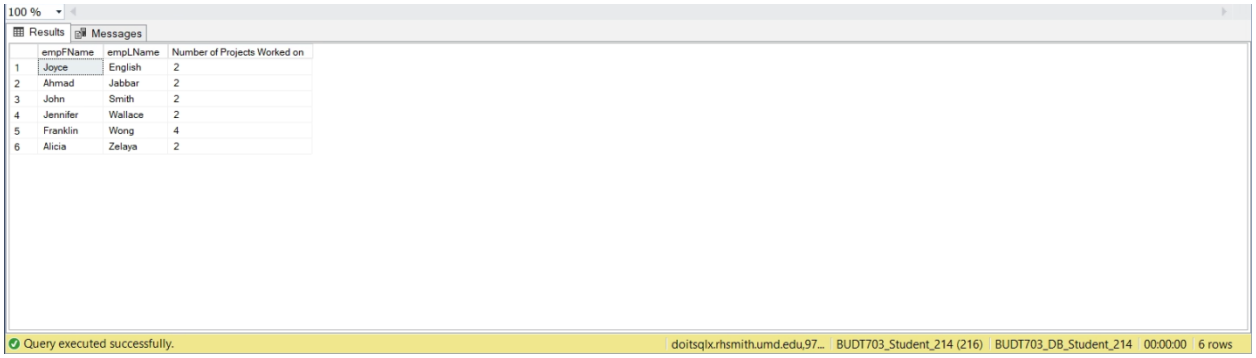
```
SELECT d.dptName,COUNT(dl.dptLoc) as 'Number of Department Locations'
FROM dbo.[Enterprise.Department] d,
dbo.[Enterprise.DepartmentLocation] dl
WHERE d.dptId=dl.dptId
GROUP BY d.dptName
ORDER BY d.dptName;
```

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

```
SELECT DISTINCT e.empFName,e.empLName
FROM dbo.[Enterprise.Employee] e INNER JOIN
dbo.[Enterprise.Work] w
ON e.empSSN=w.empSSN
INNER JOIN dbo.[Enterprise.Department] d
ON e.dptId=d.dptId
WHERE
d.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?

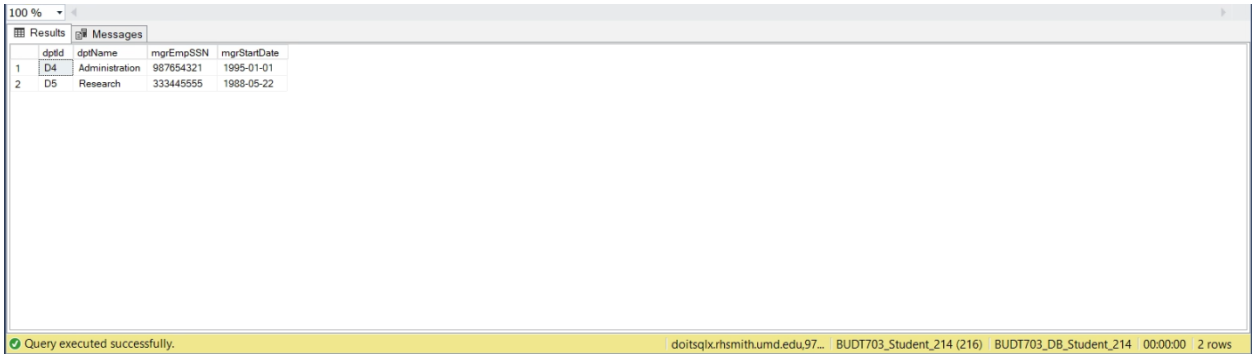
```
SELECT DISTINCT e.empFName,e.empLName, COUNT(w.prjId) as 'Number of Projects Worked
    on'
FROM dbo.[Enterprise.Employee] e INNER JOIN
dbo.[Enterprise.Work] w
ON e.empSSN=w.empSSN
GROUP BY e.empFName,e.empLName
HAVING COUNT(w.prjId)>=2
ORDER BY e.empLName,e.empFname
```



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

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

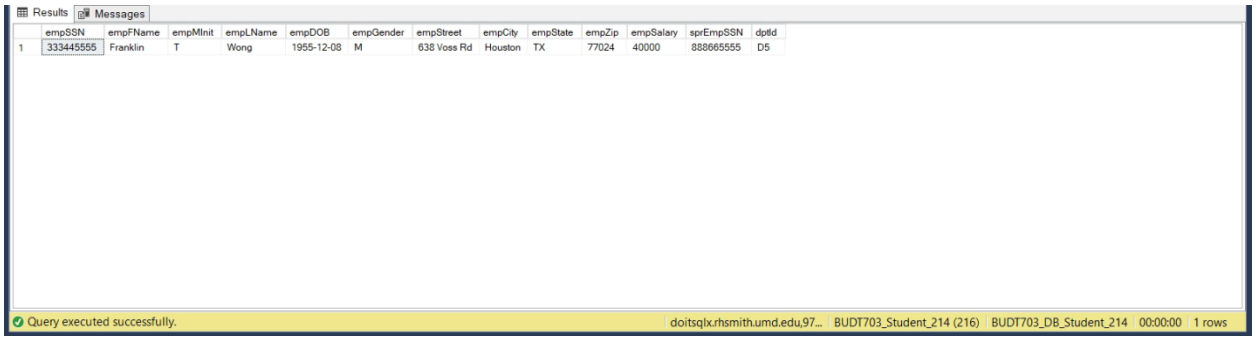
```
SELECT *
FROM [Enterprise.Department] d
WHERE d.dptId in
(SELECT p.dptId FROM [Enterprise.Project] p GROUP BY p.dptId HAVING COUNT(p.prjId) > 1)
```



	dptId	dptName	mgrEmpSSN	mgrStartDate
1	D4	Administration	987654321	1995-01-01
2	D5	Research	333445555	1988-05-22

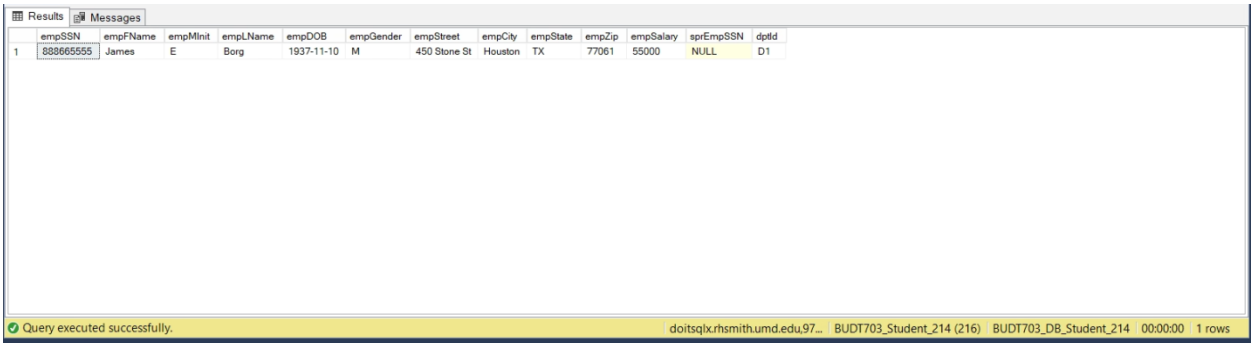
9. What are all details of managers in the departments, for which more than three employees work in?

```
SELECT *
FROM dbo.[Enterprise.Employee] e
WHERE e.empSSN
IN (SELECT d.mgrEmpSSN
FROM dbo.[Enterprise.Department] d INNER JOIN
dbo.[Enterprise.Employee] e
ON d.dptId=e.dptId
GROUP BY d.mgrEmpSSN
HAVING COUNT(e.empSSN)>3)
```



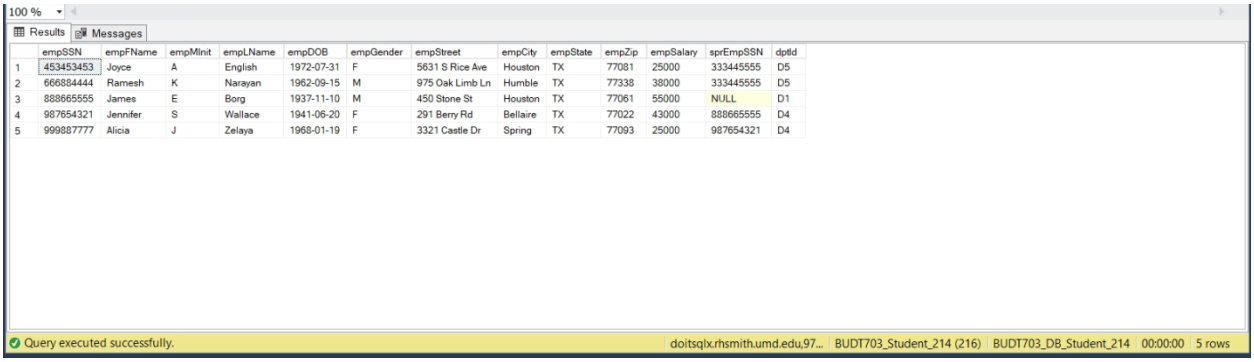
10. What are all details about the oldest employee?

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



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

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



	empSSN	empFName	empMInit	empLName	empDOB	empGender	empStreet	empCity	empState	empZip	empSalary	sprEmpSSN	dptId
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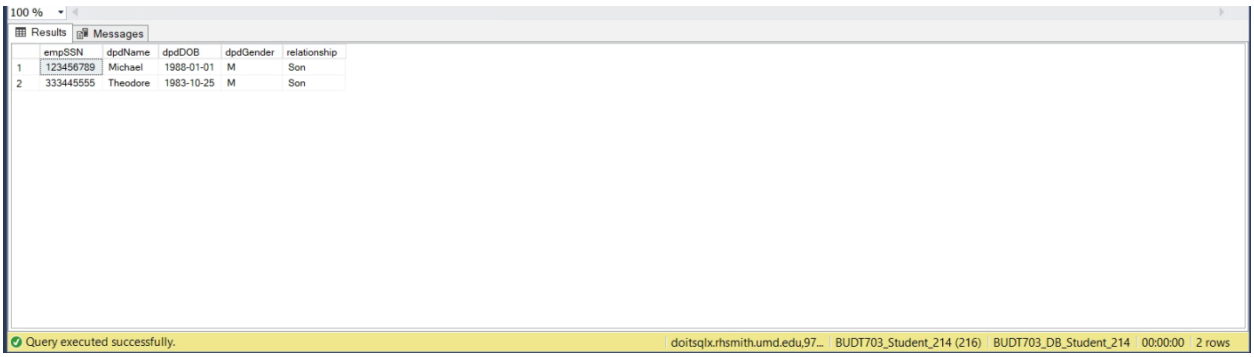
5	999887777	Alicia	J	Zelaya	1968-01-19	F	3321 Castle Dr	Spring	TX	77093	25000	987654321	D4

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

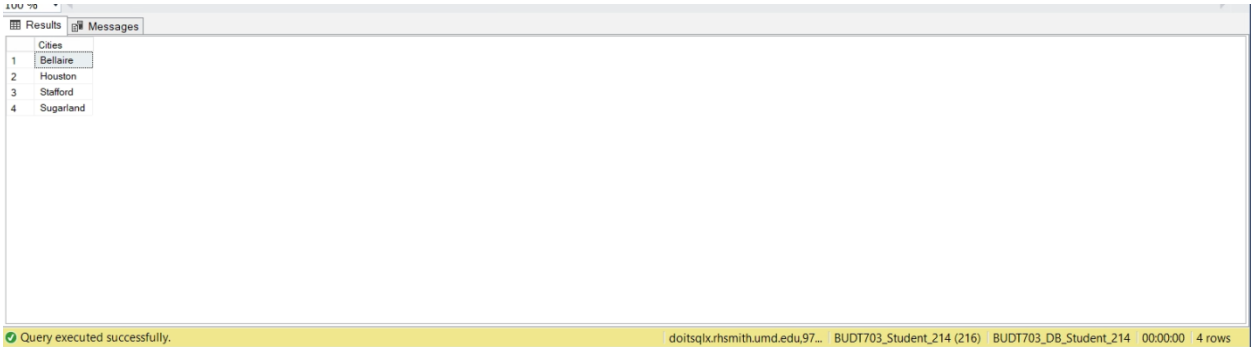
```
SELECT *
FROM dbo.[Enterprise.Dependent] ed
WHERE EXISTS (
SELECT *
FROM dbo.[Enterprise.Employee] e
WHERE ed.empSSN=e.empSSN AND ed.dpdGender=e.empGender)
```



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

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

```
SELECT DISTINCT dl.dptLoc as 'Cities'
FROM dbo.[Enterprise.DepartmentLocation] dl
UNION
SELECT DISTINCT p.prjLoc
FROM dbo.[Enterprise.Project] p
```



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

```
SELECT DISTINCT dl.dptLoc as 'Cities'
FROM dbo.[Enterprise.DepartmentLocation] dl
INTERSECT
SELECT DISTINCT p.prjLoc
FROM dbo.[Enterprise.Project] p
```

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.)

```
SELECT w.empSSN, w.prjId, SUM(w.hours) as 'Number of Hours'
FROM dbo.[Enterprise.Work] w
GROUP BY CUBE(w.empSSN,w.prjId)
HAVING SUM(w.hours) IS NOT NULL
ORDER BY
w.empSSN ASC
```