CS4350 Database Systems Lab#1
Given the following relation schemes:

Teacher = [CourseN, Quarter,TeacherName]
Course = [CourseN,CourseName, Nunit)
LocationNTime = [CourseN, Quarter , DayTime, RoomN]/ Examples of DayTime: M2:00AM,
W4:50PM, and T8:00PM. Note that DayTime is represented as a string.
Student = [studentName, CourseN, Quarter]

Express the following queries by SQL statements and test them using any appropriate database product. Submit screenshot s of your SQL statements and their outputs. Create your own table to test your SQL statements.

Data Tables:

```
SELECT *
FROM Course

SELECT *
FROM Teacher

SELECT *
FROM LocationNTime

SELECT *
FROM Student
```

100 %

Results Messages

	CourseN	CourseName	Nunit
3	3	Formal Languages and Automata	3
4	4	Database Systems	3
5	5	Software Engineering	5
6	6	Systems Programming	3
7	7	Computer Organization and Assembly Programming	3
8	8	Formal Languages and Automata	3
9	9	Database Systems	3
10	10	Software Engineering	5

	CourseN	Quarter	TeacherName
1	9	Fall 2005	Karen Reed
2	8	Fall 2012	Karen Reed
3	7	Fall 2016	Jacob Smith
4	4	Spring 2005	Karen Reed
5	3	Spring2005	Jacob Smith
6	2	Summer 2011	Jacob Smith
7	1	Winter2011	Jacob Smith

	CourseN	Quarter	DayTime	RoomN
2	7	Fall 2016	F5:00PM	723
3	9	Fall 2005	M1:00...	723
4	1	Winter2011	M2:00...	34
5	2	Summer 2...	M4:00...	12
6	8	Fall 2012	MWF1:...	723
7	5	Spring 2005	T4:00PM	723
8	3	Spring2005	Th4:00...	723
9	4	Spring 2005	W4:00...	723

	studentName	CourseN	Quarter
1	David Weidman	1	Winter2011
2	Ron Smith	1	Winter2011

1. List the name of every teacher (distinct names) who teaches in RoomN ‘34’ in Winter2011

```
-- Number 1
SELECT T.TeacherName
FROM Teacher T INNER JOIN LocationNTime L
ON T.Quarter = 'Winter2011'
AND L.RoomN = 34
```

100 %

Results | Messages

	TeacherName
1	Jacob Smith

2. List CourseN, CourseName, and TeacherName of every course meets on Monday PM.

```
-- Number 2
SELECT C.CourseN, C.CourseName, T.TeacherName
FROM Course C, Teacher T, LocationNTime L
WHERE T.Quarter = L.Quarter
AND C.CourseN = L.CourseN
AND L.DayTime LIKE 'M%PM'
```

100 %

Results | Messages

	CourseN	CourseName	TeacherName
1	9	Database Systems	Karen Reed
2	1	Systems Programming	Jacob Smith
3	2	Computer Organization and Assembly Programming	Jacob Smith
4	8	Formal Languages and Automata	Karen Reed

3. List the name of every teacher who taught at least one course in RroomN ‘723.’

```
-- Number 3
SELECT T.TeacherName
FROM Teacher T INNER JOIN LocationNTime L
ON T.CourseN = L.CourseN
WHERE L.RoomN = 723
```

100 %

Results | Messages

	TeacherName
1	Karen Reed
2	Karen Reed
3	Jacob Smith
4	Karen Reed
5	Jacob Smith

4. List the CourseN, Quarter, RoomN and DayTime of every course taught by ‘Karen Reed’ in the Spring 2005.

```
-- Number 4
SELECT T.CourseN, T.Quarter, L.RoomN, L.DayTime
FROM Teacher T INNER JOIN LocationNTime L
ON T.CourseN = L.CourseN
WHERE T.Quarter = 'Spring 2005'
AND T.TeacherName = 'Karen Reed'
```

100 %

Results | Messages

	CourseN	Quarter	RoomN	DayTime
1	4	Spring 2005	723	W4:00PM

5. List the CourseN and TeacherName of every course taken by the student ‘Ron Smith’ or by the student ‘David Weidman.’

```
-- Number 5
SELECT T.CourseN, T.TeacherName
FROM Teacher T INNER JOIN Student S
ON (S.studentName = 'Ron Smith'
OR S.studentName = 'David Weidman')
AND T.CourseN = S.CourseN
```

100 %

Results | Messages

	CourseN	TeacherName
1	1	Jacob Smith
2	1	Jacob Smith

6. List the CourseN and Quarter of every course taught by ‘Karen Reed’ and met or meets in RoomN ‘713’.

```
-- Number 6
SELECT C.CourseN, T.Quarter
FROM Course C LEFT JOIN Teacher T
ON T.CourseN = C.CourseN  LEFT JOIN LocationNTime L
ON L.CourseN = T.CourseN
WHERE T.TeacherName = 'Karen Reed'
OR L.RoomN = 713
```

100 %

Results | Messages

	CourseN	Quarter
1	4	Spring 2005
2	8	Fall 2012
3	9	Fall 2005

7. List the name of every teacher who has taught the same course at least two times.

```
-- Number 7
SELECT T.TeacherName
FROM Teacher T, LocationNTime L, Course C
GROUP BY TeacherName
HAVING COUNT(C.CourseName) > 2
```

100 %

Results | Messages

	TeacherName
1	Jacob Smith
2	Karen Reed

8. List the name of every teacher(distinct names) who has taught at least two different courses in the same or different quarters.

```
-- Number 8
SELECT DISTINCT TeacherName
FROM Teacher T INNER JOIN Course C
ON T.CourseN = C.CourseN
GROUP BY TeacherName
HAVING COUNT(T.CourseN) >= 2
```

100 %

Results | Messages

	TeacherName
1	Jacob Smith
2	Karen Reed

9. List the CourseN, CourseName, and Quarter which meets or met at least two times a week.

```
-- Number 9
SELECT C.CourseN, C.CourseName, L.Quarter
FROM Course C, LocationNTime L
WHERE (L.DayTime LIKE '_______PM'
OR L.DayTime LIKE '_______AM')
AND C.CourseN = L.CourseN
```

100 %

Results | Messages

	CourseN	CourseName	Quarter
1	8	Formal Languages and Automata	Fall 2012

10. List the CourseN and CourseName of every course with number of units > 4.

```
-- Number 10
SELECT C.CourseN, C.CourseName
FROM Course C
WHERE C.Nunit > 4
```

100 %

Results | Messages

	CourseN	CourseName
1	5	Software Engineering
2	10	Software Engineering

11. List every course number and student's name who has taken the course at least twice.

```
-- Number 11
SELECT C.CourseN, S.studentName
FROM Course C, Student S
GROUP BY C.CourseN, S.studentName
HAVING COUNT(C.CourseN) >= 2
```

100 %

Results | Messages

CourseN	studentName

12. Use '*' to list the CourseN, CourseName, Nunit, Quarter, TeacherName of every course sorted by CourseN ascending, CourseName descending.

```
-- Number 12
SELECT C.*, T.*
FROM Course C left join Teacher T ON C.CourseN = T.CourseN
ORDER BY C.CourseN ASC

SELECT C.*, T.*
FROM Course C left join Teacher T ON C.CourseN = T.CourseN
ORDER BY C.CourseName DESC
```

100 %

Results | Messages

	CourseN	CourseName	Nunit	CourseN	Quarter	TeacherName
1	1	Systems Programming	3	1	Winter2011	Jacob Smith
2	2	Computer Organization and Assembly Programming	3	2	Summer 2011	Jacob Smith
3	3	Formal Languages and Automata	3	3	Spring2005	Jacob Smith
4	4	Database Systems	3	4	Spring 2005	Karen Reed
5	5	Software Engineering	5	NULL	NULL	NULL
6	6	Systems Programming	3	NULL	NULL	NULL
7	7	Computer Organization and Assembly Programming	3	7	Fall 2016	Jacob Smith
8	8	Formal Languages and Automata	3	8	Fall 2012	Karen Reed
9	9	Database Systems	3	9	Fall 2005	Karen Reed
10	10	Software Engineering	5	NULL	NULL	NULL

	CourseN	CourseName	Nunit	CourseN	Quarter	TeacherName
1	1	Systems Programming	3	1	Winter2011	Jacob Smith
2	6	Systems Programming	3	NULL	NULL	NULL
3	5	Software Engineering	5	NULL	NULL	NULL
4	10	Software Engineering	5	NULL	NULL	NULL
5	8	Formal Languages and Automata	3	8	Fall 2012	Karen Reed
6	3	Formal Languages and Automata	3	3	Spring2005	Jacob Smith
7	4	Database Systems	3	4	Spring 2005	Karen Reed
8	9	Database Systems	3	9	Fall 2005	Karen Reed
9	7	Computer Organization and Assembly Programming	3	7	Fall 2016	Jacob Smith
10	2	Computer Organization and Assembly Programming	3	2	Summer 2011	Jacob Smith

13. List the CourseN and Quarter of every course taught by two different instructors in the same quarter ordered by the CourseN in descending order.