CS4350 Database Systems                    HW#2

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Given the following relational database schema:

Student = (SSN, Name, Major)

Course = ( CourseNumber , CourseTitle, NumberOfUnits, RoomNumber, DayTime), where
DayTime is of the form MW 1:0-2:00.

Enrollment = (SSN , CourseNumber, Grade)

Express the following queries using SQL statements with minimum number of tables and
operations.

1.  List the SSN and name of every student who is enrolled in the course 'Database System'.

SELECT Student.SSN, Student.Name
FROM Student
JOIN Enrollment ON Student.SSN = Enrollment.SSN
JOIN Course ON Enrollment.CourseNumber = Course.CourseNumber
WHERE Course. CourseTitle = 'Database System';


2.  List every course number in which both 'John Smith' and 'Kevin Miller' are enrolled.

SELECT DISTINCT e1.CourseNumber
FROM Enrollment e1
JOIN Enrollment e2 ON e1.CourseNumber = e2.CourseNumber
JOIN Student s1 ON e1.SSN = s1.SSN
JOIN Student s2 ON e2.SSN = s2.SSN
WHERE s1.Name = 'John Smith' AND s2.Name = 'Kevin Miller';


3.  List the name of every student whose name starts with the letter S and ends with the letter
    M, and has earned the grade B in at least one course.

SELECT s.Name
FROM Student s
JOIN Enrollment e ON s.SSN = e.SSN
WHERE s.Name LIKE 'S%M' AND e.Grade = 'B';

4. List the name of every student who earned an A in at least one course.

```
SELECT DISTINCT s.Name
FROM Student s
JOIN Enrollment e ON s.SSN = e.SSN
WHERE e.Grade = 'A';
```

5. List the SSN, Name, Course Number, and Grade for every student and course.

```
SELECT e.SSN, s.Name, e.CourseNumber, e.Grade
FROM Enrollment e
JOIN Student s ON e.SSN = s.SSN;
```

6. List the SSN and Name of every student who has no grade in at least one course.

```
SELECT s.SSN, s.Name

FROM Student s

JOIN Enrollment e ON s.SSN = e.SSN

WHERE e.Grade IS NULL
```

7. List the name of every student who enrolled in at least two courses.

```
SELECT s.Name
FROM Student s
JOIN Enrollment e ON s.SSN = e.SSN
GROUP BY s.SSN, s.Name
HAVING COUNT(e.CourseNumber) >= 2;
```

8. List the name of every student who hasn't taken any course.

```
SELECT s.Name
FROM Student s
JOIN Enrollment e ON s.SSN = e.SSN
GROUP BY s.SSN, s.Name
HAVING COUNT(e.CourseNumber) = 0;
```

9. List the SSN and the name of every student who does not have a grade in any course, i.e all her or his grades are null.

SELECT s.SSN, s.Name
FROM Student s
JOIN Enrollment e ON s.SSN = e.SSN
WHERE e.Grade IS NULL


10. List the SSN and Name of all students who do not have the grade A in any course.

SELECT s.SSN, s.Name
FROM Student s
JOIN Enrollment e ON s.SSN = e.SSN
WHERE e.Grade != 'A'