CS4350 Database Systems Solution of HW#2

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 AQL 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 S.SSN , S.Name

FROM Student S , Enrollment E , Course C

WHERE S.SSn=E.SSN AND C.CourseNumber = E. CourseNumber. AND C

.CourseTitle=’ Database Sysytems’;

1. List every course number in which both ‘John Smith’ and ‘Kevin Miller’ are enrolled.

SELECT E.CourseNumber

FROM Enrollment E , Student S

WHERE E. SSN= S.SSN AND S.Name=’John Smith’ AND

E. CourseNumber IN ( SELECT EE.CourseNumber

FROM STUDENT SS , Enrollment EE

WHERE SS.SSN= EE.SSN AND SS.Name = ‘Kevin Miller’ );

1. 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, Enrollment E

WHERE. S.SSN= E.SSN AND E.Grade= ‘B’AND S.Name LIKE ‘S%M’

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

SELECT S.SSN, S.Name

FROM Student S , Enrollment E

WHERE S.SSN= E.SSN AND E.Grade= ‘A’;

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

SELECT S.SSN , S.Name, E.CourseNumber, E.Grade

FROM Student S, Enrollment E

WHERE S.SSN= E.SSN

1. 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 ,Enrolment E

WHERE S.SSN= E.SSN AND E.Grade is NUlL

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

SELECT S.Name

FROM Student S, Enrollment E1 E2

WHERTE S.SSN= E1.SSN AND S.SSN= E2.SSN AND

E1.CourseNumber != E2.CourseNumber

1. List the name of every student who hasn’t taken any course.

SELECT S.Name

FROM Student. S

WHERE. S.SSN NOT IN ( SELECT E.SSN

FROM Enrollment E);

1. 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

WHERE S.SSN NOT IN (SELECT E.SSN

FROM Enrolment E

WHERE E.Grade is NOT NULL);

This solution includes the students who haven’t taken any course To exclude theses students, the solution should be as follows:

SELECT. S.SSN, S.Name

FROM Student S , Enrollment EE

WHERE S.SSN= EE.SSN. AND S.SSN NOT IN (SELECT E.SSN

FROM Enrolment E

WHERE E.Grade is NOT NULL);

1. 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 , Enrollment EE

WHERE S.SSN= EE.SSN. AND S.SSN NOT IN (SELECT E.SSN

FROM Enrolment E

WHERE E.Grade =’A’);