use AI1708

create table Department

(DeptID varchar(4) primary key,

Name Nvarchar(50) not null,

NoofStudents int )

create table Students

(StudentID varchar(4) primary key,

LastName Nvarchar(10),

FirstName Nvarchar(30),

Sex varchar(1),

DateOfBirth Date,

PlaceOfBirth Nvarchar(30),

DeptID Varchar(4),

Scholarship float,

AverageScore float,

check (Sex = 'F' or Sex = 'M'))

create table Courses(

CourseID varchar(4) primary key,

Name Nvarchar(35),

Credits tinyint

)

CREATE TABLE Results (

StudentID varchar(4),

CourseID varchar(4),

Year int,

Semester int,

Mark float,

Grade varchar(6),

PRIMARY KEY (StudentID, CourseID, Year, Semester),

FOREIGN KEY (StudentID) REFERENCES Students(StudentID),

FOREIGN KEY (CourseID) REFERENCES Courses(CourseID)

);

INSERT INTO Department(deptid, name) VALUES

('IS', 'Information Systems'),

('NC', 'Network and Communication'),

('SE', 'Software Engineering'),

('CE', 'Computer Engineering '),

('CS', 'Computer Science')

INSERT INTO Students(studentid, lastname, firstname, sex, dateofbirth, placeofbirth, deptid, scholarship) VALUES

('S001', 'Lê', 'Kim Lan', 'F', '02/23/1990', 'Hà nội', 'IS', 130000),

('S002', 'Trần', 'Minh Chánh', 'M', '12/24/1992', 'Bình Định', 'NC', 150000 ),

('S003', 'Lê', 'An Tuyết', 'F', '02/21/1991', 'Hải phòng', 'IS', 170000) ,

('S004', 'Trần', 'Anh Tuấn', 'M', '12/20/1993', 'TpHCM', 'NC', 800000),

('S005', 'Trần', 'Thị Mai', 'F', '08/12/1991', 'TpHCM', 'SE', 0 ),

('S006', 'Lê', 'Thị Thu Thủy', 'F', '01/02/1991', 'An Giang', 'IS', 0 ),

('S007', 'Nguyễn', 'Kim Thư', 'F', '02/02/1990', 'Hà Nội', 'SE', 180000) ,

('S008', 'Lê', 'Văn Long', 'M', '12/08/1992', 'TpHCM', 'IS', 190000)

INSERT Into Courses(courseid, name, credits) VALUES

('DS01', 'Database Systems', 3 ),

('AI01', 'Artificial Intelligence', 3),

('CN01', 'Computer Network', 3 ),

('CG01', 'Computer Graphics', 4 ),

('DSA1', 'Data Structures and Algorithms', 4 )

INSERT INTO Results(studentid, courseid, year, semester, mark) VALUES

('S001', 'DS01', 2017, 1, 3),

('S001', 'DS01', 2017, 2, 6 ),

('S001', 'AI01', 2017, 1, 4.5),

('S001', 'AI01', 2017, 2, 6 ),

('S001', 'CN01', 2017, 3, 5 ),

('S002', 'DS01', 2016, 1, 4.5),

('S002', 'DS01', 2017, 1, 7 ),

('S002', 'CN01', 2016, 3, 10 ),

('S002', 'DSA1', 2016, 3, 9 ),

('S003', 'DS01', 2017, 1, 2 ),

('S003', 'DS01', 2017, 3, 5 ),

('S003', 'CN01', 2017, 2, 2.5 ),

('S003', 'CN01', 2017, 3, 4 ),

('S004', 'DS01', 2017, 3, 4.5 ),

('S004', 'DSA1', 2018, 1, 10 ),

('S005', 'DS01', 2017, 2, 7 ),

('S005', 'CN01', 2017, 2, 2.5 ),

('S005', 'CN01', 2018, 1, 5 ),

('S006', 'AI01', 2018, 1, 6 ),

('S006', 'CN01', 2018, 2, 10 )

--2

UPDATE Department

SET noofstudents = 4 WHERE deptid = 'IS';

UPDATE Department

SET noofstudents = 2 WHERE deptid = 'NC';

UPDATE Department

SET noofstudents = 2 WHERE deptid = 'SE';

UPDATE Department

SET noofstudents = 0 WHERE deptid = 'CE' OR deptid = 'CS';

--3

WITH StudentScores AS (

SELECT

studentid,

courseid,

MAX(mark) AS highest\_mark

FROM

Results

GROUP BY

studentid,

courseid

)

SELECT

studentid,

AVG(highest\_mark) AS AverageScore

FROM

StudentScores

GROUP BY

studentid;

--4

UPDATE Results

Set grade = 'Passed' WHERE 5 <= mark and mark <= 10;

UPDATE Results

Set grade = 'Failed' WHERE 0 <= mark and mark < 5

--5

SELECT studentid, firstname+ ' ' + lastname as FullName, dateofbirth, placeofbirth, deptid, scholarship from Students

WHERE scholarship < 160000 order by scholarship DESC

--6

select Department.deptid, Department.name as DepartmentName, Students.studentid, Students.firstname, Students.lastname

from Department inner join Students on Department.DeptID = Students.DeptID

--7

SELECT Results.StudentID, LastName, FirstName, COUNT(courseid) as NumberOfCourses FROM Students

JOIN Results ON Students.StudentID = Results.StudentID

GROUP BY Results.StudentID, LastName, FirstName

ORDER BY NumberOfCourses;

--8

SELECT D.DeptID, D.Name as DepartmentName,

(SELECT COUNT(\*) FROM Students WHERE Sex = 'F' AND DeptID = D.DeptID) AS NumberOfFemaleStudents,

(SELECT COUNT(\*) FROM Students WHERE Sex = 'M' AND DeptID = D.DeptID) AS NumberOfMaleStudents

FROM Department D

--9

--10

SELECT Courses.CourseID, Courses.Name as CourseName,

Students.LastName + ' ' + Students.FirstName AS BestStudentFullName, MAX(R.Mark) AS Mark

FROM Results R

JOIN Courses ON R.CourseID = Courses.CourseID

JOIN Students ON R.StudentID = Students.StudentID

GROUP BY Courses.CourseID, Courses.Name, Students.LastName + ' ' + Students.FirstName

select \* from Students

select \* from Department

select \* from Courses

select \* from Results