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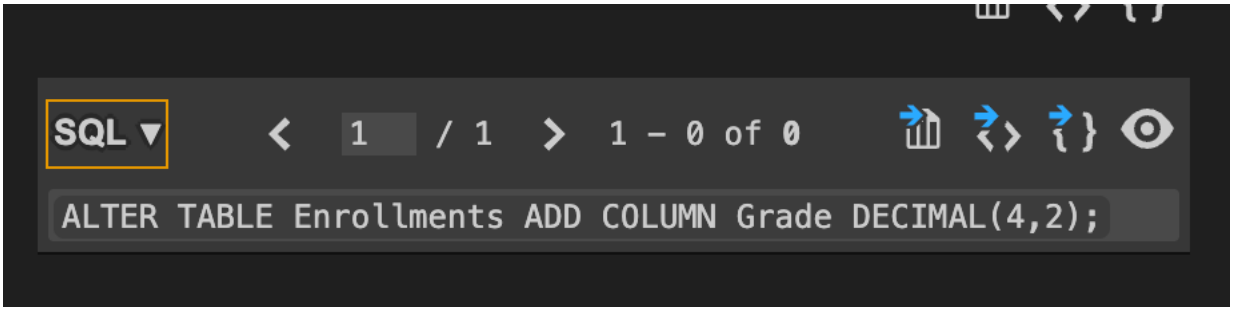
Id: 2023ebcs005

Topic: SGA 1- Database Creation and Data Manipulation for an Education System

3:

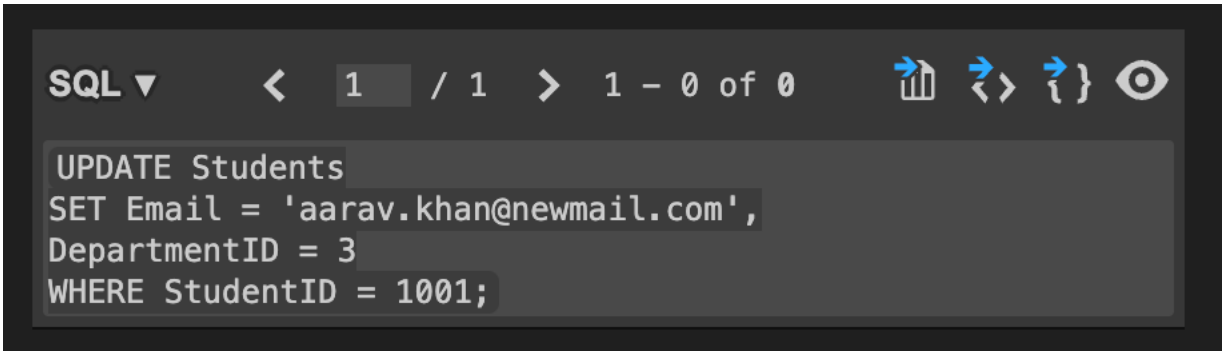
```
ALTER TABLE Enrollments ADD COLUMN Grade DECIMAL(4,2);
```



]

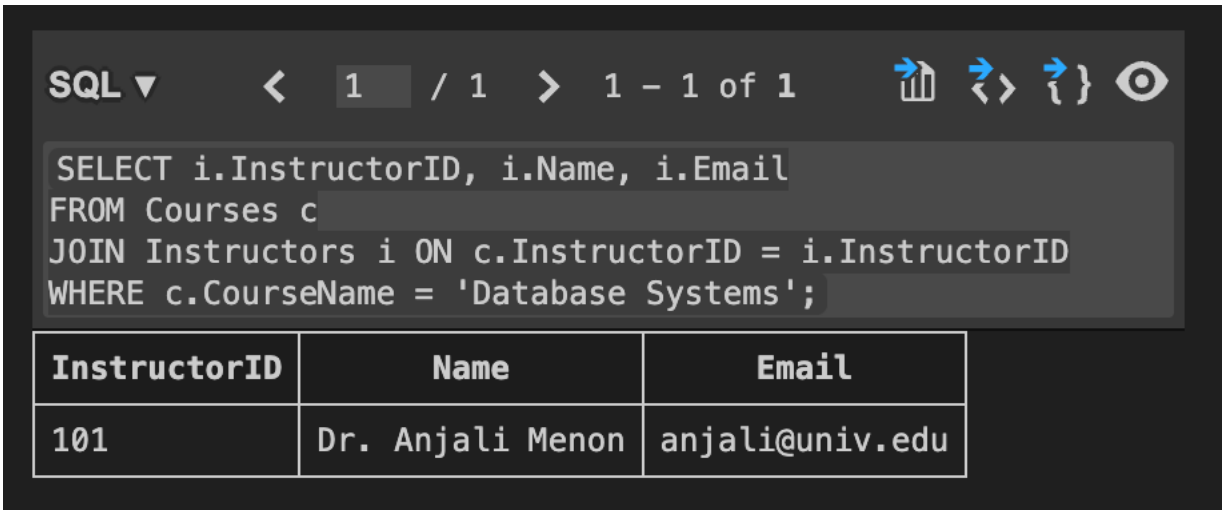
3-1

```
UPDATE Students
SET Email = 'aarav.khan@newmail.com',
    DepartmentID = 3
WHERE StudentID = 1001;
```



3-2

```
SELECT i.InstructorID, i.Name, i.Email
FROM Courses c
JOIN Instructors i ON c.InstructorID = i.InstructorID
WHERE c.CourseName = 'Database Systems';
```



3-3

```
SELECT d.DepartmentName, COUNT(DISTINCT e.StudentID) AS TotalStudents
FROM Departments d
LEFT JOIN Courses c ON d.DepartmentID = c.DepartmentID
LEFT JOIN Enrollments e ON c.CourseID = e.CourseID
GROUP BY d.DepartmentID, d.DepartmentName;
```

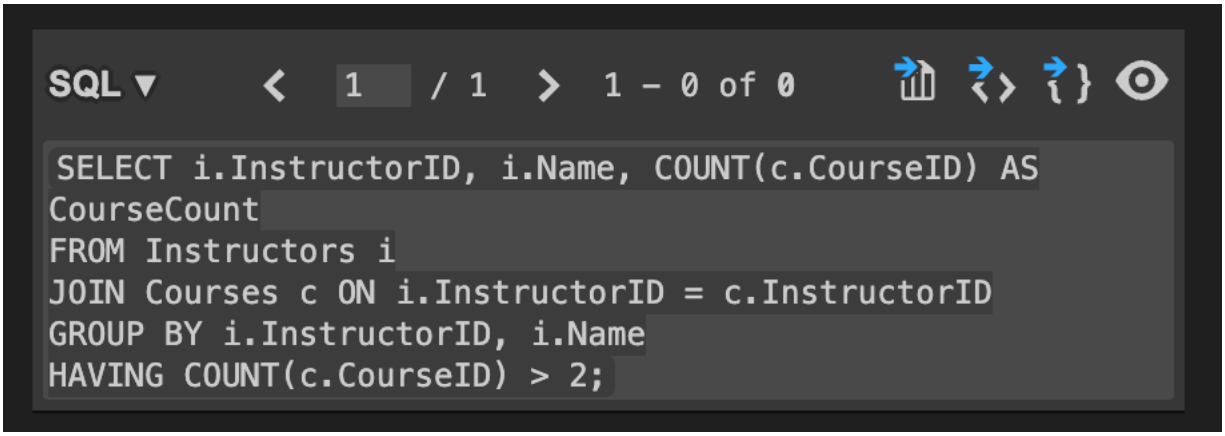
SQL ▼ 1 / 1 1 - 10 of 10

```
SELECT d.DepartmentName, COUNT(DISTINCT e.StudentID) AS
TotalStudents
FROM Departments d
LEFT JOIN Courses c ON d.DepartmentID = c.DepartmentID
LEFT JOIN Enrollments e ON c.CourseID = e.CourseID
GROUP BY d.DepartmentID, d.DepartmentName;
```

DepartmentName	TotalStudents
Computer Science	3
Mechanical Engineering	1
Mathematics	2
Electrical Engineering	2
Business Administration	1
Civil Engineering	1
Physics	1
Chemistry	1
Economics	1
Biotechnology	0

3-4

```
SELECT i.InstructorID, i.Name, COUNT(c.CourseID) AS CourseCount
FROM Instructors i
JOIN Courses c ON i.InstructorID = c.InstructorID
GROUP BY i.InstructorID, i.Name
HAVING COUNT(c.CourseID) > 2;
```



3-5

```
SELECT c.CourseName, AVG(e.Grade) AS AverageGrade
FROM Courses c
JOIN Enrollments e ON c.CourseID = e.CourseID
GROUP BY c.CourseName;
```

SQL ▼ 1 / 1 1 - 10 of 10

```
SELECT c.CourseName, AVG(e.Grade) AS AverageGrade
FROM Courses c
JOIN Enrollments e ON c.CourseID = e.CourseID
GROUP BY c.CourseName;
```

CourseName	AverageGrade
Data Structures	NULL
Database Systems	NULL
Digital Electronics	NULL
Linear Algebra	NULL
Marketing Principles	NULL
Microeconomics	NULL
Organic Chemistry	NULL
Quantum Mechanics	NULL
Structural Analysis	NULL
Thermodynamics	NULL

3-6

```
SELECT c.CourseName, COUNT(e.EnrollmentID) AS EnrollmentCount
FROM Courses c
LEFT JOIN Enrollments e ON c.CourseID = e.CourseID
GROUP BY c.CourseName;
```

SQL ▼ 1 / 1 1 - 10 of 10

CourseName	EnrollmentCount
Data Structures	2
Database Systems	3
Digital Electronics	2
Linear Algebra	2
Marketing Principles	1
Microeconomics	1
Organic Chemistry	1
Quantum Mechanics	1
Structural Analysis	1
Thermodynamics	1