

Normalization

```
CREATE DATABASE b;
```

```
USE b;
```

```
CREATE TABLE UnnormalizedTable (  
    StudentID INT,  
    StudentName VARCHAR(100),  
    Courses VARCHAR(255),  
    InstructorNames VARCHAR(255)  
);
```

```
INSERT INTO UnnormalizedTable (StudentID, StudentName, Courses, InstructorNames)  
VALUES  
(101, 'Alice', 'Math, Physics', 'Smith, Johnson'),  
(102, 'Bob', 'Chemistry', 'Davis'),  
(103, 'Charlie', 'Physics, Math', 'Johnson, Smith');
```

```
CREATE TABLE StudentCourses (  
    StudentID INT,  
    StudentName VARCHAR(100),  
    Course VARCHAR(100),  
    Instructor VARCHAR(100)  
);
```

```
INSERT INTO StudentCourses (StudentID, StudentName, Course, Instructor)  
VALUES  
(101, 'Alice', 'Math', 'Smith'),  
(101, 'Alice', 'Physics', 'Johnson'),  
(102, 'Bob', 'Chemistry', 'Davis'),
```

```
(103, 'Charlie', 'Physics', 'Johnson'),  
(103, 'Charlie', 'Math', 'Smith');
```

```
CREATE TABLE Students (  
    StudentID INT PRIMARY KEY,  
    StudentName VARCHAR(100)  
);
```

```
INSERT INTO Students (StudentID, StudentName)  
VALUES  
(101, 'Alice'),  
(102, 'Bob'),  
(103, 'Charlie');
```

```
CREATE TABLE Enrollments (  
    StudentID INT,  
    Course VARCHAR(100),  
    Instructor VARCHAR(100),  
    PRIMARY KEY (StudentID, Course),  
    FOREIGN KEY (StudentID) REFERENCES Students(StudentID)  
);
```

```
INSERT INTO Enrollments (StudentID, Course, Instructor)  
VALUES  
(101, 'Math', 'Smith'),  
(101, 'Physics', 'Johnson'),  
(102, 'Chemistry', 'Davis'),  
(103, 'Physics', 'Johnson'),  
(103, 'Math', 'Smith');
```

```
CREATE TABLE Courses (  
    Course VARCHAR(100) PRIMARY KEY,  
    Instructor VARCHAR(100)  
);
```

```
INSERT INTO Courses (Course, Instructor)  
VALUES  
('Math', 'Smith'),  
('Physics', 'Johnson'),  
('Chemistry', 'Davis');
```

```
CREATE TABLE Enrollments12(  
    StudentID INT,  
    Course VARCHAR(100),  
    PRIMARY KEY (StudentID, Course),  
  
    FOREIGN KEY (Course) REFERENCES Courses(Course)  
);
```

```
INSERT INTO Enrollments12 (StudentID, Course)  
VALUES  
(101, 'Math'),  
(101, 'Physics'),  
(102, 'Chemistry'),  
(103, 'Physics'),  
(103, 'Math');
```