

CSC-351/621 – Database Management Systems (DBMS)

Assignment 2 – Relational Database Modeling

Demonstration in class on Monday, March 4th, 2019

Part 1 (local server | use terminal/CMD or Data Grip only):

You are required to translate the following ERD into SQL DDL commands to create the database and use DML commands (e.g., insert into) to add random data into all entities (**at least 5 instances in each entity**).

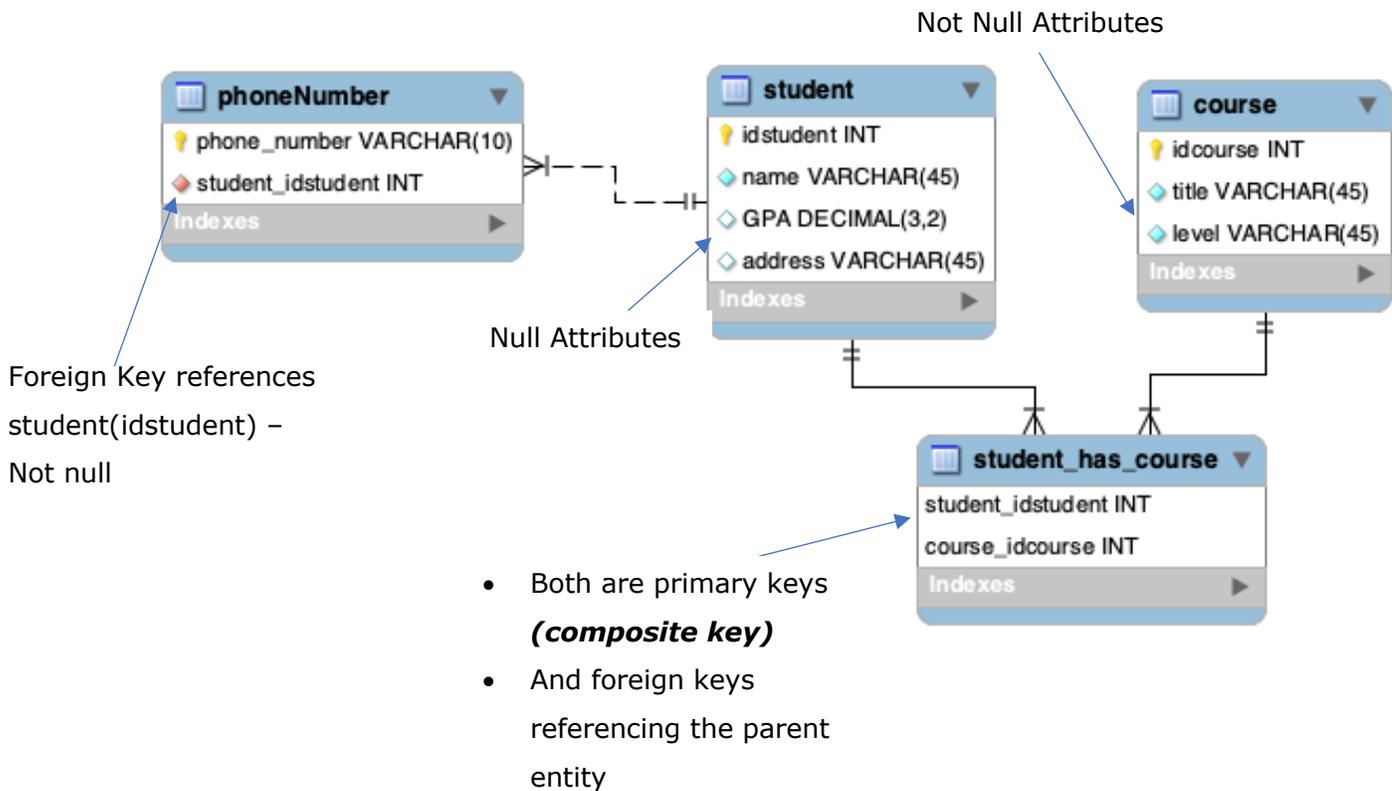
Then, write SQL (DML) queries to return the followings:

1. Display all student names and GPA's
2. How many students are there?
(your result must be in a column named number_of_students)
3. How many undergraduate courses are there?
4. How many students have a GPA greater than 3.5
5. Display the GPA of the student whose name is "Mark Johnson"
6. Display all Computer Science courses. Note, Computer Science courses have their title start with "csc"
7. What is the average grade of all students?
8. What courses Mark Johnson is taking? Include course title and level as well
9. Display all student's information including their phone numbers
10. Who is taking csc351? Include name, GPA, and student I.D
11. Count How many courses **for each** level. In addition, add courses to the counter/number of courses. See the below sample and use the exact column names:

For example:

Level	Number_of_courses
Undergraduate	3 courses
Graduate	7 courses

12. Count how many numbers each student has
Add data such that 1 student has multiple phone numbers
13. Display the name of students who have more than 1 phone number
14. The name of students and their I.Ds. who have not taken any courses



Not necessary

Sample DDL for student_has_course intersection entity:

Database name

Entity name

```

-- Table `students`.`student_has_course`
CREATE TABLE IF NOT EXISTS `students`.`student_has_course` (
  `student_idstudent` INT NOT NULL,
  `course_idcourse` INT NOT NULL,
  PRIMARY KEY (`student_idstudent`, `course_idcourse`),
  FOREIGN KEY (`student_idstudent`)
  REFERENCES `students`.`student` (`idstudent`),
  FOREIGN KEY (`course_idcourse`)
  REFERENCES `students`.`course` (`idcourse`)
)

```

The DECIMAL column definition follows the format DECIMAL(M, D) where *M* is the maximum number of digits (the precision) and *D* is the number of digits to the right of the decimal point (the scale). For example, DECIMAL(3,2) where 3 is the total number of digits and 2 is the number of digits to follow the decimal point. This will match the standard format of a GPA (i.e., 3.27).