

HOMEWORK 1: ER-Model

Database Design 1: ArtBase

Although you always wanted to be an artist, you ended up being an expert on databases because you love to cook data and you somehow confused database with data baste. Your old love is still there, however, so you set up a database company, ArtBase, that builds a product for art galleries. The core of this product is a database that stores all the information that galleries need to maintain.

Galleries keep information about artists, their names (which are unique), birthplaces, date-of-birth, and style of art. For each piece of artwork, the artist, the year it was made, its unique title, its type of art (e.g., painting, lithograph, sculpture, photograph), and its price must be stored.

Pieces of artwork are also classified into art groups of various kinds, for example, portraits, still lifes, works by Picasso, or works of the 19th century; a given piece may belong to more than one group.

Each group is identified by a name (like those just given) that describes the group. Finally, galleries keep information about customers. For each customer, galleries keep that person's unique name, address, total amount of dollars spent in the gallery (very important!), and the artists and groups of art that the customer tends to like.

Database Design 2: UniversityDB

Consider a university database that keeps the following information.

- There are a number of students. For each student, the university maintains student given name, last name, student number, social security number, current address and phone, permanent address and phone, date-of-birth, gender. Both social security number and student number have unique values for each student.
- There are a number of departments. Each department is described by name, department code, office phone, and college. Both name and code have unique values for each department.
- There are a number of degree programs. Each degree has a degree level and a major (e.g., B.S. in Computer Science, M.S. in Software Engineering). A degree program must be administered by one and only one department.
- A student must enroll in at least one degree program as his/her major, but may have one or more other programs as minors.
- Each course has a course name, description, course number, credit hours, level. The value of course number is unique for each course. Each course is offered by one and only one department.

- A student must register for at least one course. For each registered course, the semester when it is register and the final grade must be recorded. Use numbers to represent grade, i.e., 0, 1, 2, 3, 4 for F, D, C, B, A, respectively.

Your tasks

You are asked to design two databases that capture their corresponding requirements listed above. Specifically, for each database, you are asked to

1. Draw an ER diagram. Write down any other assumptions that are not given, but are used by you to make the ER diagram complete.
2. Convert the ER diagram that you draw into a set of relations. For each relation, use SQL's "CREATE TABLE" to specify its name, attributes, and constraints (i.e., key, primary key, and foreign key).

Submission Instruction

Do NOT handwrite. Draw your diagrams using tools such as PowerPoint or Visio.

Submit all answers in a SINGLE file, in PDF format, through your Canvas account, by 01/31/2020.