COMP / IT 420 Database Theory and Design Spring 2021 HW 1: Advanced ERD Design

OPEN: February 3rd, 2021 12:00pm
DUE: February 16th, 2021 11:59pm

Introduction

This homework assignment asks you to design and implement a more complex ERD diagram. The goal is to get you more comfortable with the interpretation of business rules and the creation of correct entities, relationships, and attributes.

VUG DB (40 points)

For the following scenario, your ERD must comply with all the business rules and design requirements to receive full credit.

Please submit your ERD as a separate PNG or JPEG file with the following filename:
{Your Last Name}_COMP_420_Spring_2021_HW_01_ERD.{png || jpeg}

You work as a database designer for the University Glen at Channel Islands and they need help managing real estate visits to properties. The Visits to University Glen (VUG) database will need to track:
1. Properties available for rent or purchase (properties)
2. People interested in viewing a property (clients)
3. Real estate agents showing people around properties (realtors)
4. Purchase agreements for properties (purchases)
5. Rental agreements for properties (rental agreements)
6. Scheduled visits to properties (visits)

The following business rules apply:
1. A property must have an address, a number of bedrooms, a sale price and a unique identifier.
2. A property can only be visited by a single client and realtor at a particular time.
3. Any person (client or realtor) being described needs to have a first name, last name, birthdate, and state ID number.
4. A purchase agreement includes a purchase price, purchase date, and identifying information about the property, client and realtor.
5. A rental agreement has similar information to a purchase agreement but has the additional constraint of a bounded time interval (start and end) for the rental period.

6. A client and realtor can visit multiple properties.
7. A realtor can have many clients (and does not need to have one, business can be slow).
8. A client can have multiple realtors.
9. At most, a client can only appear on one rental agreement and one purchase agreement in the database.
10. A rental agreement or purchase agreement can only name one client as a renter or purchaser. (One renter per rental, one purchaser per purchase.)

Implementation requirements:
1. All relationships must include the proper connectivity on both sides of the relationship. (4pts)
2. There must be at least (but probably more than) one associative entity in the ERD.
3. Primary keys must be identified for each entity. (3 pts)
4. Foreign keys must be identified within each entity. (3 pts)
5. Correctly marked strong and weak relationships. (2 pts)
6. Follow standard naming conventions for each attribute name. (4 pts)
7. Assign each entity attribute a sensible datatype. (Make sure the datatypes are consistent for similar uses.) (4 pts)
8. ERD must be coherently organized with an interpretable layout. (4pts)