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Hw 6

1. Is your schema in 0NF? Explain.

No, our schema doesn’t have any columns with many attributes.

2. Is your schema in 1NF? Explain.

Yes, all columns are atomic in our schema.

3. Is your schema in 2NF? Explain.

No, our schema is no 2NF because non-key attributes don’t describe the primary key (gender column).

4. Is your schema in 3NF? Explain.

No, our schema is not 3NF because in our town table, the state and the zip doesn’t describe the town name. Gender also does not describe the superhero’s name.

5. What constraints must be used regarding villains?

Each villain needs to have a UNIQUE name and a NOT NULL constraint. We may also want to have a DEFAULT villain if one is not specified.

6. What constraint must be used to ensure that no single superhero is associate with a particular color? In other words, what constraint must exist to prevent Bunny Man from being associated with Blue, Blue and Blue three times?

We need to have a UNIQUE constraint on the superheroes\_colors pair.

7. What are the foreign keys in this database schema? Name the table and column.

superheros has team\_it, power\_id, villain\_it, town\_id

superheros\_powers has superhero\_id, power\_id

superheros\_colors has superhero\_id, color\_id

8. What general constraints should be used on the foreign keys?

In this database schema, all foreign keys should be NOT NULL and DATA TYPE.

9. What foreign key constraints should exist in this database schema?

In this database schema, all foreign keys should be NOT NULL and UNIQUE. If a Superhero is attached to a team when you DELETE the superhero you RESTRICT if its attached to a team.

10. What indexes should exist when we know that the schema will be used for the following queries?

A. Finding a villain by name.

You would create an index on the villains name column

B. Finding all the female (or male) superheroes.

You would create an index on the superheroes gender column

C. Finding all the superheroes in a particular state.

You would create an index on the superheroes name and a town.state

D. Finding all of the superheroes on a particular team, given the team name.

You would create an index team.name and the superheroes team\_id

E. Listing all of the superhero names that have a power, given the power name.

You would create an index on the power.name for each superhero with that power\_id

F. Listing all of the power names a superhero has, given the superhero name.

You would create an index on the superheros.name and the power.name associated with the superhero.power\_id