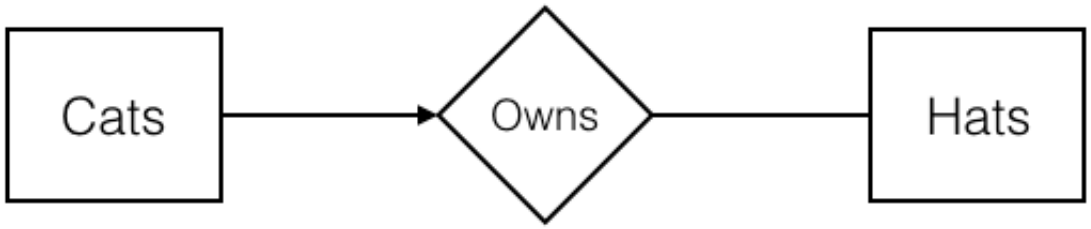
Quiz 08

Warmup

Let's consider the (very simple) ER diagram below for our new cats database.



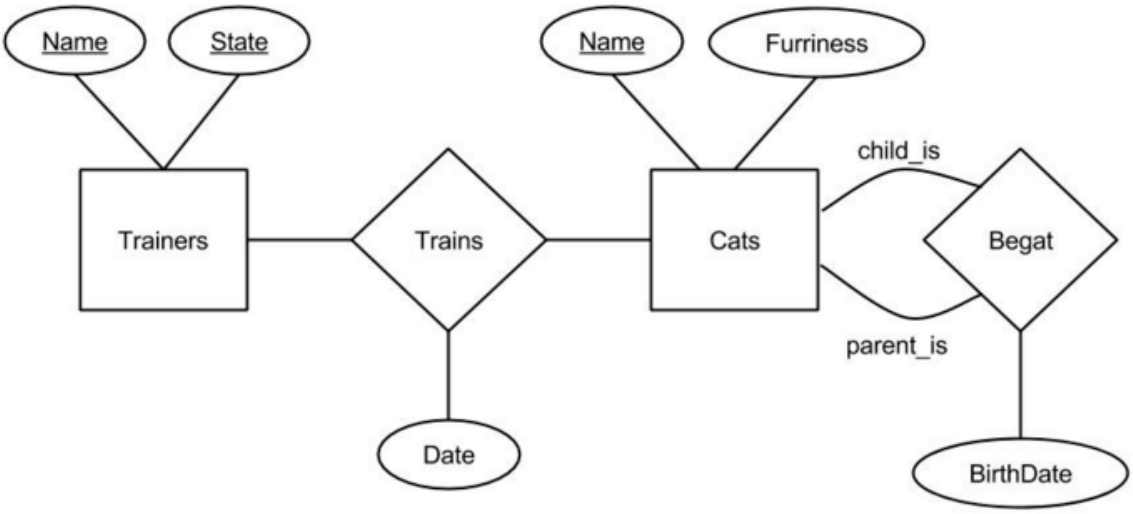
2. **1. Based on the above ER diagram, which of the following can be true?** *
   Check all that apply.

   - [ ] A cat can own no (zero) hats.
   - [ ] A cat can own many hats.
   - [ ] A hat can be owned by no (zero) cats.
   - [ ] A hat can be owned by many cats.

3. **2. In general, which of the following statements are true?** *
   Select all that apply. There is at least one true option.
   Check all that apply.

   - [ ] A relationship involving a key constraint can be many-to-many.
   - [ ] A 1-to-1 relationship must involve two key constraints, and vice versa.
   - [ ] A 1-to-{1, many} relationship must involve at least one key constraint
   - [ ] A many-to-{1, many} relationship must involve at least one participation constraint.
   - [ ] A many-to-many relationship must involve two participation constraints, and vice versa.
   - [ ] A relationship involving a participation constraint can be 1-to-1.

Let's now consider a more interesting model, between Cats and their Trainers. Keys for each entity set are underlined. Initially, there are no key constraints and no participation constraints.



4. **3. We want to model the relationship that every trainer must have trained at least one cat. What kind of constraint do we have between Trainers and Trains?** *
   Mark only one oval.
   - Key constraint with total participation
   - Key constraint with partial participation
   - No key constraint with total participation
   - No key constraint with partial participation

5. **4. We want to model the relationship that every cat has exactly one trainer. What kind of constraint do we have between Trains and Cats?** *
   Mark only one oval.
   - Key constraint with total participation
   - Key constraint with partial participation
   - No key constraint with total participation
   - No key constraint with partial participation

6. **5. Every cat has exactly 2 parents. What type of constraint on "parent_is" best captures this relationship?** *
   Mark only one oval.
   - Key constraint with total participation
   - Key constraint with partial participation
   - No key constraint with total participation
   - No key constraint with partial participation

7. **6. Every cat can beget 0 or more kittens. What type of constraint on "child is" best captures this relationship?** *

   Mark only one oval.

   - ◯ Key constraint with total participation
   - ◯ Key constraint with partial participation
   - ◯ No key constraint with total participation
   - ◯ No key constraint with partial participation

8. **7. Every cat has exactly 2 parents. You decide to add an extra relationship "parent2_is" to capture this effect. What type of constraint should "parent_is" and "parent2_is" now be?** *

   Mark only one oval.

   - ◯ Key constraint with total participation
   - ◯ Key constraint with partial participation
   - ◯ No key constraint with total participation
   - ◯ No key constraint with partial participation

9. **8. It turns out that historical records for purebred cat genealogy only go back a few hundred years. As such, some cats may not have parents associated with them. Working from your answer to the last question - what types of constraint do "parent_is" and "parent2_is" become?** *

   Mark only one oval.

   - ◯ Key constraint with total participation
   - ◯ Key constraint with partial participation
   - ◯ No key constraint with total participation
   - ◯ No key constraint with partial participation

10. **9. True/False: A weak entity behaves exactly like an entity with a key constraint and total participation.** *

    Mark only one oval.

    - ◯ True
    - ◯ False
