

Databases

Exercise 12

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Introduction

The goal of this exercise is to refresh the subjects of ER-diagram design and interpretation.

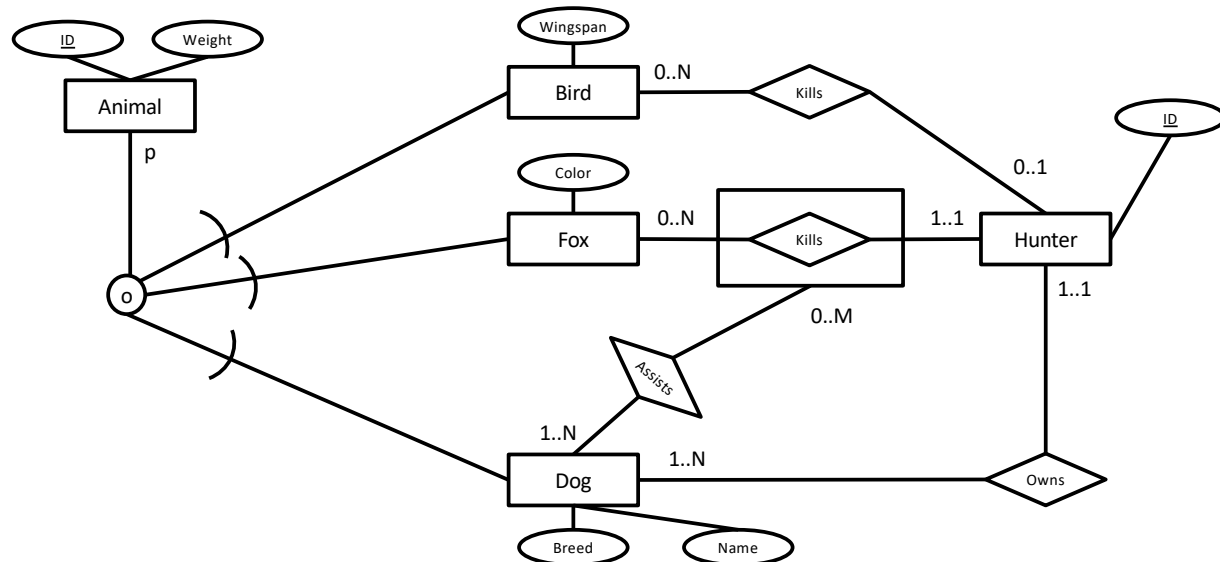
Deliverable

Submit one PDF file with results of Part 1 and/or an ER diagram from Part 2, and/or an SQL file with the DDL for Part 2. If you have time left, use it for old exams.

Note: You should preferably work together (onsite or via screen sharing) so that you can discuss the concepts. A group of up to 3 students may work together and submit the same file(s).

1 Foxes and Hounds

Note: This exercise is intentionally designed to be confusing, to prepare you for the real world where you may encounter counter-intuitive or outright nonsensical database designs!



In this part, consider ONLY the ER diagram above. Choose the correct statements below:

- (a) All foxes have a weight. ✓
- (b) A hunter can kill a fox without the assistance of a dog. ✗
- (c) A dog can kill a bird. ✗
- (d) Hunters are animals. ✗
- (e) All animals are dead. ✗
- (f) A hunter can kill a fox with the assistance of at least one dog. ✓
- (g) All foxes are dead. ✓
- (h) A bird can be killed by many hunters. ✗
- (i) All birds are dead. ✗
- (j) Given a hunter it is possible to find the total weight of the animals he/she has killed. ✓
- (k) A bird can be a dog. ✓

2 Godly Strife (by Johan von Tangen Sivertsen)

Zeus is tired of all the infighting among the gods. He has brought you to mount Olympus to help deal with the problem. To avoid conflicts Zeus wants a simple database that contains a description of each promise that the gods have made to humans. That way a god can quickly check for conflicts before making a new promise. In case conflicts arise anyway the database should track the various sacrifices made by humans to gods. The time, place and what items were sacrificed should all be recorded. Sacrifices are divisible into one of three categories, flesh, wine and valuables. Each category has different attributes that describe them but they all have value. It should be possible to sum up the total value of sacrifices a human has offered to a God to help resolve any conflicting promises.

Further, some humans are appointed priests, a priest is always promised protection by his associated God and if a sacrifice is conducted in a ceremony presided over by a priest, it is twice as valuable as normally. Any priest serves a single God. Finally Poseidon has requested that the database also tracks if a human attacks any sea-monster or cyclops and in that case a hecatomb should be deducted from their total sacrifice value for all gods.

1. Draw an ER-diagram that supports the requirements. Feel free to add identifiers and other attributes.
2. Write the DDL for a database according to your design.

Remember that Zeus will likely strike you down with lightning if he is not pleased with your work!