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CSC 315: Database Systems

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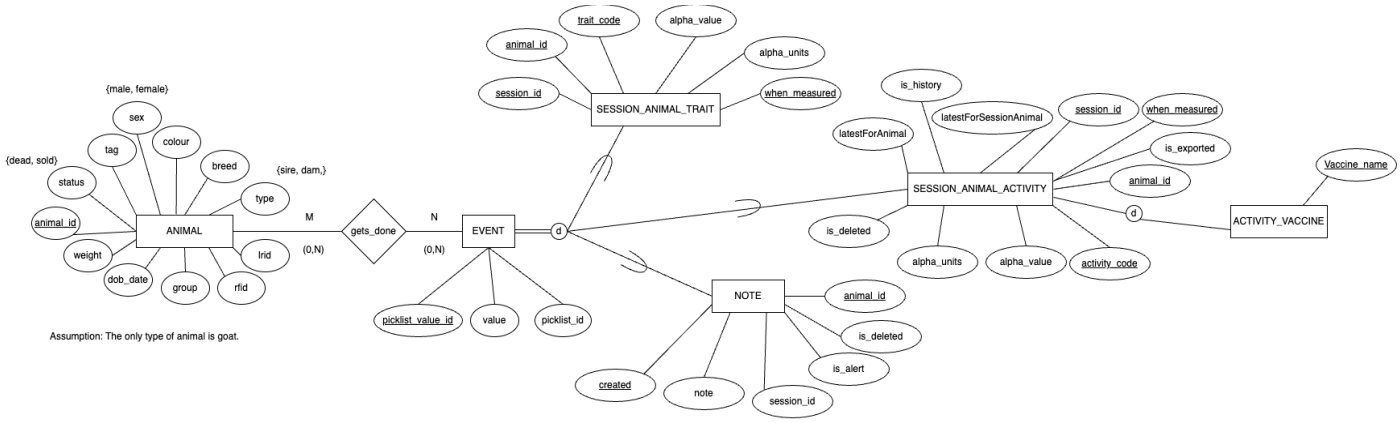
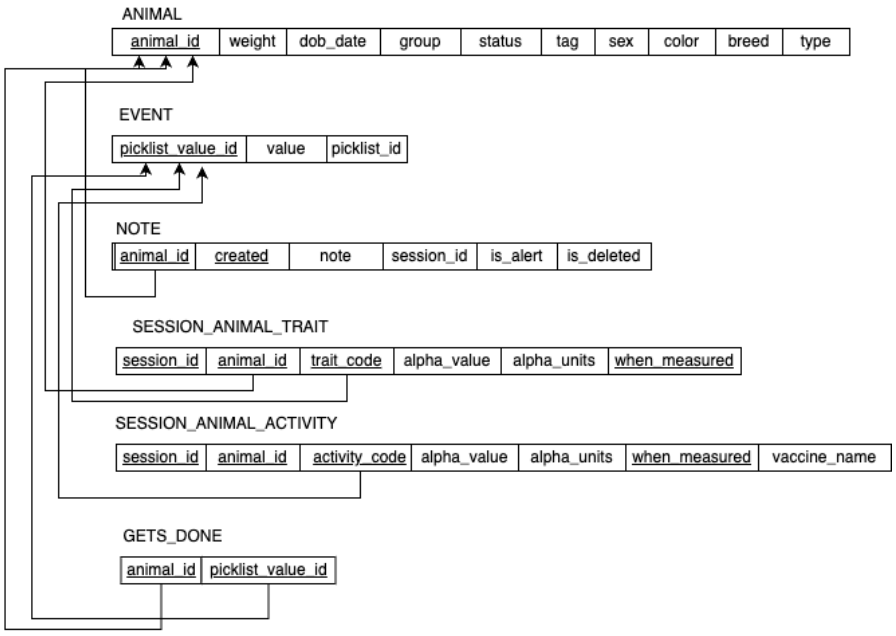
ER Diagram



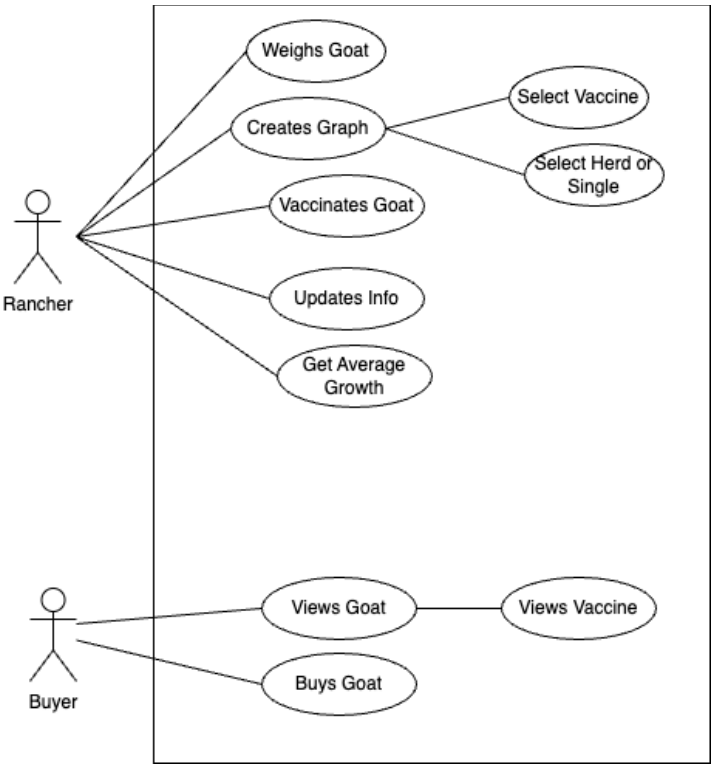
Relational Schema



Estimate the average size of the database: 24mb + ~4mb - 24mb is the size of the Data file as it currently is, and we'd need to include some extra (about 4 mb) to account for the charts our database would generate.

Estimated number of searches: Each query needs to retrieve information about herds of goats and the vaccines they receive, so we'd need to have at least 2 search queries per goat in the herd.

UML Use Case Diagram



Refined Textual Use Cases

Use Case 1: When the buyer/rancher views a certain goat, they will be allowed to view all the vaccines used on the goat and see their individual effects on the goat. After being prompted to select which vaccines they would like to view, the buyer/rancher can choose whether they would like to view the effects of said vaccine for the entire herd that the goat belongs to or only that of the goat itself. If they select to view by the entire herd, they can choose to view all goats' lifespans at once or to view the entire herd's growth rate chronologically. Here, if they choose to view by lifespan, the program will calculate the goat's average daily gain and create a graph that displays the ADG over their lives, along with a marker to indicate when the goat was vaccinated with that particular vaccine. We would also display sales or deaths of goats on this graph.

Use Case 2: If the rancher elects to view by the entire herd and its growth rate chronologically, they would first be prompted to enter a date range over which they would like to view the rate. Our program would calculate an average growth curve for the entire herd over this period using the ADG, also displaying markers for when goats were vaccinated. This would help the rancher observe any trends in the data and see if any ill effects are going unnoticed due to the timing of the vaccines.

Reasoning Behind the Database Design

Because our research questions involve the relationship between an animal (i.e. a goat) and a vaccine, there really exists only one relationship type that we need to focus on: a goat getting a vaccine done to it. This includes all the attributes that go along with goat and the entities and attributes that are involved with Session_Animal_Activity. We also need to keep track of when goats are sold/die. We designed our database around these specifications.