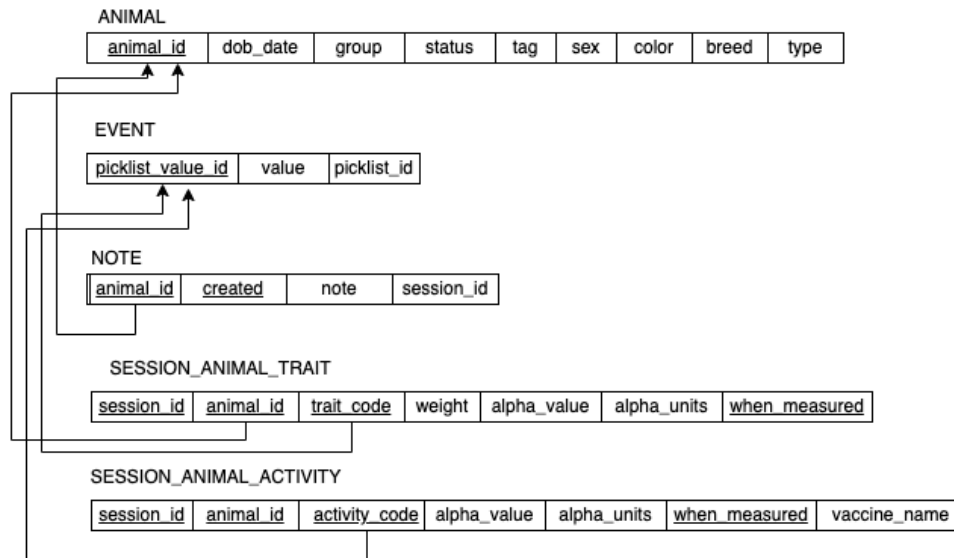Angelica Froio, Amaan Gadatia, Vicky Weng
CSC 315-02
Professor DeGood
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Project Phase IV - Group 16

This is our most recent version of the ER diagram for our project.

Task 2
Already in BCNF form:
- EVENT: value and picklist_id is determined by the picklist_value_id, which is the superkey
- NOTE: {animal_id, created} determines the session_id and the note
- ANIMAL: {animal_id} can retrieve all attributes in the relation
- SESSION_ANIMAL_TRAIT: {session_id, animal_id, activity_code, when_measured} determines weight, alpha_value, alpha_units
- SESSION_ANIMAL_ACTIVITY: {session_id, animal_id, activity_code, when_measured} determines alpha_value, alpha_units, vaccine_name

Note: got rid of gets_done

Task 3
SQL
CREATE TABLE ANIMAL (
        Animal_id INT PRIMARY KEY,
        Dob_date DATE,
        animal_group text,

```sql
        Status VARCHAR(50),
        Tag VARCHAR(50),
        Sex VARCHAR(10),
        Color VARCHAR(50),
        Breed VARCHAR(50),
        Type VARCHAR(50),
);

CREATE TABLE EVENT (
        Picklist_value_id INT PRIMARY KEY,
        Value VARCHAR(50),
        Picklist_id INT
);

CREATE TABLE NOTE (
        Animal_id INT,
        Created DATETIME,
        Note VARCHAR(255),
        Session_id INT,
        PRIMARY KEY (animal_id, created),
        FOREIGN KEY (animal_id) REFERENCES ANIMAL (animal_id)
);

CREATE TABLE TRAIT (
        Session_id INT,
        Animal_id INT,
        Trait_code VARCHAR(50),
        Weight INT,
        Alpha_value INT,
        Alpha_unit INT,
        When_measured DATETIME,
        PRIMARY KEY (session_id, animal_id, trait_code, when_measured)
        FOREIGN KEY (animal_id) REFERENCES ANIMAL (animal_id),
        FOREIGN KEY (trait_code) REFERENCES EVENT (picklist_value_id)
);

CREATE TABLE ACTIVITY (
        Session_id INT,
        Animal_id INT,
        activity_code VARCHAR(50),
```

```
        Alpha_value INT,
        Alpha_unit INT,
        When_measured DATETIME,
        vaccine_name text,
        PRIMARY KEY (session_id, animal_id, activity_code, when_measured)
        FOREIGN KEY (trait_code) REFERENCES EVENT (picklist_value_id)
);

CREATE VIEW growth_curve
AS SELECT A.animal_id, animal_group, dob_date, when_measured, weight, vaccine_name
    FROM Animal A, Trait T, Activity C
    WHERE A.animal_id = C.animal_id AND A.animal_id = T.animal_id;
```

The data needed for this view is all the information we would require in order to calculate the ADG's of goats and their growth curve. We would require the vaccination data to determine if vaccination has any impact on the growth curve itself. All the necessary data would be stored within this view.

Examples of queries in English:
- "Show me the growth curve for the specified goat."
- "Show me the growth curve for the specified herd."
- "Show me the length of time that has passed, in days, between the goat's birth date and when its weight was measured."

Task 4
Questions: Topic 4: Calculate a growth curve for the entire herd at any given point in time.
Our Topic: Does the length between the date of birth and vaccinated date have any impact on its growth rate and age when sold?

```
CREATE VIEW growth_curve
AS SELECT A.animal_id, animal_group, dob_date, when_measured, weight, vaccine_name
    FROM Animal A, Trait T, Activity C
    WHERE A.animal_id = C.animal_id AND A.animal_id = T.animal_id;

SELECT dob_date, when_measured, weight, vaccine_name
        FROM VIEW growth_curve
        WHERE animal_id = (specific goats you want to look at);

SELECT dob_date, when_measured, weight, vaccine_name
        FROM VIEW growth_curve
```

WHERE animal_group = (specific herd you want to look at);

The first query after the view defined above would be how we would extract the data required to perform the growth curve calculations. We would use the view we previously defined and select only the desired goats that we want to look at.
The second query would allow us to extract the necessary data to perform growth curve calculations on an entire herd based on the specified name of the herd.

SELECT A.animal_id, dob_date, vaccine_name, when_measured DATADIFF(when_measured, dob_date) AS birth_to_vax_days FROM ANIMAL A JOIN ACTIVITY C ON A.animal_id = C.animal_id WHERE vaccine_name IS NOT NULL;
   Data needed:
      -   Date of birth, vaccination date, animal id

The query above selects animal id, date of birth, vaccine and date that vaccine was given calculates the length between the day that the goat was born and the date that it was vaccinated. It will provide a list of numbers that represent the difference and can be used to compare against the growth curve to see any effects.

Task 5
The view growth_curve that we created is useful for us to implement our research question because it allows us to easily access many pieces of information that would be required to calculate the growth curve all in one place.