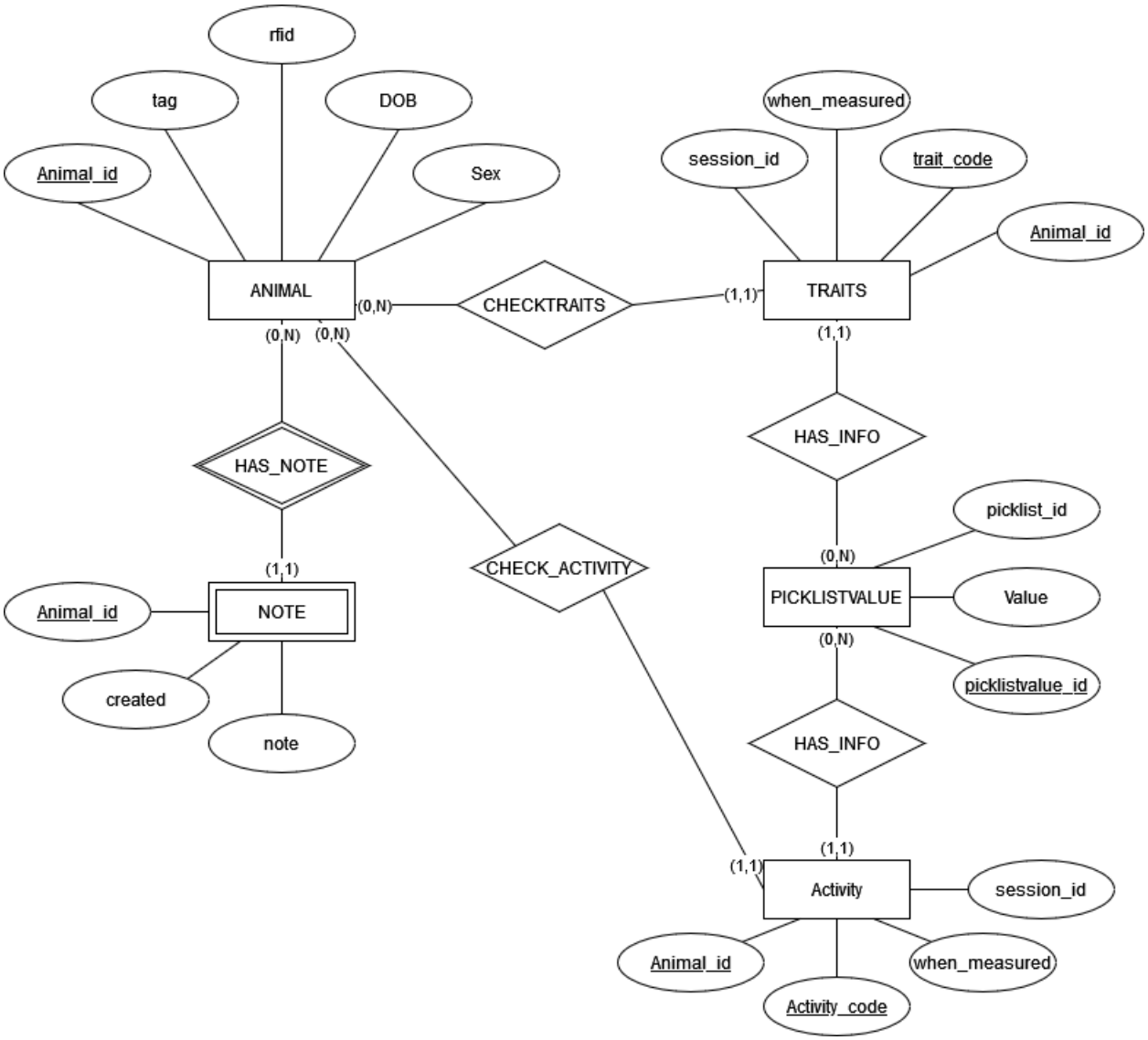
Michael Oflazian, Freddy Avila Cruz, Noah Springer

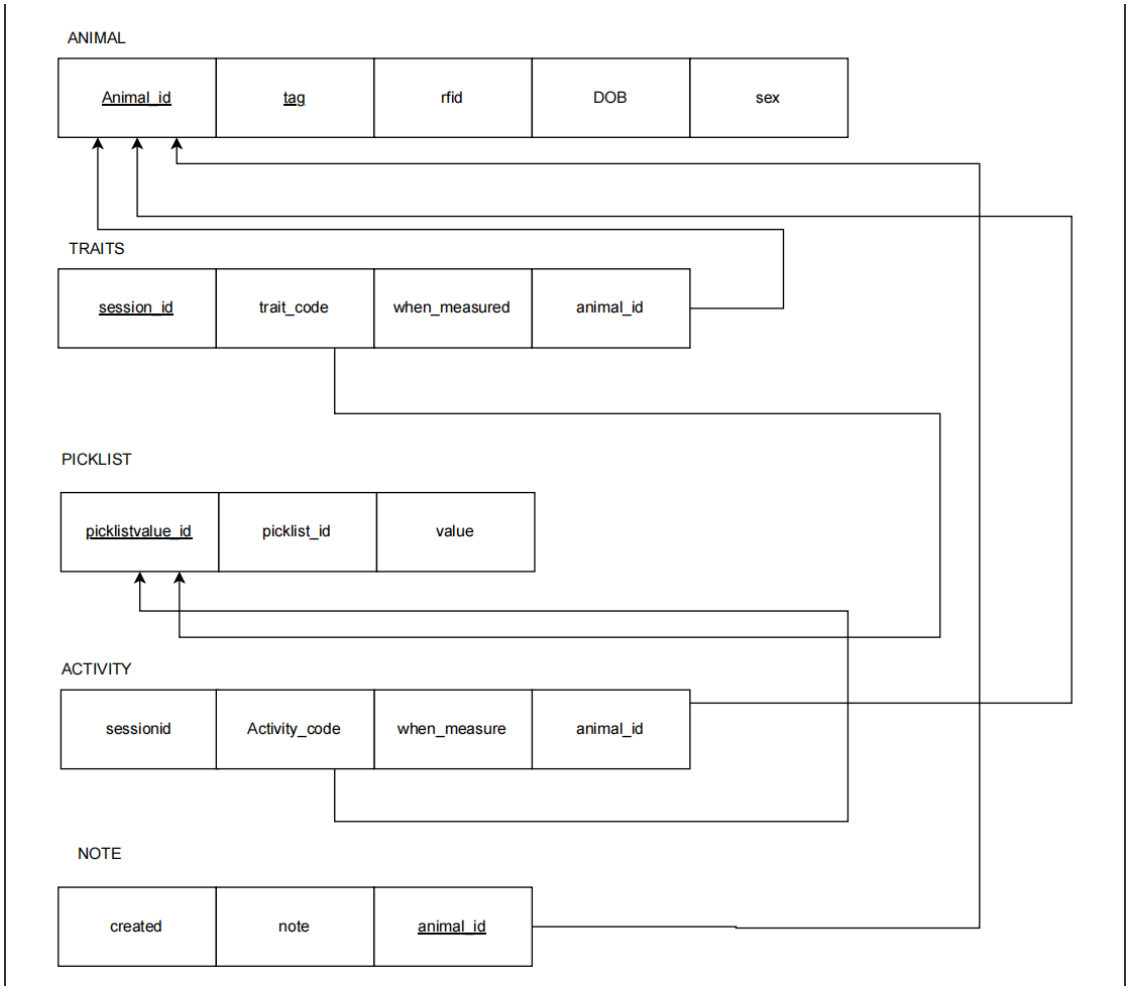
CSC 315

Phase III - Database Model

1. **Develop a complete entity-relationship (ER) diagram.**



2. **Map the ER/EER diagram to a relational schema.**



3. **Estimate database size and types and average number of searches.**
    a. **The initial database size should be around (8277*122(bytes could vary based on the input of note,value,sex)) = 1.009794 mb**
    b. **Our search function will be simple:**
        i. **Basic function:**
            1. **Search animal**
        ii. **Searching Data:**

1. **Search for birth weight**

iii. **Filtering Data**

1. **Specifically looking at weight for females**
2. **Based on age**
3. **Kids**

iv. **Average Data (Optional)**

1. **Average weight**
2. **Average Age**

v. **Therefore, this could take 4-6 searches for the project topic.**

c. **For our topic of interest**

i. **Basic function**

1. **Searching animal**

ii. **Searching data:**

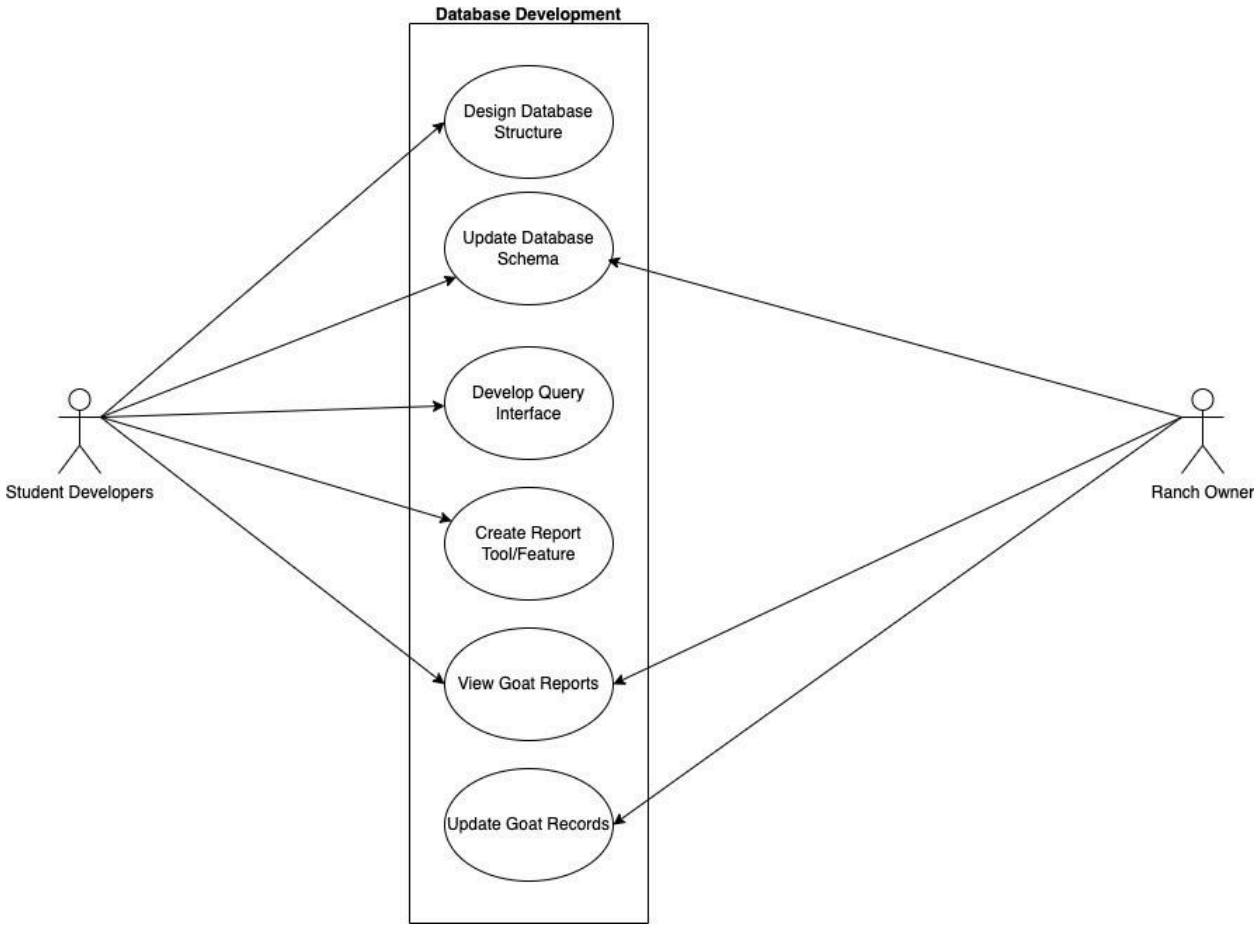
1. **Search for notes/activities vaccinations**
2. **Searching for data without vaccinations**

iii. **Concluding data**

1. **Seeing the impact on birth weight**

iv. **For our topic of interest, this could take 3-4 searches.**

4. **Develop a complete UML Use Case diagram.**



5. **Refine the textual use cases.**

Textual Use Case 1: Develop Query Interface

Actors: Student Developers

Goal:

- Developers (us) aim to create a user-friendly query interface that allows the ranch owner to retrieve our information from the database easily.

Preconditions:

- The group has access to the database.
- An understanding of the ranch owner's requirements for querying the database.

Success Scenario:

- Design a simple and intuitive GUI for these queries
- The interface includes filters and search criteria based on the animal ID, traits, and activities, etc.
- Integrate the query interface with the database, ensuring it can access and retrieve the data.
- Test the interface with sample queries

Textual Use Case 2:

Actors: Student Developers

Goal:

- To design and implement a feature that allows the generation of comprehensive goat reports for our topic.

Preconditions:

- The database containing goat records is operational and has relevant data.
- The group has understood the requirements of the owner.

Success Scenario:

- Gather requirements from the ranch owner about what we need to put in the report
- Design a reporting feature that allows customization and filtering of data based on specific criteria
- They implement the report generation feature within the GUI
- Make sure the report feature is user-friendly
- The report feature is tested with actual data

6. **Describe the reasoning behind your database design, given the sustainability goals for the project.**

The design is made to support the sustainability goals of the project by enabling the collection, analysis, and reporting of critical data for our topic. The database will hold statistics for individual animals like traits such as birth weights and vaccination records, which are important for improving the health and productivity of the goats. The database will allow the user to explore the impact of maternal experience on offspring birth weight and the effects of vaccination on health. This data can improve reproductive health and help manage the best strategies for it. We will also create reports for features of the database design, converting all the crazy data into readable forms for analysis. These reports are important for informed decision-making, helping the ranch owner to make strategic choices that improve long-term sustainability. The inclusion of a user-friendly query interface also makes sure that non-technical stakeholders can interact with the system effectively and efficiently.