

Group05

5/3/2024

CSC 315: Database Systems

Group05 Final Report

Our group chose to do Partner Topic 5, which was to give each doe a point rating based on how good at being a mother they are. Our goal for the data was to be able to quickly and clearly display which does are the highest rated mothers, and which are the worst in the given group. In order to approach this problem, we needed to find the specific attributes we needed for each goat and connect it to them. First, we needed each goat's Animal_id, Tag, DOB (date of birth), Sex, BWT (birth weight), and Dam attributes. We then divided the goats into kids and mothers. The information we needed for goats listed as kids was their Animal_id, Tag, Dam, DOB, Twin_Triplet, and Vigor_Score. As for the mothers, we needed their Animal_id, Tag, DOB, Milk_Rating, Weaning_Score, and Mother_Score. Each attribute had a pre-set score range given to us by the client, which we used as our basis for scoring the goats. For example, if the mother had a single child, then she earned only one point for that child, whereas if she had twins she would have gotten four points, and if she had triplets she would have earned three points. To gain the total mothering score, we needed to take all of the scores from all of her children, find the sum of their value, and add them to the total mother score that she had already earned by her attributes alone.

For our second, individual research problem, we wanted to see whether a birthdate could be related to a goat's score. If goats born during a certain time of the

year were consistently outscoring goats born at other times, then the client would know to adjust the breeding season accordingly to produce more high-performing goats. In order to figure this out, we decided to break up the goats into their astrological signs and list each of the goats and their scores for that sign in a table that can be accessed from a set of buttons at the bottom of our GUI. This enables the client to quickly view how goats tend to perform for each individual astrological sign (each of which encompasses approximately one month's worth of goat births).

Our GUI is able to show a list of the top 30 does, worst 30 does, or all of the does and their scores from best to worst. All of these options are connected to buttons as input and will go to another page to show the list of does. We were additionally able to link kids with their mothers, so we are able to find all of the children who come from a certain dam. If we put in a mother's tag, it will be able to produce a list of her children and the scores associated with that specific child. Not only does this help to clarify and validate our data (because you can add up the scores from the children, and it will be quite close to the mother's total score), but it is also a good way to easily tell at a glance the approximate general health of that specific dam's children. The last thing in our GUI is that we left in the ability to search our whole database. Instead of switching between Postgres and our GUI we kept it in one spot. This is more of a developer feature but is nice if you have any specific information you want from our database that we haven't explicitly provided with our buttons.

Our project is beneficial to Silvies Valley Ranch because it will allow them to easily determine which goats are the best or worst mothers. This is crucial for reproduction, as it will allow the client to avoid breeding poorer mothers, thus avoiding

additional genetically poor kids and kids that may die before weaning because of inadequate or negligent mothering. This will further allow the ranch to more efficiently cull subpar goats from the herd while keeping the better performing goats, potentially leading to a rapid increase in the vitality and longevity of the herd (and therefore the species) as a whole.

Additionally, our project can help with the farm's goat sales. With the ability to see all of the data, we can specify certain attributes from the mothers that we might want to reproduce with. If someone were to come to the goat farm and wanted to buy a baby goat, with the ability to see the children of a specific mother, the buyer may be able to better choose what types of genetics they want. Goats of certain lineages may become more desirable than others. This can be very useful to the ranch and selling their goats as Silvies Valley Ranch can adjust their prices according to the score value of each goat, with good mothers and their bloodlines being the most valuable as they will have earned the highest amount of points.

Group05's Public Repos:

Nick Valentino <https://github.com/Nickval27>

Patrick Schaeffer <https://github.com/patschaef>

Kayley Harnett <https://github.com/harnettkay>