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IT 420 - Database Theory and Design

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Planning Document

1. The Big Bear Alpine Zoo in Big Bear in Big Bear Lake, CA is a facility specializing in the rehabilitation of wild animals. Those who suffer from permanent injuries or have already imprinted on humans spend the duration of their life on exhibit to continue receiving care. Currently, there are over 26 species of animals that need to be cared for, with every single one of them needing a set feeding, cleaning, and rehab schedule. This requires a database large enough to track not only the animals in the park, but its employees who will be administering the care of these animals. Other driving forces for the success of the zoo are its paying guests and donors, along with nonprofits and volunteers who are essential in bringing in funds that will help fund the care of these animals, and worker wages. These groups also need a reserved space in the zoo’s database to manage who is coming in and out of the park, but to distinguish the different types of supporters the facility welcomes. Overall, the zoo’s primary concern is of the animals and their goal is to constantly increase efficiency of care through the maintenance of employees and visitors. The database will be tackling the rehabilitation of its animals by monitoring its relationship with employees who will be assigned specific duties throughout the park. Additionally, a log of its guests, donors, and other sources of revenue will be maintained to manage which approaches are benefitting the zoo mostly.
2. The eight primary entities are:

i. Animals - the core of the zoo’s existence; without them the other entities would not exist.

ii. Species – break up the animals into different species to help categorize (i.e. Grizzly Bear & Black Bear)

iii. Exhibits - each species needs its dedicated area to avoid harm or injury.

iv. Employees - carry out each task with precision and rigidity.

v. Duties - specifies what tasks are to be performed and by whom.

vi. Visitors - the guests who step foot onto the facility to see its animals.

vii. Membership – Members purchase a yearly membership of varying levels

viii. Operating Hours - denotes park hours for both guests and employees.

ix. Admission - the different costs associated with entry into the park.

x. Feedings - essential to the recuperation and survival of its animals.

3. We plan to use information from the zoo’s site (bigbearzoo.org) to populate the majority of the data. If something specific cannot be found on their site, we will reference other zoos’ sites. This will help us create a realistic database for a business.

4. The business rules are:

i. There will be no more than one species per exhibit.

ii. Each animal may receive one or more feedings per day.

iii. There are many feedings to many animals

iii. An employee can have many duties.

iv. A visitor may purchase multiple admission tickets, and each ticket has a unique ticket ID.

v. More than one employee must be working concurrently for all duties.

vi. The zoo may or may not see any visitors for any given day.

vii. One membership to multiple visitors.

viii. Only one visitor gets logged with each entry; not the individual’s information.

ix. Donations pay for the care of an animal via an “adoption”, or to the zoo to appropriate.

x. There is one Animal to many species.

5. Sample queries:

i. User run sample queries:

a. A count of the animals in the zoo at any given time.

b. How many times the animal has been fed in the past 5 days.

c. The duties of an employee for a specific animal.

d. What was the Zoo’s average daily entry income in the past month.

ii. Generated reports:

a. A list of animals that have not been fed yet for the day.

* Keeping an accurate record of feedings is pertinent to an animal’s livelihood.

b. What donors, if any, are sponsoring specific animals.

* The zoo provides a donor an update upon request of their adopted animal.

c. The number of unique visitors during a given period.

* This is to track any trends in visitor interest and admission.

iii. Views:

a. All animal details in one comprehensive database, such as exhibit location, feeding times, and entry/departure dates.

b. List of donors excluding identifying information and amount donated.

c. Employee schedule for chosen exhibits.