CS 353 DATABASE SYSTEMS PROJECT PROPOSAL

ZOO MANAGEMENT SYSTEM

GROUP 33

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Abstract

In this project, you are going to implement a database management system for a zoo. The users are visitors and employees. The users are visitors or employees. An employee should be either a keeper, veterinarian or a coordinator.

Coordinators create events. An event can either be a group tour, educational program or a conservation organization. They invite veterinarians to educational programs. They assign keepers to the cages and respond to the complaint forms.

Keepers can request treatment for an animal that belongs to a cage they look after and schedules training for animals. They regularize food for the cages.

Veterinarians accept or reject invitations to educational programs and requested treatments for animals.

Visitors attend group tours by paying the requested amount for the selected group tour and make donations to the conservation organizations. They create complaint forms and comment on group tours.

1. **Introduction**

This report is a proposal for the Zoo Management System project. In this report, authentications of the users and their functionalities are explained with all the needed and related database components that should be in a zoo management system.

At first, under project description, the aim and properties of a Zoo Management System is explained. Then, the questions why we need this database and how we use this database are explained.

As the second part of the report, the requirements of the database explained in two categories as functional and non-functional. Functional requirements which required for building the system and establish its functionalities, will be based on the authentications of users which explains the permissions on the application. In order to help establishing the system functionalities we decided to use few non-functional requirements which are User-friendliness, reliability, capacity, scalability, security and authentication, quick response time and lastly, accurate data distribution is explained. As a last part of this section limitations of our system are explained in detail.

As a last part of the report, in order to visualize the system, E/R diagram which will be used as a basis for the project is given.

2. **Project Description**

Zoo Management System is a web-based application that will be used for managing and following the actions in a zoo. By implementing this system or application, there will be also an informing system for events for both visitors, researchers and employees. They will be able to track events and make reservations to participate in a particular event. The visitors will be able to make comments or fill complaint forms after their visit, and those forms will be seen and responded from the applications by the coordinators.

Moreover, there will be a treatment section which is for the keepers to request treatment to the veterinarians and the veterinarians to accept the request and regularize the necessary treatment for animals. Also, there will be a feeding section for the keepers to track the foods supplied for the cages and a training section to keep track of the training dates of animals.

Addition to the functionalities, the system will be updated continuously by employees to keep the data accurate and provide a better and user-friendly system. Also, user's comments will have a huge share in this system.

Hence, zoo management system is a database that will make enable its users to reach the required information they need about the zoo in an efficient and easy way and facilitate many of the operations for both all type of users.

3. Why We Need This Database

In a zoo, there are many varieties of animals, visitors and employees. Also, each animal has specific needs such as trainings, food regulation, or specific treatment. Therefore, in some cases, when there is a problem about an animal all the related employee, such as both keepers, veterinarians, should be aware of their tasks and be informed. Such a database can be a key point for such arrangements. Addition to the animals, in order to keep visitors satisfied and happy, or to make the employees more knowledgeable there are some events which created by coordinators and require a successful database implementation to make its design and management better and easier. At the end, there is huge pile of data goes through in a zoo circle which consists of employees, animals, researchers and visitors. These types of huge data can become much more manageable via an online database system. Hence, usage of our database not only make the life much easier for communication between employees and management of zoo but also, it will give visitors, researchers and other employees to see which events going on or may perform in the future and give an opportunity to make zoo more attractive for everyone. By creating such a system, we make the zoo not only a concrete structure but a globally accessible system which people can see the possible events & details remotely.

4. How We Use This Database

The database is going to provide capability to manage all the data related to the zoo management together with the visitors and the employees. The database will be used according to the users' demands for what information user needs with the help of queries. Database will be updated according to the events, the treatments and the regulations via using the existing entities and relations or if need new ones can be created too. The database will include current state of all the visitors, employees, animals and others. These include some planned events for

both visitors and employees, important information about employees, cages and animals, and the treatment or diet information of animals. Apart from storing, we will also use our database to relate different entities (visitor, employee, animal etc.) using relations in order to make access faster and reliable which includes but not limited to functions such as treatment requests, payments and donation information. Hence, our database will store all kinds of zoo information about its entities on our web-based application.

5. Functional Requirements

In our Zoo Management Database System, there are 3 main user types which are those visitors, employees and researchers, respectively. In the sections below functionalities of each user type provided.

5.1. Employees

Employees support five different user types: Keeper, Veterinarian, Coordinator, Guides and Security.

➢ All employees are authenticated to see their schedules.

➢ All employees are authenticated to update their personal information.

Coordinators

➢ Coordinators have an authentication that enables them to create new events which can be a group tour, an educational program, an endangered animal birthday or a conservation organization.

➢ Coordinators have an authentication that enables them to invite veterinarians to educational programs.

➢ Coordinators have an authentication that enables them to assign keepers to the cages.

➢ Coordinators have an authentication that enables them to respond to the complaint forms.

Veterinarians

➢ Veterinarians have an authentication that enables them to accept or reject the invitations of educational program coming from coordinators.

- ➢ Veterinarians have an authentication that enables them to accept or reject the requested treatments for animals.
- ➢ Veterinarians have an authentication that enables them to give treatment to the animals if needed.

Keepers

- ➢ Keepers have an authentication that enables them to request treatments for animals that belongs to a cage they look after.
- ➢ Keepers have an authentication that enables them to schedule training for animals.
- ➢ Keepers have an authentication that enables them to regularize food for the cages.
- ➢ Keepers have an authentication to respond the complaint forms.

Guides

- ➢ Guides have an authentication to see their scheduled tours.

Security

- ➢ Security has an authentication to see their designated areas.

5.2. Visitors

They are the least authenticated user type in this database.

- ➢ Visitors have an authentication that enables them to attend group tours via paying the requested amount for the selected group tour.
- ➢ Visitors have an authentication that enables them to make donations at the conservation organizations.
- ➢ Visitors have an authentication that enables them to create complaint forms.
- ➢ Visitors have an authentication that enables them to create comments.

5.3. Researchers

- ➢ Researchers are authenticated to speak in a particular Educational Program. They can speak in multiple programs.
- ➢ Researchers have an authentication to study on an animal or animals. They can make research on specified animals.

6. **Non-functional Requirements**

- **User-Friendliness**

    Our system must be user friendly which means its functions should be easily understood without any pre information or tutorial. For instance, there is a huge range of age among visitors (like 7 to 77 or more). So, the system's clarity and understandability are important for the users.

- **Reliability**

    Because of our system stores important information which necessary for food regulations or requested treatments, the system must not fail. Also, since it keeps tracks of the workdays and hours of employees, it is important for the system to be reliable to avoid confusion.

- **Capacity**

    Since we are trying to store huge piles of data of the animals, events or the treatments, the capacity of our system should be relatively big. Also, the number of the visitors may be huge, and this makes the kept datum bigger therefore capacity is a significant issue for this database.

- **Scalability**

    In our database there are many users both employees and visitors. So, there will be always action coming from many users at the same time. Hence, for our system scalability is an important factor. And it shouldn't encounter with errors in case of a high user requests that are coming at the same time.

- **Security and Privacy**

    In our database system every user has its own permissions/authentications to do some actions and these permissions can only be changed by the administrator. Also, since every user should login the system there will be some password requirements like length and putting some non-alphabet characters so that, we will be able to provide secured database. Furthermore, some important details about users, especially employees are kept in the database. To illustrate bank and personal details of the

employees need to be kept in a secure way therefore security is one of the primary concerns of our database.

- **Quick Response Time**

   For a management company which responsible from many visitors/customers, customers' content is very important. So, in our case for zoo management system if an animal gets sick the veterinarian should be called immediately, or while visitors making donations, looking for events they must not wait long. Hence, our system should work as fast as possible no matter what size of data it contains or what amount of data is requested, independent from the concurrent operations of users.

- **Accurate Data Distribution**

   While the visitors make donations or during any other transaction like salary and additionally during any management action there must not be any data loss. So, making the system components dependent each other may prevent our system from data loss.

7. Constraints
- We will use MySQL to implement our database.
- We will use JavaScript, PHP, CSS and HTML for our website.

8. Limitations
- ➢ If any veterinarians participate to an Educational Program, then that event becomes canceled.
- ➢ If an animal dies at his birthday, then the birthday party cancels.
- ➢ If there is no speaker in an Educational Program, then that event becomes canceled.
- ➢ If an animal is endangered, their records are kept even when they are dead.
- ➢ Invitations can only be done by coordinators but since which coordinator invited which veterinarian is not a significant information, it is not kept in the database in order to avoid unnecessary capacity usage as much as possible.

9. Website Of Reports
   http://cs353group33.tk/

10.   E/R Diagram
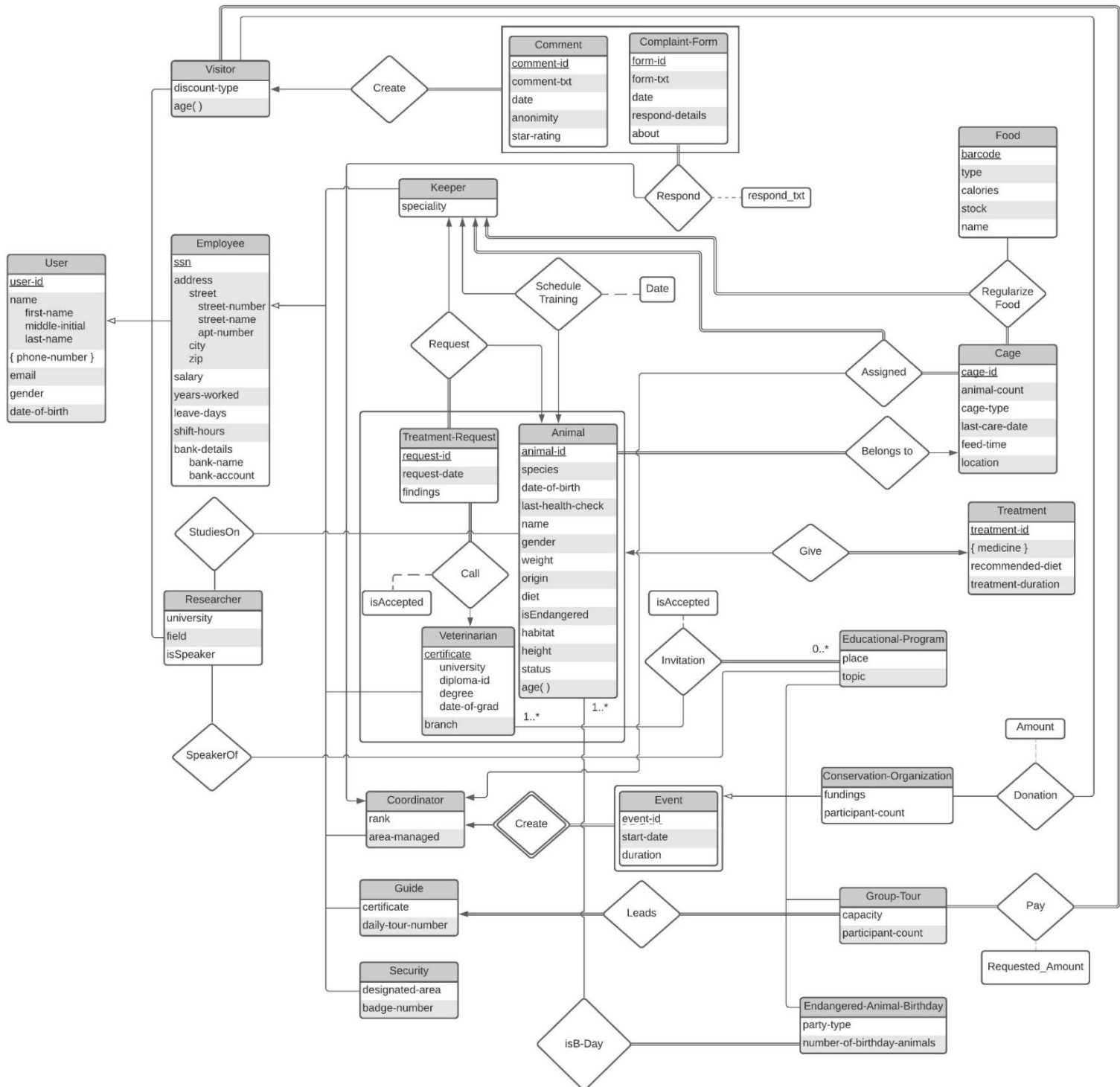
11.   Conclusion

The Zoo Management Database System is a web-based application for managing and visiting the zoo, created for both employees, visitors and researchers. The database shows the events created by coordinators, food regulations for animals, requested treatments for animals etc., and keeps the all the data about both users and the zoo. After giving sufficient information about the project and explaining why we need the database and how we use it, the requirements are explained in two sections as functional and non-functional. While functional requirements focus on user types in detail, non-functional requirements give information according to all users in general. As to last written part we described our limitations for the system. As to final part of this report, we provided an E/R diagram to give our database more visuality.