**BIM216 - DBMS - Term Project – Phase-2**

Group Number: G61

Project Number-Name: 1 - Animal Sanctuaries / Rehoming Database System

Group Members: İbrahim Yaşin – Emincan Tetik

Contribution of Group Members:

İbrahim Yaşin: wrote this word file, wrote SQL commands for the database, wrote codes of data.py

Emincan Tetik: updated ER diagram

**Contents of Zip Folder:**

-BIM216\_G61\_Phase2.docx

-animal\_sanctuaries\_database.sql (the database file)

-database diagram. vdiagram

-diagram picture.png

- ER diagram.png

-initialize\_all\_tables.sql (this contains all the SQL commands for creating animal\_sanctuaries database)

- data.py (this Python file was created for generating appropriate data and populating the database.)

**Table of Contents:**

-The Entity Sets and Relationships

-Picture of E/R Diagram

-Picture of Relational Database Schema

- SQL Commands

**E/R Diagram**

**The Entity Sets (Updated):**

* Departments(dept\_id, dept\_name)
* Locations(location\_id, zip\_code, country, city, address)
* Shelters(shelter\_id, capacity, location\_id, shelter\_name)
* Users(user\_id, email, first\_name, last\_name, password, gender, address, address2, is\_employee)
* Animals(animal\_id, gender, color, age, species, breed, shelter\_id, adoption\_status, vaccination\_status, microchip\_id, arrival\_date)
* Employees(emp\_id, dept\_id, job\_title)
* Salaries(emp\_id, from\_date, to\_date, salary)
* User\_Phones(user\_id, phone)
* Adopters(adopter\_id, animal\_id, adoption\_date, occupation)
* Donations(donation\_id, donation\_date, user\_id, donation\_ammount)
* Adoptions\_Application(application\_id, animal\_id, user\_id, date, status)
* Care\_Records(care\_id, health\_status, animal\_id, date, emp\_id, cost)
* Employment\_History(from\_date, to\_date, emp\_id, dept\_id)

**CHANGES AFTER PHASE ONE**

1. removed the phone attribute and created another table for phone numbers to save users' phone numbers with multiple phone numbers.

2. removed the name attribute from the users entity, and added first\_name and last\_name instead of that

3. added address and address2 attributes to the users entity

4. added is\_employee attributes to the users entity to check when logging into the system if the user is an employee also it will default to false for each new user. The main reason is that the employees are also a user and they can apply for adoption or donate like non-employee users do.

5. removed type from animals entity and added species and breed. This will make it easier for adopters to search for certain types of animals.

6. removed care\_id attribute from the animals entity because it does not make sense

7. removed the adoption\_date attribute from the animals entity, and added adoption\_status instead of that

8. added vaccination\_status, microchip\_id, arrival\_date attributes to the animals entity

9. removed phone, name, date, email, address, and salary attributes from employees entity,

the reason is explained in the 4th statement.

10. changed position\_id and personnel\_id to dept\_id and emp\_id respectively

11. removed salary attribute from employees entity and created a new entity named salaries to track employee’s salary changes.

12. added emp\_id, from\_date, to\_date, salary attributes to the salaries entity

13. changed the name of the position entity to departments and adjusted attributes names for new the entity name

14. removed name, address and phone attribute from the adopters entity because it causes redundancy

15. added status attribute to the adoption\_applications entity

**Relationships (Updated):**

* An employee belongs to only one department (one-to-one relationship)
* One department can have multiple employees (one-to-many relationships)
* One location can have multiple shelters (one-to-many relationships)
* One user can have multiple phone numbers (one-to-many relationships)
* One shelter can have multiple animals (one-to-many relationships)
* One user can make multiple donations (one-to-many relationships)
* One user can make multiple adoption applications (one-to-many relationships)
* One animal has one adapter (one-to-many relationships)
* One animal can have multiple adoption applications (one-to-many relationships)
* One animal can have multiple care records (one-to-many relationships)
* One employee can have multiple salary records (one-to-many relationships)
* One employee can have multiple employment history records (one-to-many relationships).

**Picture of E/R Diagram**

(ER diagram.png)

A picture containing diagram, plan, sketch, pattern

Description automatically generated

**Picture of Relational Database Schema**

(diagram picture.png)

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Description automatically generated

**SQL COMMANDS**

(Also inserted in the folder named initialize\_all\_tables.sql)

--CREATE DATABASE animal\_sanctuaries;

--DELETE DATABASE IF EXISTS animal\_sanctuaries;

-- creating departments table adding attrinute dept\_id as primary key

CREATE TABLE departments (

dept\_id VARCHAR(10) PRIMARY KEY,

dept\_name VARCHAR(255) NOT NULL

);

-- creating locations table adding attrinute location\_id as primary key

CREATE TABLE locations (

location\_id SERIAL PRIMARY KEY,

zip\_code VARCHAR(10) NOT NULL,

country VARCHAR(50) NOT NULL,

city VARCHAR(50) NOT NULL,

address VARCHAR(255) NOT NULL

);

-- creating shelters table adding attrinute shelter\_id as primary key, location\_id as foreign key

CREATE TABLE shelters (

shelter\_id SERIAL PRIMARY KEY,

capacity INT NOT NULL,

location\_id INT NOT NULL,

shelter\_name VARCHAR(255) NOT NULL,

FOREIGN KEY (location\_id) REFERENCES locations(location\_id)

);

-- creating users table

-- adding user\_id as a primary key, email as unique, is\_employee as not null

CREATE TABLE users (

user\_id SERIAL PRIMARY KEY,

email VARCHAR(255) NOT NULL UNIQUE,

first\_name VARCHAR(50) NOT NULL,

last\_name VARCHAR(50) NOT NULL,

password VARCHAR(255) NOT NULL,

gender VARCHAR(10) NOT NULL,

address VARCHAR(255),

address2 VARCHAR(255),

is\_employee BOOLEAN DEFAULT FALSE NOT NULL

);

-- creating animals table

-- adding animal\_id attribute as a primary key, shelter\_id as foreign key

CREATE TABLE animals (

animal\_id SERIAL PRIMARY KEY,

gender VARCHAR(10) NOT NULL,

color VARCHAR(50) ARRAY[5] DEFAULT '{}'::VARCHAR(50)[],

age INT,

species VARCHAR(50),

breed VARCHAR(50),

shelter\_id INT,

adoption\_status BOOLEAN NOT NULL,

vaccination\_status BOOLEAN,

microchip\_id VARCHAR(50) UNIQUE,

arrival\_date DATE NOT NULL,

FOREIGN KEY (shelter\_id) REFERENCES shelters(shelter\_id)

);

-- creating employees table

-- adding emp\_id attribute as a primary key, dept\_id as foreign key

CREATE TABLE employees (

emp\_id INT PRIMARY KEY REFERENCES users(user\_id),

dept\_id VARCHAR(10) NOT NULL,

job\_title VARCHAR(255),

FOREIGN KEY (dept\_id) REFERENCES departments(dept\_id)

);

-- creating salaries table

-- adding emp\_id attribute as a foreign key

CREATE TABLE salaries (

emp\_id INT NOT NULL,

from\_date DATE NOT NULL,

to\_date DATE DEFAULT '9999-01-01' NOT NULL,

salary NUMERIC(10, 2) NOT NULL,

FOREIGN KEY (emp\_id) REFERENCES employees(emp\_id)

);

-- creating user\_phones table

-- adding user\_id attribute as a foreign key

CREATE TABLE user\_phones (

user\_id INT NOT NULL,

phone VARCHAR(30) NOT NULL UNIQUE,

FOREIGN KEY (user\_id) REFERENCES users(user\_id)

);

-- creating adopters table

-- adding adopter\_id and animal\_id attribute as a foreign key

CREATE TABLE adopters (

adopter\_id INT NOT NULL,

animal\_id INT NOT NULL,

adoption\_date DATE NOT NULL,

occupation VARCHAR(255) NOT NULL,

FOREIGN KEY (animal\_id) REFERENCES animals(animal\_id),

FOREIGN KEY (adopter\_id) REFERENCES users(user\_id)

);

-- creating donations table

-- adding donation\_id as a primary key and user\_id attribute as a foreign key

CREATE TABLE donations (

donation\_id SERIAL PRIMARY KEY,

donation\_date DATE NOT NULL,

user\_id INT NOT NULL,

donation\_amount DECIMAL(10, 2) NOT NULL,

FOREIGN KEY (user\_id) REFERENCES users(user\_id)

);

-- creating adoptions\_application table

-- adding application\_id as a primary key and (animal\_id, user\_id) as a foreign key

CREATE TABLE adoptions\_application (

application\_id SERIAL PRIMARY KEY,

animal\_id INT NOT NULL,

user\_id INT NOT NULL,

date DATE NOT NULL,

status VARCHAR(50) DEFAULT 'pending' NOT NULL,

FOREIGN KEY (animal\_id) REFERENCES animals(animal\_id),

FOREIGN KEY (user\_id) REFERENCES users(user\_id)

);

-- creating care\_records table

-- adding care\_id as a primary key and (animal\_id, emp\_id) as a foreign key

CREATE TABLE care\_records (

care\_id SERIAL PRIMARY KEY,

health\_status VARCHAR(255),

animal\_id INT NOT NULL,

date DATE NOT NULL,

emp\_id INT NOT NULL,

cost DECIMAL(10, 2) NOT NULL,

FOREIGN KEY (animal\_id) REFERENCES animals(animal\_id),

FOREIGN KEY (emp\_id) REFERENCES employees(emp\_id)

);

-- creating employment\_history table

-- adding (emp\_id, dept\_id) as a foreign key

CREATE TABLE employment\_history (

from\_date DATE NOT NULL,

to\_date DATE DEFAULT '9999-01-01' NOT NULL,

emp\_id INT NOT NULL,

dept\_id VARCHAR(10) NOT NULL,

FOREIGN KEY (emp\_id) REFERENCES employees(emp\_id),

FOREIGN KEY (dept\_id) REFERENCES departments(dept\_id)

);