ISAN 5364 – Data Warehousing
Spring 2025
Assignment #1
(30 points)

Due Date: January 31, 2025

Austin Pet Clinic (APC) has recruited your team as a consultant for a project to design and implement a database to support their operation. As part of this project, you need to review and analyze the scenario described below to design the database for the clinic.

APC operates a pet clinic that provides services such as routine pet wellness exams and heartworm treatment. The clinic is open during regular business hours from 9:00 a.m. to 6:00 p.m. During the first visit to APC, each customer needs to complete a form that includes customer and pet information. For each customer, it is necessary to store customer number (unique identifier), first name, last name, middle name, street address, city, state, zip code, and telephone number. Data about each pet that needs to be stored includes pet number (unique identifier), pet name, pet category (e.g., dog), pet breed, color, birth date, and comments. Customer can provide comments about their pet(s), which includes any additional information the customer wants to provide about the pet to the clinic. Each customer can own one or more pets, and each pet is owned by a customer (i.e., for each pet data about one owner is maintained). APC maintains data about customers and pets who have scheduled one or more appointments. To provide medical care for pets, currently APC has three doctors (veterinarians). For each doctor, the database should store employee number (unique identifier), first name, last name, middle name, social security number, title, street address, city, state, zip code, and telephone number.

Customers call APC to make appointments to bring in their pet(s) for visits. Each pet appointment is for one pet's visit with a doctor. A doctor may not have had any appointments or visits with pets. Over a time period, a doctor has many appointments and visits with pets. For each pet appointment, it is necessary to store appointment number (unique identifier), appointment date, time, comments, total charge, and pet and doctor associated with the appointment. APC charges customers $25 for each appointment and additional amount for medications prescribed for their pets. If the customer keeps the appointment, then it yields a visit with a doctor. For each pet visit, it is necessary to store visit number (unique identifier), visit date, visit start time, visit end time, visit room, pet's weight, visit notes, and the doctor who examines the pet during the visit. Typically, the pet is examined by the doctor with whom it had the appointment; however, if a doctor is sick or is unavailable then another doctor may examine the pet. It is necessary to keep track of the doctor who examines the pet during the visit. Each pet visit may yield zero or more diagnosis. For each diagnosis during a pet visit, it is necessary to maintain data about the date of diagnosis, diagnosis code, and doctor's comment. For each diagnosis during a visit, the doctor may prescribe one or more medications to cure the pet. For each medication prescribed for a diagnosis,

it maintains data about quantity, dose, number of refills, and instructions. It is necessary to maintain data about each diagnosis and medications prescribed for each diagnosis during pet visits. APC wants to store data for pet diagnoses to make it easier to reference during pet visits. For each pet diagnosis, APC would like to maintain data about diagnosis code, diagnosis name, diagnosis description, and treatment notes. A diagnosis may apply to zero or many pets. For each medication, APC maintains data about medication code, medication name, dosage, unit cost, unit price, quantity on hand, comment, and supplier of the medication. Each medication may be prescribed to zero or many pets. APC purchases each medication from one supplier, and each supplier can supply zero or more medications. It is necessary to know the supplier supplying each medication. For each supplier, it is necessary to store supplier number (unique identifier), supplier name, street address, city, state, zip code, supplier contact person's first name and last name, and contact phone.

Create an Entity-Relationship Diagram (ERD) model for this business scenario to manage data for APC. Use the Crow's Foot notation to create the ERD for APC. In the ERD, clearly show **entity types, attributes, relationships, and primary key and foreign key attributes.** All attributes in the entities must be in their *atomic* form. You may define surrogate keys and additional attributes needed for entities in the ERD. Assign meaningful names to each entity type and attribute in the ERD. Please list any additional assumptions your team has made to support the solution. (**Note** – Comparative grading will be used to assess the quality of the ERD model.)

Deliverables:

Upload to Canvas a document (pdf format) containing the following:

1. **Cover Page** with appropriate information (team member names, date, class, homework number).
2. List of any additional **business rules** (if applicable).
3. **ERD** model.

Please follow the instructions given below:

- Create the ERD model using a diagramming tool.
- Upload the assignment document to Canvas. Only one team member must upload the assignment completed by the team.
- Late assignments will be accepted until **February 3, 2025**, with a late penalty of -5 points.

Grading Rubric:

A – No errors or few minor errors.

B – Several minor errors or a major error.

C, D – Few major errors.

F – Several major errors.