University of British Columbia, Vancouver
Department of Computer Science

CPSC 304 Project Cover Page

Milestone #: 2

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Group Number: 42

Name	Student Number	CS Alias (Userid)	Preferred E-mail Address
Zizhen Guo	95929089	k7x2b	gzen30@outlook.com
Yuwen Luo	20234373	y7n2b	yuwen99@student.ubc.ca
Yumin Chen	18018481	m5t7q	yumin_application@hotmail.com

By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

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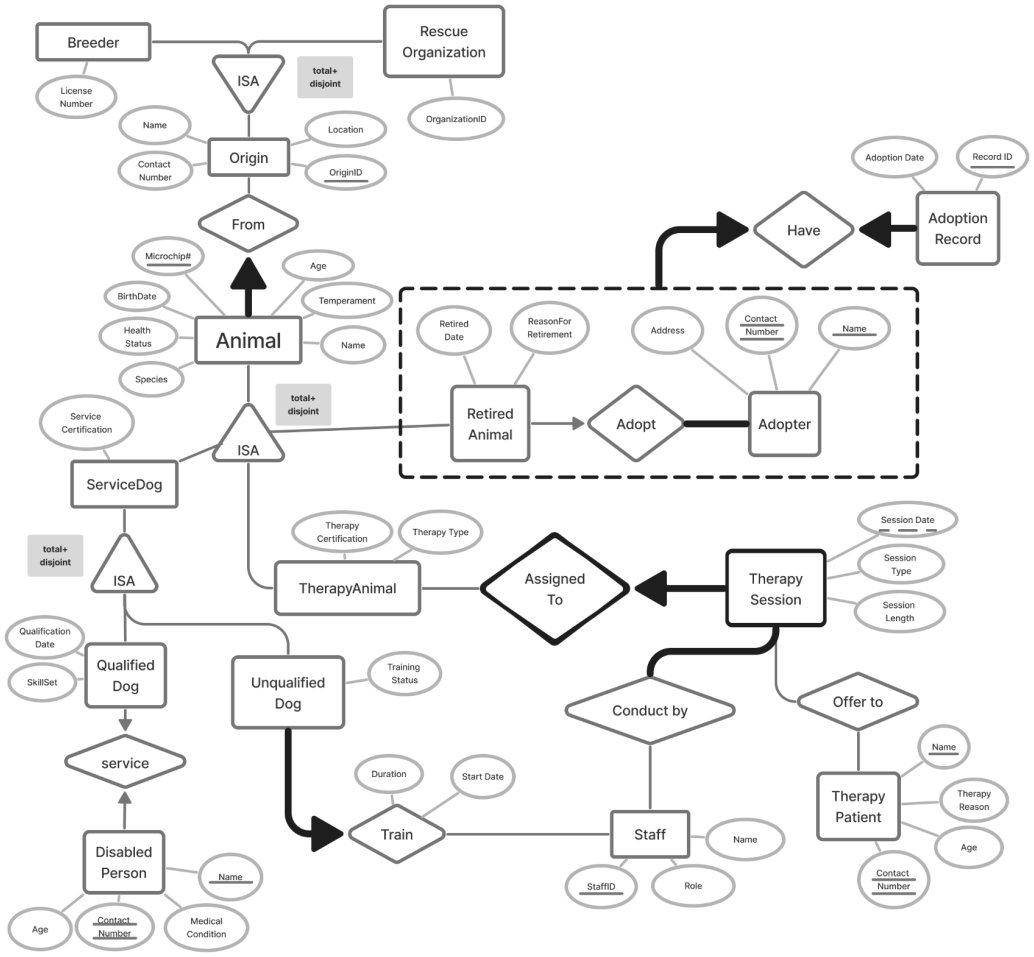
Brief summary of the project

The project focuses on developing an application for disability support and animal therapy. It manages profiles of service dogs, mental-therapy animals, and those retired from active services, detailing their training, health status, and skills. The application also maintains records of staff qualifications and pairs individuals needing support with suitable animals through a matchmaking mechanism.

ER Diagram (updated)



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Changes made on ER Diagram and reasons for these changes:

1. Modified the connection between "Adopter" and "Adopt" to shift from partial to total participation.
   Reason: Any “adopter” must have some animals adopted, otherwise they can’t be defined as “adopter”.

2. Renamed the "ID" attribute in the "staff" entity to "staffID".
   Reason: Enhance clarity.

3. The relationship between "therapyAnimal" and "assignTo" has been defined as partial.
   Reason: The therapy animals are not necessarily assigned to a therapy session all the time. They need some personal time too!

4. Implemented an ISA (total and disjoint) relationship to make Breeder and RescueOrganization subclasses of Origin, and move the attributes (Name, Contact#, Location) to be Origin’s attributes, and keep License# and OrganizationID for Breeder and RescueOrganization respectively.
   Reason: In the original design, animals can come from both Breeder and Rescue Organization, which doesn’t make sense in reality. With the ISA relationship, animals now can only originate from one but not both.

5. Removed the "Breed" attribute from the "From" entity.
   Reason: It’s redundant.

6. Omitted the "training level" attribute from the "train" relation.
   Reason: It’s redundant.

7. Removed the “Position” attribute from the “Staff” entity.
   Reason: It has duplicate functionality with the other attribute “Role”.

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Relational Model

- Origin (
  OriginID INT,
  Contact# CHAR(20),
  Name CHAR(20),
  Location VARCHAR,
  PRIMARY KEY (OriginID))

- Breeder (
  OriginID INT,
  License# INT NOT NULL,
  PRIMARY KEY (OriginID),
  FOREIGN KEY (OriginID) REFERENCES Origin,
  UNIQUE (License#))

- RescueOrganization (
  OriginID INT,
  OrganizationID INT NOT NULL,
  PRIMARY KEY (OriginID),
  FOREIGN KEY (OriginID) REFERENCES Origin,
  UNIQUE (OrganizationID))

- Animal_From (
  Microchip# INT,
  BirthDate DATE,
  HealthStatus CHAR(20),
  Species CHAR(20),
  Age INT,
  Temperament VARCHAR,
  Name CHAR(20),
  OriginID INT NOT NULL,
  PRIMARY KEY (Microchip#),
  FOREIGN KEY (OriginID) REFERENCES Origin)

- ServiceDog (
  Microchip# INT,
  ServiceCertification CHAR(20),
  PRIMARY KEY (Microchip#),
  FOREIGN KEY (Microchip#) REFERENCES Animal)

- QualifiedDog (

Microchip# INT,
QualificationDate DATE,
SkillSet VARCHAR,
PRIMARY KEY (Microchip#),
FOREIGN KEY (Microchip#) REFERENCES ServiceDog)

- DisabledPerson (
  Name CHAR(20),
  Contact# CHAR(20),
  Age INT,
  MedicalCondition VARCHAR,
  Microchip# INT,
  PRIMARY KEY (Name, Contact#),
  CANDIDATE KEY (Microchip#),
  FOREIGN KEY (Microchip#) REFERENCES QualifiedDog,
  UNIQUE (Microchip#))

- UnqualifiedDog_Train (
  Microchip# INT
  TrainingStatus CHAR(20),
  Duration INT,
  StartDate DATE,
  StaffID INT NOT NULL,
  PRIMARY KEY (Microchip#),
  FOREIGN KEY (Microchip#) REFERENCES ServiceDog,
  FOREIGN KEY (StaffID) REFERENCES Staff)

- TherapyAnimal (
  Microchip# INT,
  TherapyCertification CHAR(20),
  TherapyType CHAR(20),
  PRIMARY KEY (Microchip#),
  FOREIGN KEY (Microchip#) REFERENCES Animal)

- TherapySession_Assigned (
  SessionDate DATE
  SessionType CHAR(20),
  SessionLength CHAR(20),
  Microchip# INT NOT NULL,
  PRIMARY KEY (Microchip#, SessionDate),
  FOREIGN KEY (Microchip#) REFERENCES TherapyAnimal)
  TherapySession has total participation, we will need assertions to cover this and we will add them after.

- Staff (
  StaffID INT,
  Name CHAR(20),
  Role CHAR(20),
  PRIMARY KEY (StaffID))

- ConductBy (
  StaffID INT,
  SessionDate DATE,
  Microchip# INT,
  PRIMARY KEY (StaffID, SessionDate, Microchip#),
  FOREIGN KEY (StaffID) REFERENCES Staff,
  FOREIGN KEY (SessionDate, Microchip#) REFERENCES TherapySession_Assigned)

- TherapyPatient (
  Name CHAR(20),
  Contact# CHAR(20),
  Age INT,
  TherapyReason VARCHAR,
  PRIMARY KEY (Name, Contact#))

- OfferTo (
  Name CHAR(20),
  Contact# CHAR(20),
  SessionDate DATE,
  Microchip# INT,
  PRIMARY KEY (Name, Contact#, SessionDate, Microchip#),
  FOREIGN KEY (Name, Contact#) REFERENCES TherapyPatient,
  FOREIGN KEY (SessionDate, Microchip#) REFERENCES TherapySession_Assigned)

- RetiredAnimal_Adpot (
  Microchip# INT,
  RetiredDate Date,
  ReasonForRetirement VARCHAR,
  Contact# CHAR(20),
  Name CHAR(20),
  PRIMARY KEY (Microchip#),
  CANDIDATE KEY (Contact#, Name),
  FOREIGN KEY (Microchip#) REFERENCES Animal,
  FOREIGN KEY (Contact#, Name) REFERENCES Adopter)

- Adopter (
  Address VARCHAR,
  Contact# CHAR(20),
  Name CHAR(20),
  Microchip# INT NOT NULL,
  PRIMARY KEY (Contact#, Name),
  FOREIGN KEY (Microchip#) REFERENCES RetiredAnimal)

- AdoptionRecord (
  RecordID INT,
  AdoptionDate DATE,
  Microchip# INT, NOT NULL,
  Contact# CHAR(20) NOT NULL,
  Name CHAR(20) NOT NULL,
  PRIMARY KEY (RecordID),
  CANDIDATE KEY (Contact#, Name)
  CANDIDATE KEY (Microchip#)
  FOREIGN KEY (Microchip#) REFERENCES RetiredAnimal,
  FOREIGN KEY (Contact#, Name) REFERENCES Adopter,
  UNIQUE (Microchip#, Contact#, Name))

- Have (
  RecordID INT
  Microchip# INT
  Contact# CHAR(20)
  Name CHAR(20)
  PRIMARY KEY (RecordID, Microchip#, Contact#, Name),
  FOREIGN KEY (RecordID) REFERENCES AdoptionRecord,
  FOREIGN KEY (Microchip#, Contact#, Name) REFERENCES RetiredAnimal_Adopt)

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Functional Dependencies

Origin:
OriginID -> Contact#, Name, Location

Breeder:
OriginID -> License#

RescueOrganization:
OriginID -> OrganizationID

Animal_From:
Microchip# -> Name, Age, Species, Birthdate, HealthStatus, Temperament, OriginID

ServiceDog:
Microchip# -> ServiceCertification

QualifiedDog:
Microchip#-> QualificationDate, SkillSet

DisabledPerson:
Name, Contact# -> Age, MedicalCondition, Microchip#
Microchip# -> Name, Contact#, MedicalCondition, Age

UnqualifiedDog_Train:
Microchip# -> TrainingStatus, Duration, StartDate, StaffID
StartDate -> Duration [FD other than PK / CK]

TherapyAnimal:
Microchip# -> TherapyCertification, TherapyType
TherapyCertification -> TherapyType [FD other than PK / CK]

TherapySession_Assigned:
Microchip#, SessionDate -> SessionType, SessionLength
SessionType -> SessionLength [FD other than PK / CK]

Staff:
StaffID -> Name, Position, Role

ConductBy:
No FDs

TherapyPatient:
Name, Contact# -> Age, TherapyReason

OfferTo:
No FDs

RetiredAnimal_Adopt:
Microchip# -> RetiredDate, ReasonForRetirement, Contact#, Name
Contact#, Name -> Microchip#, RetieredDate, ReasonForRetirement

Adopter:
Contact#, Name -> Address, Microchip#

AdoptionRecord:
RecordID -> AdoptionDate, Microchip#, Contact#, Name
Contact#, Name -> Microchip#, RecordID, AdoptionDate
Microchip# -> Contact#, Name, RecordID, AdoptionDate

Have:
No FDs

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Normalization

- Origin: Since the OriginID is the superkey, the table is in 3NF, no need to decompose.

```
Origin (
OriginID   INT,
Contact#       CHAR(20),
Name           CHAR(20),
Location       VARCHAR,
PRIMARY KEY (OriginID))
```

- Breeder: Since the OriginID is the superkey, the table is in 3NF, no need to decompose.

```
Breeder (
OriginID       INT,
License#       INT    NOT NULL,
PRIMARY KEY (OriginID),
FOREIGN KEY (OriginID) REFERENCES Origin,
UNIQUE (License#))
```

- RescueOrganization: Since the OriginID is the superkey, the table is in 3NF, no need to decompose.

```
RescueOrganization (
OriginID           INT,
OrganizationID  INT   NOT NULL,
PRIMARY KEY (OriginID),
FOREIGN KEY (OriginID) REFERENCES Origin,
UNIQUE (OrganizationID))
```

- Animal_From: Since Microchip# is the superkey, the table is in 3NF, no need to decompose.

```
Animal_From (
Microchip#      INT,
BirthDate       DATE,
HealthStatus    CHAR(20),
Species         CHAR(20),
Age             INT,
Temperament  VARCHAR,
Name            CHAR(20),
OriginID        INT        NOT NULL,
PRIMARY KEY (Microchip#),
FOREIGN KEY (OriginID) REFERENCES Origin)
```

- ServiceDog: Since Microchip# is the superkey, the table is in 3NF, no need to decompose.

ServiceDog (
Microchip# INT,
ServiceCertification CHAR(20),
PRIMARY KEY (Microchip#),
FOREIGN KEY (Microchip#) REFERENCES Animal)

- QualifiedDog: Since Microchip# is the superkey, the table is in 3NF, no need to decompose.

QualifiedDog (
Microchip# INT,
QualificationDate DATE,
SkillSet VARCHAR,
PRIMARY KEY (Microchip#),
FOREIGN KEY (Microchip#) REFERENCES ServiceDog)

- DisabledPerson: Since Name and Contact# is the primary key and Microchip# is the candidate key, the table is in 3NF, no need to decompose.

DisabledPerson (
Name CHAR(20),
Contact# CHAR(20),
Age INT,
MedicalCondition VARCHAR,
Microchip# INT,
PRIMARY KEY (Name, Contact#),
CANDIDATE KEY (Microchip#),
FOREIGN KEY (Microchip#) REFERENCES QualifiedDog,
UNIQUE (Microchip#))

- UnqualifiedDog_Train:

In the first FD: Microchip# -> TrainingStatus, Duration, StartDate, StaffID; Microchip# is the superkey since its closure includes all attributes of the table.
The other FD: **StartDate -> Duration** violates 3NF, since its LHS is not a superkey and its RHS is not part of the minimal key.
Therefore, this table is not in 3NF.

Decompose:
First, find the minimal cover:
step1: RHS has only one attribute
Microchip# -> TrainingStatus
Microchip# -> Duration
Microchip# -> StartDate
Microchip# -> StaffID
StartDate -> Duration

step2:
All the FDs' LHS are already minimized.
step3:
Microchip# -> Duration can be deleted,
since without considering it, we still have {Microchip#}+ = {Microchip#, TrainingStatus, Duration, StartDate, StaffID}
Thus the minimal cover is:
Microchip# -> TrainingStatus
Microchip# -> StartDate
Microchip# -> StaffID
StartDate -> Duration
Then using the synthesis method:
UnqualifiedDog_Train_R1(Microchip#, TrainingStatus)
UnqualifiedDog_Train_R2(Microchip#, StartDate)
UnqualifiedDog_Train_R3(Microchip#, StaffID)
UnqualifiedDog_Train_R4(StartDate, Duration)
Since the relation R1,R2,R3 contain all attribute of the key, we are done with decomposition.

Here are the tables:

```
UnqualifiedDog_Train_R1 (
Microchip#      INT
TrainingStatus  CHAR(20),
PRIMARY KEY (Microchip#),
FOREIGN KEY (Microchip#) REFERENCES ServiceDog)

UnqualifiedDog_Train_R2(
Microchip#      INT
StartDate       DATE,
PRIMARY KEY (Microchip#),
FOREIGN KEY (Microchip#) REFERENCES ServiceDog)

UnqualifiedDog_Train_R3(
Microchip#      INT
StaffID         INT     NOT NULL,
PRIMARY KEY (Microchip#),
FOREIGN KEY (Microchip#) REFERENCES ServiceDog,
FOREIGN KEY (StaffID) REFERENCES Staff)

UnqualifiedDog_Train_R4(
Duration        INT,
StartDate       DATE,
PRIMARY KEY (StartDate))
```

- TherapyAnimal:

In the first FD: Microchip# -> TherapyCertification, TherapyType; Microchip# is the superkey since its closure includes all attributes of the table.
The other FD: **TherapyCertification -> TherapyType** violates 3NF, since its LHS is not a superkey and its RHS is not part of the minimal key.
Therefore, this table is not in 3NF.

Decompose:
First, find the minimal cover:
step1: RHS has only one attribute
Microchip# -> TherapyCertification
Microchip# -> TherapyType
TherapyCertification -> TherapyType
step2:
All the FDs' LHS are already minimized.
step3:
Microchip# -> TherapyType can be deleted,
since without considering it, we still have {Microchip#}+ = {Microchip#, TherapyCertification, TherapyType}
Thus the minimal cover is:
Microchip# -> TherapyCertification
TherapyCertification -> TherapyType
Then using the synthesis method:
TherapyAnimal_R1 (Microchip#, TherapyCertification)
TherapyAnimal_R2 (TherapyCertification, TherapyType)
Since the relation R1 contains the key, we are done with decomposition.

Here are the tables:
TherapyAnimal_R1 (
Microchip# INT,
TherapyCertification CHAR(20),
PRIMARY KEY (Microchip#),
FOREIGN KEY (Microchip#) REFERENCES Animal)

TherapyAnimal_R2 (
TherapyCertification CHAR(20),
TherapyType CHAR(20),
PRIMARY KEY (TherapyCertification),
FOREIGN KEY (TherapyCertification) REFERENCES TherapyAnimal_R1)

- TherapySession_Assigned:

In the first FD: Microchip#, SessionDate -> SessionType, SessionLength; Microchip# and SessionDate is the superkey since the closure includes all attributes of the table.
The other FD: **SessionType -> SessionLength** violates 3NF, since its LHS is not a superkey and its RHS is not part of the minimal key.
Therefore, this table is not in 3NF.

Decompose:
First, find the minimal cover:
step1: RHS has only one attribute
Microchip#, SessionDate -> SessionType
Microchip#, SessionDate -> SessionLength
SessionType -> SessionLength
step2:
Nothing can be minimized from the LHS.
step3:
Microchip#, SessionDate -> SessionLength can be deleted,
since without considering it, we still have {Microchip#, SessionDate}+ = {Microchip#, SessionDate, SessionType, SessionLength}
Thus the minimal cover is:
Microchip#, SessionDate -> SessionType
SessionType -> SessionLength
Then using the synthesis method:
TherapySession_Assigned_R1 (Microchip#, SessionDate, SessionType)
TherapySession_Assigned_R2 (SessionType, SessionLength)

Here are the tables:
TherapySession_Assigned_R1 (
SessionDate DATE
SessionType CHAR(20),
Microchip# INT NOT NULL,
PRIMARY KEY (Microchip#, SessionDate),
FOREIGN KEY (Microchip#) REFERENCES TherapyAnimal)

TherapySession_Assigned_R2 (
SessionType CHAR(20),
SessionLength CHAR(20),
PRIMARY KEY (SessionType),
FOREIGN KEY (SessionType) REFERENCES TherapySession_Assigned_R1)

- Staff: Since StaffID is the superkey, the table is in 3NF, no need to decompose.

Staff (
StaffID INT,
Name CHAR(20),

Role CHAR(20),
PRIMARY KEY (StaffID))

- ConductBy: No need to decompose, already in 3NF.

ConductBy (
StaffID INT,
SessionDate DATE,
Microchip# INT,
PRIMARY KEY (StaffID, SessionDate, Microchip#),
FOREIGN KEY (StaffID) REFERENCES Staff,
FOREIGN KEY (SessionDate, Microchip#) REFERENCES TherapySession_Assigned)

- TherapyPatient: Since Name, Contact# are the superkeys, the table is in 3NF, no need to decompose.

TherapyPatient (
Name CHAR(20),
Contact# CHAR(20),
Age INT,
TherapyReason VARCHAR,
PRIMARY KEY (Name, Contact#))

- OfferTo: No need to decompose, already in ENF

OfferTo (
Name CHAR(20),
Contact# CHAR(20),
SessionDate DATE,
Microchip# INT,
PRIMARY KEY (Name, Contact#, SessionDate, Microchip#),
FOREIGN KEY (Name, Contact#) REFERENCES TherapyPatient,
FOREIGN KEY (SessionDate, Microchip#) REFERENCES TherapySession_Assigned)

- RetiredAnimal_Adopt: Since Microchip# is the primary key and Contact#Name is the candidate key, the table is in 3NF, no need to decompose.

RetiredAnimal_Adpot (
Microchip# INT,
RetiredDate Date,
ReasonForRetirement VARCHAR,
Contact# CHAR(20),
Name CHAR(20),
PRIMARY KEY (Microchip#),
CANDIDATE KEY (Contact#, Name),
FOREIGN KEY (Microchip#) REFERENCES Animal,
FOREIGN KEY (Contact#, Name) REFERENCES Adopter)

- Adopter: Since Contact#, Name are the superkeys, the table is in 3NF, no need to decompose.

```
Adopter (
Address      VARCHAR,
Contact#     CHAR(20),
Name         CHAR(20),
Microchip#   INT          NOT NULL,
PRIMARY KEY (Contact#, Name),
FOREIGN KEY (Microchip#) REFERENCES RetiredAnimal)
```

- AdoptionRecord: Since RecordID is the primary key, and Contact# and Name is the candidate key, the table is in 3NF, no need to decompose.

```
AdoptionRecord (
RecordID        INT,
AdoptionDate    DATE,
Microchip#      INT,        NOT NULL,
Contact#        CHAR(20)    NOT NULL,
Name            CHAR(20)    NOT NULL,
PRIMARY KEY (RecordID),
CANDIDATE KEY (Contact#, Name)
CANDIDATE KEY (Microchip#)
FOREIGN KEY (Microchip#) REFERENCES RetiredAnimal,
FOREIGN KEY (Contact#, Name) REFERENCES Adopter,
UNIQUE (Microchip#, Contact#, Name))
```

- Have: No need to decompose.

```
Have (
RecordID     INT
Microchip#   INT
Contact#     CHAR(20)
Name         CHAR(20)
PRIMARY KEY (RecordID, Microchip#, Contact#, Name),
FOREIGN KEY (RecordID) REFERENCES AdoptionRecord,
FOREIGN KEY (Microchip#, Contact#, Name) REFERENCES RetiredAnimal_Adopt)
```

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The SQL DDL Statements and INSERT Statements

- CREATE TABLE Origin (
  OriginID INT,
  Contact# CHAR(20),
  Name CHAR(20),
  Location VARCHAR,
  PRIMARY KEY (OriginID))
  INSERT INTO Origin (OriginID, Contact#, Name, Location) VALUES
  (101, '654-321-9870', 'Lone Star Beagle Ranch', 'Dallas, TX'),
  (102, '876-543-2109', 'Paws and Tails Shelter', 'Houston, TX'),
  (103, '987-654-3210', 'Safe Haven Canine Care', 'New York, NY'),
  (104, '098-765-4321', 'Loyal Companions Rescue', 'Atlanta, GA'),
  (105, '109-876-5432', 'Woof Warriors Association', 'Chicago, IL');

- CREATE TABLE Breeder (
  OriginID INT,
  License# INT NOT NULL,
  PRIMARY KEY (OriginID),
  FOREIGN KEY (OriginID) REFERENCES Origin,
  UNIQUE (License#))
  INSERT INTO Breeder (OriginID, License#) VALUES
  (101, 1001),
  (102, 1002),
  (103, 1003),
  (104, 1004),
  (105, 1005);

- CREATE TABLE RescueOrganization (
  OriginID INT,
  OrganizationID INT NOT NULL,
  PRIMARY KEY (OriginID),
  FOREIGN KEY (OriginID) REFERENCES Origin,
  UNIQUE (OrganizationID))
  INSERT INTO RescueOrganization (OriginID, OrganizationID) VALUES
  (201, 2101),
  (202, 2102),
  (203, 2103),
  (204, 2104),
  (205, 2105);

- CREATE TABLE Animal_From (
  Microchip# INT,
  BirthDate DATE,
  HealthStatus CHAR(20),
  Species CHAR(20),
  Age INT,
  Temperament VARCHAR,
  Name CHAR(20),
  OriginID INT NOT NULL,
  PRIMARY KEY (Microchip#),
  FOREIGN KEY (OriginID) **REFERENCES** Origin)
  INSERT INTO Animal_From (Microchip#, BirthDate, HealthStatus, Species, Age, Temperament, Name, OriginID) VALUES
  (5001, '2022-01-15', 'Healthy', 'Dog', 1, 'Playful', 'Buddy', 101),
  (5002, '2020-06-10', 'Healthy', 'Dog', 3, 'Calm', 'Snow', 102),
  (5003, '2019-12-25', 'Requires Medication', 'Dog', 4, 'Energetic', 'Dottie', 103),
  (5004, '2021-03-05', 'Healthy', 'Dog', 2, 'Friendly', 'Charlie', 104),
  (5005, '2022-05-20', 'Healthy', 'Dog', 1, 'Shy', 'Lulu', 105);

- CREATE TABLE ServiceDog (
  Microchip# INT,
  ServiceCertification CHAR(20),
  PRIMARY KEY (Microchip#),
  FOREIGN KEY (Microchip#) **REFERENCES** Animal)
  INSERT INTO ServiceDog (Microchip#, ServiceCertification) VALUES
  (5001, 'Cert-A1'),
  (5002, 'Cert-B2'),
  (5003, 'Cert-C3'),
  (5004, 'Cert-D4'),
  (5005, 'Cert-E5');

- CREATE TABLE QualifiedDog (
  Microchip# INT,
  QualificationDate DATE,
  SkillSet VARCHAR,
  PRIMARY KEY (Microchip#),
  FOREIGN KEY (Microchip#) **REFERENCES** ServiceDog)
  INSERT INTO QualifiedDog (Microchip#, QualificationDate, SkillSet) VALUES
  (5001, '2022-07-15', 'Guidance, Protection'),
  (5002, '2021-08-10', 'Assistance, Therapy'),
  (5003, '2021-11-05', 'Detection, Assistance'),
  (5004, '2022-02-25', 'Protection, Guarding'),
  (5005, '2023-01-12', 'Guidance, Detection');

- CREATE TABLE DisabledPerson (
  Name CHAR(20),
  Contact# CHAR(20),
  Age INT,
  MedicalCondition VARCHAR,
  Microchip# INT,
  PRIMARY KEY (Name, Contact#),
  FOREIGN KEY (Microchip#) **REFERENCE**S QualifiedDog,
  UNIQUE (Microchip#))
  INSERT INTO DisabledPerson_Service (Name, Contact#, Age, MedicalCondition, Microchip#) VALUES
  ('Jane Doe', '111-222-3333', 35, 'Visual Impairment', 5001),
  ('John Smith', '222-333-4444', 45, 'Physical Disability', 5002),
  ('Alice Brown', '333-444-5555', 40, 'Hearing Impairment', 5003),
  ('Tom White', '444-555-6666', 50, 'Mobility Issues', 5004),
  ('Ella Green', '555-666-7777', 28, 'Anxiety Disorder', 5005);

- CREATE TABLE UnqualifiedDog_Train_R1 (
  Microchip# INT
  TrainingStatus CHAR(20),
  PRIMARY KEY (Microchip#),
  FOREIGN KEY (Microchip#) **REFERENCES** ServiceDog)
  INSERT INTO UnqualifiedDog_Train_R1 (Microchip#, TrainingStatus) VALUES
  (5001, 'Completed'),
  (5002, 'In Progress'),
  (5003, 'Not Started'),
  (5004, 'Completed'),
  (5005, 'In Progress');

- CREATE TABLE UnqualifiedDog_Train_R2(
  Microchip# INT
  StartDate DATE,
  PRIMARY KEY (Microchip#),
  FOREIGN KEY (Microchip#) **REFERENCES** ServiceDog)
  INSERT INTO UnqualifiedDog_Train_R2 (Microchip#, StartDate) VALUES
  (5001, '2022-07-01'),
  (5002, '2022-08-05'),
  (5003, '2022-09-10'),
  (5004, '2022-10-20'),
  (5005, '2023-01-05');

- CREATE TABLE UnqualifiedDog_Train_R3(

Microchip# INT
StaffID INT NOT NULL,
PRIMARY KEY (Microchip#),
FOREIGN KEY (Microchip#) **REFERENCES** ServiceDog,
FOREIGN KEY (StaffID) **REFERENCES** Staff)
INSERT INTO UnqualifiedDog_Train_R3 (Microchip#, StaffID) VALUES
(5001, 6001),
(5002, 6002),
(5003, 6003),
(5004, 6004),
(5005, 6005);

- CREATE TABLE UnqualifiedDog_Train_R4(
Duration INT,
StartDate DATE,
PRIMARY KEY (StartDate))
INSERT INTO UnqualifiedDog_Train_R4 (Duration, StartDate) VALUES
(50, '2022-07-01'),
(45, '2022-08-05'),
(60, '2022-09-10'),
(40, '2022-10-20'),
(55, '2023-01-05');

- CREATE TABLE TherapyAnimal_R1 (
Microchip# INT,
TherapyCertification CHAR(20),
PRIMARY KEY (Microchip#),
FOREIGN KEY (Microchip#) **REFERENCES** Animal)
INSERT INTO TherapyAnimal_R1 (Microchip#, TherapyCertification) VALUES
(5001, 'Therapy-A1'),
(5002, 'Therapy-B2'),
(5003, 'Therapy-C3'),
(5004, 'Therapy-D4'),
(5005, 'Therapy-E5');

- CREATE TABLE TherapyAnimal_R2 (
TherapyCertification CHAR(20),
TherapyType CHAR(20),
PRIMARY KEY (TherapyCertification),
FOREIGN KEY (TherapyCertification) **REFERENCES** TherapyAnimal_R1)
INSERT INTO TherapyAnimal_R2 (TherapyCertification, TherapyType) VALUES
('Therapy-A1', 'Guidance'),
('Therapy-B2', 'Physical'),

('Therapy-C3', 'Emotional'),
('Therapy-D4', 'Group'),
('Therapy-E5', 'Mental');

- CREATE TABLE TherapySession_Assigned_R1 (
  SessionDate DATE
  SessionType CHAR(20),
  Microchip# INT NOT NULL,
  PRIMARY KEY (Microchip#, SessionDate),
  FOREIGN KEY (Microchip#) **REFERENCES** TherapyAnimal)
  INSERT INTO TherapySession_Assigned_R1 (SessionDate, SessionType, Microchip#) VALUES
  ('2023-09-15', 'Physical Therapy', 5001),
  ('2023-08-10', 'Mental Support', 5002),
  ('2023-10-05', 'Group Therapy', 5003),
  ('2023-07-25', 'Physical Therapy', 5004),
  ('2023-11-12', 'Mental Support', 5005);

- CREATE TABLE TherapySession_Assigned_R2 (
  SessionType CHAR(20),
  SessionLength CHAR(20),
  PRIMARY KEY (SessionType),
  FOREIGN KEY (SessionType) **REFERENCES** TherapySession_Assigned_R1)
  INSERT INTO TherapySession_Assigned_R2 (SessionType, SessionLength) VALUES
  ('Physical Therapy', '1 hour'),
  ('Mental Support', '1.5 hours'),
  ('Group Therapy', '2 hours'),
  ('Emotional Therapy', '1.5 hours'),
  ('Guidance Session', '1 hour');

  TherapySession has total participation, we will need assertions to cover this and we will add them after.

- CREATE TABLE Staff (
  StaffID INT,
  Name CHAR(20),
  Role CHAR(20),
  PRIMARY KEY (StaffID))
  INSERT INTO Staff (StaffID, Name, Role) VALUES
  (6001, 'Sarah Mitchell', 'Trainer'),
  (6002, 'Mike Anderson', 'Coordinator'),
  (6003, 'Lily Johnson', 'Supervisor'),
  (6004, 'Daniel Roberts', 'Assistant'),

(6005, 'Emma Turner', 'Manager';

- CREATE TABLE ConductBy (
  StaffID INT,
  SessionDate DATE,
  Microchip# INT,
  PRIMARY KEY (StaffID, SessionDate, Microchip#),
  FOREIGN KEY (StaffID) **REFERENCES** Staff,
  FOREIGN KEY (SessionDate, Microchip#) **REFERENCES** TherapySession_Assigned)
  INSERT INTO ConductBy (StaffID, SessionDate, Microchip#) VALUES
  (6001, '2023-09-15', 5001),
  (6002, '2023-08-10', 5002),
  (6003, '2023-10-05', 5003),
  (6004, '2023-07-25', 5004),
  (6005, '2023-11-12', 5005);

- CREATE TABLE TherapyPatient (
  Name CHAR(20),
  Contact# CHAR(20),
  Age INT,
  TherapyReason VARCHAR,
  PRIMARY KEY (Name, Contact#))
  INSERT INTO TherapyPatient (Name, Contact#, Age, TherapyReason) VALUES
  ('Alex Morgan', '111-222-1234', 28, 'Stress Relief'),
  ('Jesse Lingard', '111-222-5678', 29, 'Physical Rehabilitation'),
  ('Christen Press', '111-222-2345', 32, 'Mental Support'),
  ('Bruno Fernandes', '111-222-6789', 27, 'Anxiety Relief'),
  ('Megan Rapinoe', '111-222-3456', 36, 'Emotional Support');

- CREATE TABLE OfferTo (
  Name CHAR(20),
  Contact# CHAR(20),
  SessionDate DATE,
  Microchip# INT,
  PRIMARY KEY (Name, Contact#, SessionDate, Microchip#),
  FOREIGN KEY (Name, Contact#) **REFERENCES** TherapyPatient,
  FOREIGN KEY (SessionDate, Microchip#) **REFERENCES** TherapySession_Assigned)
  INSERT INTO OfferTo (Name, Contact#, SessionDate, Microchip#) VALUES
  ('John Doe', '123-456-7890', '2023-09-15', 5001),
  ('Jane Smith', '234-567-8901', '2023-08-10', 5002),
  ('Alice Johnson', '345-678-9012', '2023-10-05', 5003),
  ('Bob Williams', '456-789-0123', '2023-07-25', 5004),
  ('Charlie Brown', '567-890-1234', '2023-11-12', 5005);

- CREATE TABLE RetiredAnimal_Adpot (
  Microchip# INT,
  RetiredDate Date,
  ReasonForRetirement VARCHAR,
  Contact# CHAR(20),
  Name CHAR(20),
  PRIMARY KEY (Microchip#),
  FOREIGN KEY (Microchip#) **REFERENCES** Animal,
  FOREIGN KEY (Contact#, Name) **REFERENCES** Adopter)
  INSERT INTO RetiredAnimal_Adpot (Microchip#, RetiredDate, ReasonForRetirement, Contact#, Name) VALUES
  (5001, '2023-01-10', 'Aged', '666-777-8888', 'Rachel Adams'),
  (5002, '2022-12-15', 'Medical Condition', '777-888-9999', 'Ryan Carter'),
  (5003, '2023-02-05', 'Aged', '888-999-0000', 'Sophia Nelson'),
  (5004, '2023-02-20', 'Aged', '999-000-1111', 'Oliver King'),
  (5005, '2022-11-10', 'Behavioral Issues', '000-111-2222', 'Isabella Queen');

- CREATE TABLE Adopter (
  Address VARCHAR,
  Contact# CHAR(20),
  Name CHAR(20),
  Microchip# INT NOT NULL,
  PRIMARY KEY (Contact#, Name),
  FOREIGN KEY (Microchip#) **REFERENCE**S RetiredAnimal)
  INSERT INTO Adopter (Address, Contact#, Name, Microchip#) VALUES
  ('123 Oak St, Denver, CO', '666-777-8888', 'Rachel Adams', 5001),
  ('456 Maple Dr, Austin, TX', '777-888-9999', 'Ryan Carter', 5002),
  ('789 Elm Ln, Boston, MA', '888-999-0000', 'Sophia Nelson', 5003),
  ('101 Pine Ave, Phoenix, AZ', '999-000-1111', 'Oliver King', 5004),
  ('202 Cedar Pl, Miami, FL', '000-111-2222', 'Isabella Queen', 5005);

- CREATE TABLE AdoptionRecord (
  RecordID INT,
  AdoptionDate DATE,
  Microchip# INT, NOT NULL,
  Contact# CHAR(20) NOT NULL,
  Name CHAR(20) NOT NULL,
  PRIMARY KEY (RecordID),
  FOREIGN KEY (Microchip#) **REFERENCES** RetiredAnimal,
  FOREIGN KEY (Contact#, Name) **REFERENCES** Adopter,
  UNIQUE (Microchip#, Contact#, Name))

INSERT INTO AdoptionRecord (RecordID, AdoptionDate, Microchip#, Contact#, Name)
VALUES
(7001, '2023-01-15', 5001, '666-777-8888', 'Rachel Adams'),
(7002, '2022-12-20', 5002, '777-888-9999', 'Ryan Carter'),
(7003, '2023-02-10', 5003, '888-999-0000', 'Sophia Nelson'),
(7004, '2023-02-25', 5004, '999-000-1111', 'Oliver King'),
(7005, '2022-11-15', 5005, '000-111-2222', 'Isabella Queen');

- CREATE TABLE Have (
  RecordID INT
  Microchip# INT
  Contact# CHAR(20)
  Name CHAR(20)
  PRIMARY KEY (RecordID, Microchip#, Contact#, Name),
  FOREIGN KEY (RecordID) **REFERENCES** AdoptionRecord,
  FOREIGN KEY (Microchip#, Contact#, Name) **REFERENCES** RetiredAnimal_Adopt)
  INSERT INTO Have (RecordID, Microchip#, Contact#, Name) VALUES
  (7001, 5001, '666-777-8888', 'Rachel Adams'),
  (7002, 5002, '777-888-9999', 'Ryan Carter'),
  (7003, 5003, '888-999-0000', 'Sophia Nelson'),
  (7004, 5004, '999-000-1111', 'Oliver King'),
  (7005, 5005, '000-111-2222', 'Isabella Queen');