LINK TO GITHUB REPOSITORY: https://github.com/vpat28/CSC423Project

A) Develop SQL code to create the entire database schema, reflecting the constraints identified in previous steps (contains modified python code).

a. For the Clinic Table:

```
query = """
   CREATE TABLE Clinic(
   clinicNo INT CHECK(clinicNo>0),
   clinicName TEXT,
   address TEXT,
   phoneNum TEXT CHECK(length(phoneNum)==10),
   managerStaffNo INT CHECK(managerStaffNo),
   PRIMARY KEY(clinicNo),
   FOREIGN KEY (managerStaffNo) REFERENCES staff(staffNo)
   ON DELETE CASCADE
   );
   """
cursor.execute(query)
```

b. For the Owner Table

```
query = """
 CREATE TABLE Owner(
   ownerNo  INT,
   name    TEXT,
   address TEXT,
   ownerPhone TEXT CHECK(length(ownerPhone)=10),
   clinicNo INT,
   PRIMARY KEY(ownerNo),
   FOREIGN KEY (clinicNo) REFERENCES Clinic(clinicNo)
   ON DELETE CASCADE
   );
"""
cursor.execute(query)
```

c. For the Staff Table

```
query = """
CREATE TABLE Staff(
staffNo INT,
clinicNo INT,
name TEXT,
address TEXT,
staffPhone TEXT CHECK(length(staffPhone)=10),
DOB       TEXT CHECK(DOB < "2004-01-01"),
```

```
position TEXT,
salary INT CHECK(salary>0),
PRIMARY KEY(staffNo),
FOREIGN KEY(clinicNo) REFERENCES Clinic(clinicNo)
ON DELETE CASCADE
);
"""
cursor.execute(query)
```

d. For the Pet Table

```
query = """
CREATE TABLE Pet(
petNo INT CHECK(petNo >0),
ownerNo INT,
clinicNo INT,
name TEXT,
DOB    TEXT,
species TEXT,
breed   TEXT,
color   TEXT,
PRIMARY KEY(petNo)
FOREIGN KEY(ownerNo) REFERENCES Owner(ownerNo),
FOREIGN KEY(clinicNo) REFERENCES Clinic(clinicNo)
ON DELETE CASCADE
);
"""
cursor.execute(query)
```

e. For the Examination Table

```
query = """
CREATE TABLE Examination(
examNo INT CHECK(examNo >0),
chiefComplaint TEXT,
date   TEXT CHECK(date <= "2022-12-08"),
actionTaken TEXT,
petNo INT CHECK(petNo >0),
staffNo INT CHECK(staffNo >0),
PRIMARY KEY(examNo)
FOREIGN KEY(petNo) REFERENCES Pet(petNo),
FOREIGN KEY(staffNo) REFERENCES staff(staffNo)
ON DELETE CASCADE
);
"""
cursor.execute(query)
```

B) Create at least 5 tuples for each relation in your database (contains modified python code)

a. For the Clinic Table

1) query = """
INSERT INTO Clinic (clinicNo,clinicName,address,phoneNum,managerStaffNo)
VALUES (62,"Barry Bonds Pet Care", "6253 Park Avenue","5615366410",31);
"""
cursor.execute(query)

2) query = """
INSERT INTO Clinic (clinicNo,clinicName,address,phoneNum,managerStaffNo)
VALUES (89,"Dr.G's Clinic for Critters", "1800 Martin Luther King Blvd","9542638957",NULL);
"""
cursor.execute(query)

3) query = """
INSERT INTO Clinic (clinicNo,clinicName,address,phoneNum,managerStaffNo)
VALUES (13,"Unlucky Pet Health Services", "96 Carlyle Rd","7623916578",56);
"""
cursor.execute(query)

4) query = """
INSERT INTO Clinic (clinicNo,clinicName,address,phoneNum,managerStaffNo)
VALUES (106,"South Side Veterinarian Center", "8971 Lake Shore Dr","9021013365",NULL);
"""
cursor.execute(query)

5) query = """
INSERT INTO Clinic (clinicNo,clinicName,address,phoneNum,managerStaffNo)
VALUES (33,"Adler Animal Hospital", "9856 San Marino Circle","3056650819",63);
"""
cursor

	clinicNo	clinicName	address	phoneNum	managerStaffNo
0	62	Barry Bonds Pet Care	6253 Park Avenue	5615366410	31.0
1	89	Dr.G's Clinic for Critters	1800 Martin Luther King Blvd	9542638957	NaN
2	13	Unlucky Pet Health Services	96 Carlyle Rd	7623916578	56.0
3	106	South Side Veterinarian Center	8971 Lake Shore Dr	9021013365	NaN
4	33	Adler Animal Hospital	9856 San Marino Circle	3056650819	63.0

b. For the Staff Table

1) query = """
INSERT INTO Staff(staffNo,clinicNo,name,address,staffPhone,DOB,position,salary)

```
VALUES (56,13,"Benjamin Chodry", "56 Kimberly Estates",5506959506,1998-03-
28,"Chief Technician",112000);
"""
cursor.execute(query)
```

2) query = """
```
INSERT INTO Staff(staffNo,clinicNo,name,address,staffPhone,DOB,position,salary)
VALUES (63,33,"Dwayne Carter", "001 Holly Grove Street",4109505899,1982-09-
27,"Veterinarian",260000);
"""
cursor.execute(query)
```

3) query = """
```
INSERT INTO Staff(staffNo,clinicNo,name,address,staffPhone,DOB,position,salary)
VALUES (12,106,"Amy Greenberg", "22 Melrose Point",5286934578,2002-11-
08,"Receptionist",16000);
"""
cursor.execute(query)
```

4) query = """
```
INSERT INTO Staff(staffNo,clinicNo,name,address,staffPhone,DOB,position,salary)
VALUES (31,62,"Mike Chambers", "783 Palmetto Park Rd",8923672103,1976-06-
15,"Office Manager",29500);
"""
cursor.execute(query)
```

5) query = """
```
INSERT INTO Staff(staffNo,clinicNo,name,address,staffPhone,DOB,position,salary)
VALUES (115,89,"Jan Levinson", "21 Scranton Blvd",1569876521,1963-04-30,"Head
Veterinarian",220000);
"""
cursor.execute(query)
```

	staffNo	clinicNo	name	address	staffPhone	DOB	position	salary
0	56	13	Benjamin Chodry	56 Kimberly Estates	5506959506	1967	Chief Technician	112000
1	63	33	Dwayne Carter	001 Holly Grove Street	4109505899	1946	Veterinarian	260000
2	12	106	Amy Greenberg	22 Melrose Point	5286934578	1983	Receptionist	16000
3	31	62	Mike Chambers	783 Palmetto Park Rd	8923672103	1955	Office Manager	29500
4	115	89	Jan Levinson	21 Scranton Blvd	1569876521	1929	Head Veterinarian	220000

c. <u>For the Owner Table</u>

1) query = """
```
INSERT INTO Owner(ownerNo,clinicNo,name,address,ownerPhone)
VALUES (233,106, "Kirsnick Ball", "52 Nawfside Rd", 9875623358);
"""
cursor.execute(query)
```

2) query = """
INSERT INTO Owner(ownerNo,clinicNo,name,address,ownerPhone)
VALUES (211,33, "John Snow", "6842 Hillside Lane", 5552106838);
"""
cursor.execute(query)

3) query = """
INSERT INTO Owner(ownerNo,clinicNo,name,address,ownerPhone)
VALUES (154,62, "Alena Gleeman", "2318 Mountain Hill Drive", 3736912387);
"""
cursor.execute(query)

4) query = """
INSERT INTO Owner(ownerNo,clinicNo,name,address,ownerPhone)
VALUES (93,89, "Rashida Bluestrike", "64 Cherry Red Rd", 1475623251);
"""
cursor.execute(query)

5) query = """
INSERT INTO Owner(ownerNo,clinicNo,name,address,ownerPhone)
VALUES (110,13, "Miguel Gonzalez", "1165 Oceanic Plaza", 2326587769);
"""
cursor.execute(query)

	ownerNo	name	address	ownerPhone	clinicNo
0	233	Kirsnick Ball	52 Nawfside Rd	9875623358	106
1	211	John Snow	6842 Hillside Lane	5552106838	33
2	154	Alena Gleeman	2318 Mountain Hill Drive	3736912387	62
3	93	Rashida Bluestrike	64 Cherry Red Rd	1475623251	89
4	110	Miguel Gonzalez	1165 Oceanic Plaza	2326587769	13

d. <u>For the Pet Table</u>

1) query = """
INSERT INTO Pet(petNo,name,DOB,species,breed,color,ownerNo,clinicNo)
VALUES (1164, "Rex","2016-03-14","dog","pitbull","brown",233,106);
"""
cursor.execute(query)

2) query = """
INSERT INTO Pet(petNo,name,DOB,species,breed,color,ownerNo,clinicNo)
VALUES (1258,"Domino","2022-02-10","dog","dalmation","white",211,33);
"""
cursor.execute(query)

3) query = """
INSERT INTO Pet(petNo,name,DOB,species,breed,color,ownerNo,clinicNo)
VALUES (958, "Timothy","2018-10-06","parrot","macaw","green",211,33);
"""
cursor.execute(query)

4) query = """
INSERT INTO Pet(petNo,name,DOB,species,breed,color,ownerNo,clinicNo)
VALUES (753, "Cristoff","2017-01-19","cat","shorthair","grey",154,62);
"""

cursor.execute(query)

5) query = """
INSERT INTO Pet(petNo,name,DOB,species,breed,color,ownerNo,clinicNo)
VALUES (432, "Kobe","2019-05-26","snake","mamba","black",93,89);
"""
cursor.execute(query)

	petNo	ownerNo	clinicNo	name	DOB	species	breed	color
0	1164	233	106	Rex	2016-03-14	dog	pitbull	brown
1	1258	211	33	Domino	2022-02-10	dog	dalmation	white
2	958	211	33	Timothy	2018-10-06	parrot	macaw	green
3	753	154	62	Cristoff	2017-01-19	cat	shorthair	grey
4	432	93	89	Kobe	2019-05-26	snake	mamba	black

e. <u>For the Examination Table</u>

1) query = """
INSERT INTO Examination(examNo,chiefComplaint,date,actionTaken,petNo,staffNo)
VALUES(3651,"Broken Bone","2022-12-05","Metal screw inserted",1164,115);
"""
cursor.execute(query)

2) query = """
INSERT INTO Examination(examNo,chiefComplaint,date,actionTaken,petNo,staffNo)
VALUES(2193,"Broken Bone","2019-03-20","Surgery",1258,63);
"""
cursor.execute(query)

3) query = """
INSERT INTO Examination(examNo,chiefComplaint,date,actionTaken,petNo,staffNo)
VALUES(1967,"Broken Bone","2018-11-30","Metal plate inserted",753,56);
"""

```
cursor.execute(query)
```

4)
```
query = """
INSERT INTO Examination(examNo,chiefComplaint,date,actionTaken,petNo,staffNo)
VALUES(3111,"Avian Flu","2022-11-18","Perscribed antibiotics",958,63);
"""
```

5)
```
cursor.execute(query)
query = """
INSERT INTO Examination(examNo,chiefComplaint,date,actionTaken,petNo,staffNo)
VALUES(2831,"Parasitic infection","2021-08-30","De-worming injection given",432,115);
"""
cursor.execute(query)
```

	examNo	chiefComplaint	date	actionTaken	petNo	staffNo
0	3651	Broken Bone	2022-12-05	Metal screw inserted	1164	115
1	2193	Broken Bone	2019-03-20	Surgery	1258	63
2	1967	Broken Bone	2018-11-30	Metal plate inserted	753	56
3	3111	Avian Flu	2022-11-18	Perscribed antibiotics	958	63
4	2831	Parasitic infection	2021-08-30	De-worming injection given	432	115

C) Develop 5 SQL queries using embedded SQL (SQL queries with python syntax is shown)

1. What are the StaffNo, names, and positions of staff members who earn more than $30,000 a year?

```
query = """
  SELECT staffNo, name, position
  FROM Staff
  WHERE salary > 30000
  """
cursor.execute(query)
# Extract column names from cursor
column_names = [row[0] for row in cursor.description]
# Fetch data and load into a pandas dataframe
table_data = cursor.fetchall()
df = pd.DataFrame(table_data, columns=column_names)
# Examine dataframe
print(df)
print(df.columns)
```

```
   staffNo             name           position
0       56  Benjamin Chodry   Chief Technician
1       63    Dwayne Carter       Veterinarian
2      115     Jan Levinson  Head Veterinarian
Index(['staffNo', 'name', 'position'], dtype='object')
```

2. How many pets does the owner with the ownerNo 211 have?

```
query = """
SELECT count(petNo)as numOfPets
FROM Owner o, Pet p
WHERE p.ownerNo = o.ownerNo AND p.ownerNo = 211
```

```
"""
cursor.execute(query)
# Extract column names from cursor
column_names = [row[0] for row in cursor.description]
# Fetch data and load into a pandas dataframe
table_data = cursor.fetchall()
df = pd.DataFrame(table_data, columns=column_names)
# Examine dataframe
print(df)
print(df.columns)
```

```
   numOfPets
0          2
Index(['numOfPets'], dtype='object')
```

3. What are the clinic numbers and names of clinic with no staff members as managers?

```
query = """
SELECT c.clinicNo,c.clinicName
FROM Clinic c
WHERE c.managerStaffNo IS NULL
"""
cursor.execute(query)
column_names = [row[0] for row in cursor.description]
# Fetch data and load into a pandas dataframe
table_data = cursor.fetchall()
df = pd.DataFrame(table_data, columns=column_names)
# Examine dataframe
print(df)
print(df.columns)
```

```
   clinicNo                      clinicName
0        89      Dr.G's Clinic for Critters
1       106  South Side Veterinarian Center
Index(['clinicNo', 'clinicName'], dtype='object')
```

4. What are the names of pets that were examined for a broken bone?

```
  query = """
SELECT p.name
FROM Pet p, Examination e
WHERE e.petNo = p.petNo AND e.chiefComplaint = "Broken Bone"
"""
cursor.execute(query)
column_names = [row[0] for row in cursor.description]
# Fetch data and load into a pandas dataframe
table_data = cursor.fetchall()
df = pd.DataFrame(table_data, columns=column_names)
# Examine dataframe
print(df)
```

print(df.columns)

```
      name
0      Rex
1   Domino
2 Cristoff
Index(['name'], dtype='object')
```

5. How many examinations were performed on 11/18/2022

```
query = """
SELECT count(examNo) numOfExams
FROM Examination
WHERE date = "2022-11-18"
"""
cursor.execute(query)
column_names = [row[0] for row in cursor.description]
# Fetch data and load into a pandas dataframe
table_data = cursor.fetchall()
df = pd.DataFrame(table_data, columns=column_names)
# Examine dataframe
print(df)
print(df.columns)
```

```
   numOfExams
0           1
Index(['numOfExams'], dtype='object')
```

D) Link to GitHub Repository: https://github.com/vpat28/CSC423Project