

Chapter 1

October 27, 2019

```
In [1]: %load_ext sql
```

```
In [9]: %sql postgresql://postgres:postgres@localhost:5432/analysis
```

```
Out[9]: 'Connected: postgres@analysis'
```

1 1. Creating your first Database and Table

- first we create a database with:
 - CREATE DATABASE analysis;
 - since we already did this and we just have to call it with the %sql command we leave that for now

1.1 Creating a Table

- we are creating a sql table 'teachers'
- we give the required data with the right data type

```
In [32]: %%sql
CREATE TABLE teachers (
    id bigserial,
    first_name varchar(25),
    last_name varchar(50),
    school varchar(50),
    hire_date date,
    salary numeric);

postgresql://postgres:***@localhost:5432/
* postgresql://postgres:***@localhost:5432/analysis
Done.
```

```
Out[32]: []
```

1.2 Inserting Rows into a Table

- here we insert some rows in our table

```
In [33]: %%sql
INSERT INTO teachers (first_name, last_name, school, hire_date, salary)
VALUES ('Janet', 'Smith', 'F.D. Roosevelt HS', '2011-10-30', 36200),
       ('Lee', 'Reynolds', 'F.D. Roosevelt HS', '1993-05-22', 65000),
       ('Samuel', 'Cole', 'Myers Middle School', '2005-08-01', 43500),
       ('Samantha', 'Bush', 'Myers Middle School', '2011-10-30', 36200),
       ('Betty', 'Diaz', 'Myers Middle School', '2005-08-30', 43500),
       ('Kathleen', 'Roush', 'F.D. Roosevelt HS', '2010-10-22', 38500);

postgres://postgres:***@localhost:5432/
* postgresql://postgres:***@localhost:5432/analysis
6 rows affected.
```

Out [33]: []

1.3 Try it Yourself

– 1. Imagine you’re building a database to catalog all the animals at your – local zoo. You want one table for tracking all the kinds of animals and – another table to track the specifics on each animal. Write CREATE TABLE – statements for each table that include some of the columns you need. Why did – you include the columns you chose?

```
In [25]: %%sql

CREATE TABLE animal_types (
    animal_type_id bigserial CONSTRAINT animal_types_key PRIMARY KEY,
    common_name varchar(100) NOT NULL,
    scientific_name varchar(100) NOT NULL,
    conservation_status varchar(50) NOT NULL
);

postgres://postgres:***@localhost:5432/
* postgresql://postgres:***@localhost:5432/analysis
(psycopg2.errors.DuplicateTable) relation "animal_types" already exists

[SQL: CREATE TABLE animal_types (
    animal_type_id bigserial CONSTRAINT animal_types_key PRIMARY KEY,
    common_name varchar(100) NOT NULL,
    scientific_name varchar(100) NOT NULL,
    conservation_status varchar(50) NOT NULL
);]
(Background on this error at: http://sqlalche.me/e/f405)
```

- we create a table with animal types

- the first line of the table is a primary key (which we will learn about later)

In [26]: %%sql

```
CREATE TABLE menagerie (
    menagerie_id bigserial CONSTRAINT menagerie_key PRIMARY KEY,
    animal_type_id bigint REFERENCES animal_types (animal_type_id),
    date_acquired date NOT NULL,
    gender varchar(1),
    acquired_from varchar(100),
    name varchar(100),
    notes text
);
```

```
postgres://postgres:***@localhost:5432/
* postgres://postgres:***@localhost:5432/analysis
Done.
```

Out[26]: []

- the second table will hold all the specific data about the animal

– 2. Now create INSERT statements to load sample data into the tables. – How can you view the data via the pgAdmin tool?

In [27]: %%sql

```
INSERT INTO animal_types (common_name, scientific_name, conservation_status)
VALUES ('Bengal Tiger', 'Panthera tigris tigris', 'Endangered'),
       ('Arctic Wolf', 'Canis lupus arctos', 'Least Concern');
```

```
postgres://postgres:***@localhost:5432/
* postgres://postgres:***@localhost:5432/analysis
2 rows affected.
```

Out[27]: []

In [29]: %%sql

```
INSERT INTO menagerie (animal_type_id, date_acquired, gender, acquired_from, name, notes)
VALUES
(1, '3/12/1996', 'F', 'Dhaka Zoo', 'Ariel', 'Healthy coat at last exam.'),
(2, '9/30/2000', 'F', 'National Zoo', 'Freddy', 'Strong appetite.');
```

```
postgres://postgres:***@localhost:5432/
* postgres://postgres:***@localhost:5432/analysis
2 rows affected.
```

Out [29]: []

– 2b. Create an additional INSERT statement for one of your tables. On purpose, – leave out one of the required commas separating the entries in the VALUES – clause of the query. What is the error message? Does it help you find the – error in the code?

In [31]: %%sql

```
INSERT INTO animal_types (common_name, scientific_name, conservation_status)
VALUES ('Javan Rhino', 'Rhinoceros sondaicus', 'Critically Endangered');
```

```
postgres://postgres:***@localhost:5432/
* postgres://postgres:***@localhost:5432/analysis
1 rows affected.
```

Out [31]: []

In []: