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Project : Create a 'School' database on PostgreSQL server using Jupyter Notebook IDE

A Data Scientist/ML/AI developer needs SQL in order to handle structured data. This structured data is stored in relational databases. Therefore, in order to query these databases, must have a sound knowledge of SQL.

```
In [ ]: !pip install sqlalchemy
!pip install psycopg2
!pip install ipython-sql
```

```
In [1]: import sqlalchemy
```

```
In [2]: #create a postgresql engine
engine = sqlalchemy.create_engine('postgresql://postgres:*****@localhost:5432')
```

```
In [3]: #Load the sql extension
%load_ext sql
```

```
In [4]: #Set up the connection
%sql $engine.url
```

Create a new database called "School" this database should have two tables: teachers and students.

```
In [5]: %sql COMMIT

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

```
Out[5]: []
```

```
In [6]: #Creating a new database
%sql CREATE DATABASE School

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

```
Out[6]: []
```

```
In [11]: #connect to database 'school'
%sql postgresql://postgres:*****@localhost:5432/school
```

The students table should have columns for student_id, first_name,last_name, homeroom_number, phone,email, and graduation year.

```
In [23]: %sql create table students(\
student_id serial primary key,\
first_name varchar(50) NOT NULL,\
last_name varchar(50) NOT NULL,\
homeroom_number smallint ,\
phone varchar(50) unique ,\
email varchar(50) unique ,\
graduation_year integer)

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

Out[23]: []

```
In [24]: #Showing the created 'students' table
%sql select * from students

postgres://postgres:***@localhost:5432
* postgres://postgres:***@localhost:5432/school
0 rows affected.
```

Out[24]: student_id first_name last_name homeroom_number phone email graduation_year

The teachers table should have columns for teacher_id, first_name, last_name,homeroom_number, department, email, and phone.

```
In [20]: %sql create table teachers(\
teacher_id serial primary key,\
first_name varchar(50) NOT NULL,\
last_name varchar(50) NOT NULL,\
homeroom_number smallint,\
phone varchar(50) unique,\
email varchar(50) unique,\
department varchar(50))

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

Out[20]: []

```
In [21]: #Showing the created 'teachers' table
%sql select * from teachers

postgres://postgres:***@localhost:5432
* postgres://postgres:***@localhost:5432/school
0 rows affected.
```

Out[21]: teacher_id first_name last_name homeroom_number phone email department

insert a student named Mark Watney (student_id=1) who has a phone number of 777-555-1234 and doesn't have an email. He graduates in 2035 and has 5 as a homeroom number.

```
In [27]: %sql insert into students(\
first_name,\
last_name,\
homeroom_number,\
phone,\
graduation_year)\
values(\
    'Mark',\
    'Watney',\
    5,\
    '777-555-1234',\
    2035)

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

Out[27]: []

```
In [28]: #Showing the created 'students' table
%sql select * from students

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

Out[28]:

student_id	first_name	last_name	homeroom_number	phone	email	graduation_year
1	Mark	Watney	5	777-555-1234	None	2035

insert a teacher names Jonas Salk (teacher_id = 1) who as a homeroom number of 5 and is from the Biology department. His contact info is: jsalk@school.org (mailto:jsalk@school.org) and a phone number of 777-555-4321.

```
In [30]: %sql insert into teachers(\
first_name,\
last_name,\
homeroom_number,\
phone,\
email,\
department)\
values(\
    'Jonas',\
    'Salk',\
    5,\
    '777-555-4321',\
    'jsalk@school.org',\
    'Biology')

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

Out[30]: []

```
In [32]: #Showing the created 'students' table
%sql select * from teachers

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

```
Out[32]:
```

teacher_id	first_name	last_name	homeroom_number	phone	email	department
1	Jonas	Salk	5	777-555-4321	jsalk@school.org	Biology

Complete!!