GREYCAMPUS SQL PROJECT PART-2

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Description:

SQL QUERIES:

Use Case - SQL DATABASE Creation and Insertion

Complete the following task:

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

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

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

The constraints are mostly up to you, but your table constraints do have to consider the following:

      a.   We must have a phone number to contact students in case of an emergency.
      b.   We must have ids as the primary key of the tables
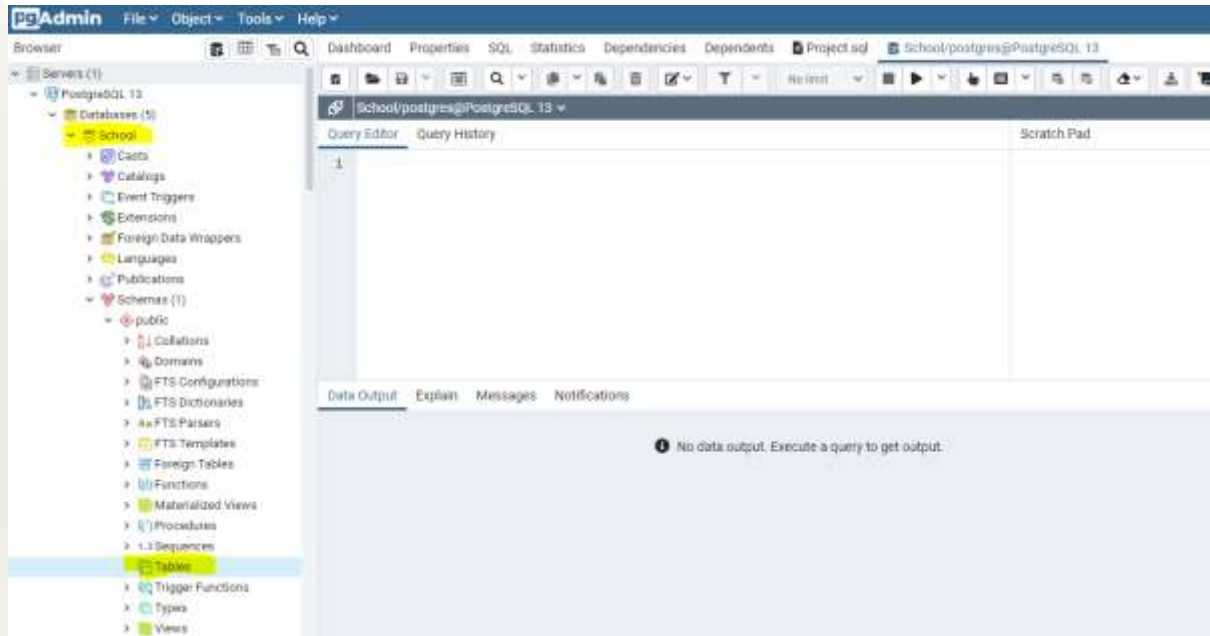   c.   Phone numbers and emails must be unique to the individual.

Once you've made the tables, 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.

Then 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 and a phone number of 777-555-4321.

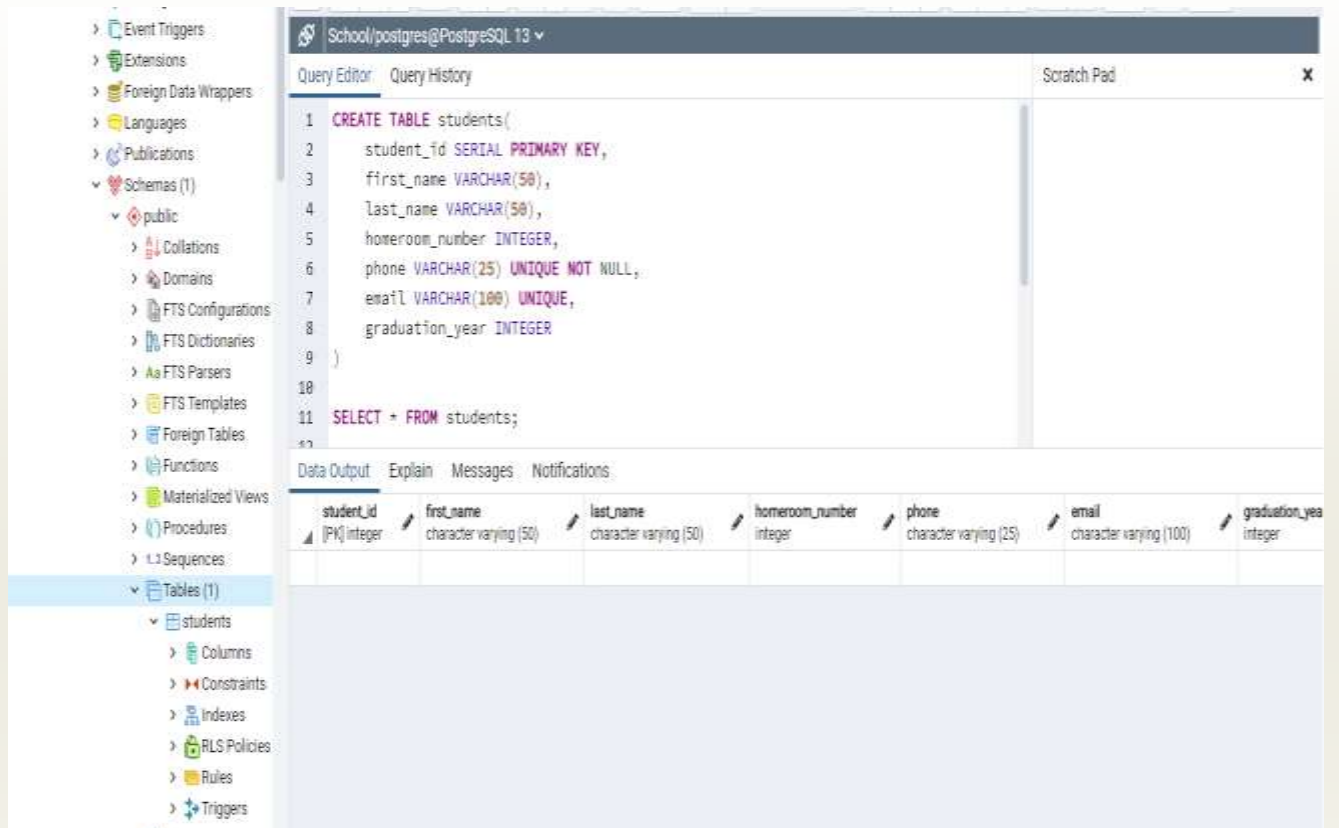Keep in mind that these insert tasks may effect your constraints!

Database Creation:
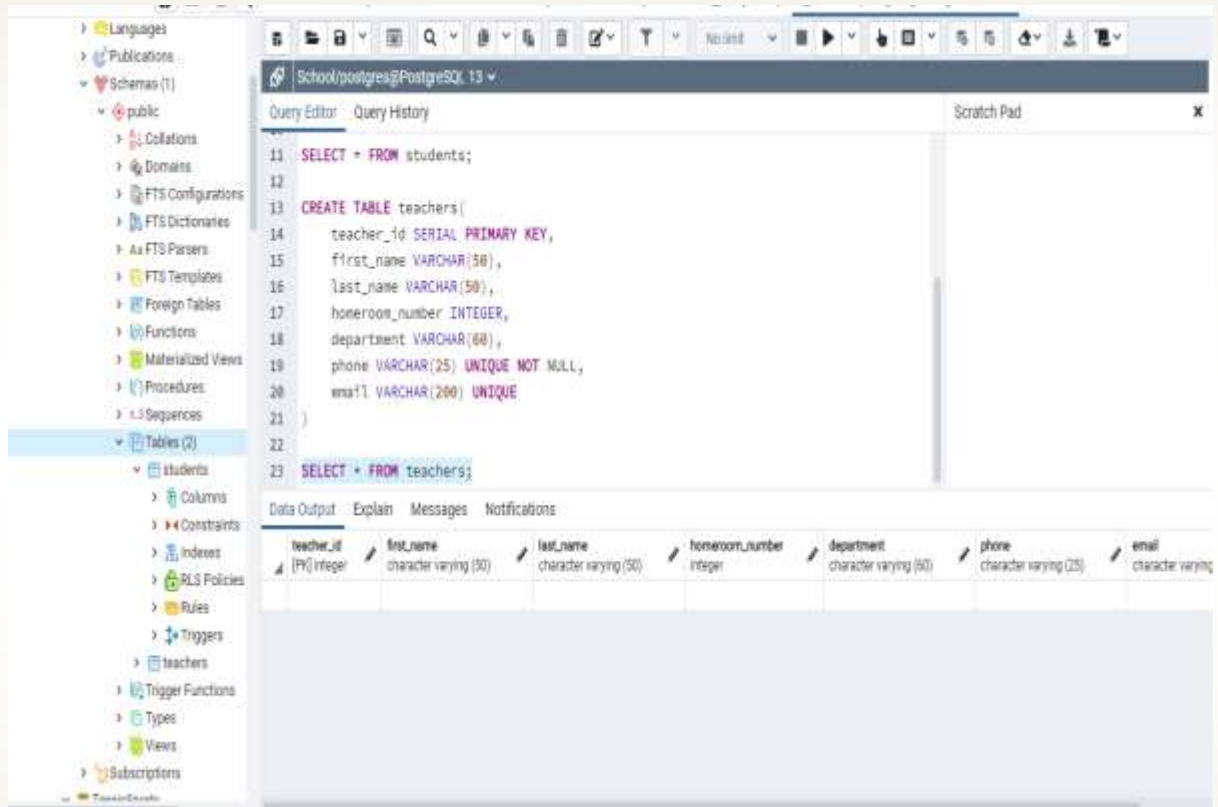
School Database Created.

Let's create 2 tables as required:

Students table as per mentioned schema

Teachers table as per mentioned schema

Constraints are as below points:

a. We must have a phone number to contact students in case of an emergency.
b. We must have ids as the primary key of the tables
c. Phone numbers and emails must be unique to the individual.

Insertion of Values

Student Table Insertion:

a. Name :Mark Watney (student_id=1)
b. phone number = 777-555-1234
c. email=''
d. Graduation year = 2035
e. Homeroom number=5.

Record inserted successfully.

```
22
23  SELECT * FROM teachers;
24
25  INSERT INTO students
26  (first_name,last_name, homeroom_number,phone,graduation_year)
27  VALUES('Mark','Watney',5,'777-555-1234','2035');
28
29  SELECT * FROM students;
30
31  |
32
```

student_id [PK] integer	first_name character varying (50)	last_name character varying (50)	homeroom_number integer	phone character varying (25)	email character varying (100)	graduation_year integer
1	Mark	Watney	5	777-555-1234	[null]	2035

Email Id when given null also gets inserted as we have not given any constraint for that field as it is not mentioned to keep it mandatory for a school student.

Let's check all 3 constraints:

(a) No phone number: When trying to insert a record without a phone number, below violation error of constraint is thrown.

```
29   INSERT INTO students
30   (first_name,last_name, homeroom_number,graduation_year)
31   VALUES('Harsha','Singh',29,'2021');
32
33   SELECT * FROM students;
34
35
36
37   INSERT INTO teachers
```

Data Output   Explain   Messages   Notifications

```
ERROR:  null value in column "phone" of relation "students" violates not-null constraint
DETAIL:  Failing row contains (2, Harsha, Singh, 29, null, null, 2021).
SQL state: 23502
```

(b) Let's try to insert another record with same primary key(student_id):
    It doesn't allow to create as Primary key is unique:

```
.a FIS Parser    29   INSERT INTO students
FTS Templ       30   (student_id,first_name,last_name, homeroom_number,phone,graduation_year)
Foreign Tal     31   VALUES(1,'Mickey','Watney',5,'777-555-1234','2035');
Functions       32
Materialize     33   SELECT * FROM students;
Procedures      34
.3 Sequences    35
Tables (2)      36
  student       37
    > Col
    > Con        Data Output   Explain   Messages   Notifications
    > Inde
    > RLS        ERROR:  duplicate key value violates unique constraint "students_pkey"
    > Rule       DETAIL:  Key (student_id)=(1) already exists.
    > Trig       SQL state: 23505
  teacher
```

(c) Let's try to insert another record with different primary key(student_id) but
    same phone number:

```
29  INSERT INTO students
30  (student_id,first_name,last_name, homeroom_number,phone,graduation_year)
31  VALUES(2,'Mickey','Watney',5,'777-555-1234','2035');
32
33  SELECT * FROM students;
34
35
36
37
```

Data Output   Explain   Messages   Notifications

```
ERROR:  duplicate key value violates unique constraint "students_phone_key"
DETAIL:  Key (phone)=(777-555-1234) already exists.
SQL state: 23505
```

Unique Constraint on phone number throws an error of violation.

Teachers Table Insertion:

a. Name : Jonas Salk (teacher_id = 1)
b. Homeroom number = 5
c. Department = Biology.
d. emailid: jsalk@school.org
e. phone number = 777-555-4321

Record successfully created.

```
39  INSERT INTO teachers
40  (first_name, last_name,homeroom_number,phone,department,email)
41  VALUES('Jonas','Salk',5,'777-555-4321','Biology','jsalk@school.org');
42
43
44  SELECT * FROM teachers;
45
46
```

Data Output   Explain   Messages   Notifications

teacher_id [PK] integer	first_name character varying (50)	last_name character varying (50)	homeroom_number integer	department character varying (60)	phone character varying (25)	email character varying (200)
1	Jonas	Salk	5	Biology	777-555-4321	jsalk@school.org

All the Constraints mentioned above (a) (b) (c) hold good for teachers table too.

(a) No phone number: When trying to insert a record without a phone number, below violation error of constraint is thrown.

```
43  INSERT INTO teachers
44  (teacher_id,first_name, last_name,homeroom_number,department,email)
45  VALUES(2,'Jim','Salk',8,'Biology','jimsalk@school.org');
46
47  SELECT * FROM teachers;
48
49
```

Data Output   Explain   Messages   Notifications

```
ERROR:  null value in column "phone" of relation "teachers" violates not-null constraint
DETAIL:  Failing row contains (2, Jim, Salk, 8, Biology, null, jimsalk@school.org).
SQL state: 23502
```

(b) Let's try to insert another record with same primary key(teacher_id):
It doesn't allow to create as Primary key is unique:

```
43  INSERT INTO teachers
44  (teacher_id,first_name, last_name,homeroom_number,phone,department,email)
45  VALUES(1,'Jim','Salk',8,'777-555-4321','Biology','jsalk@school.org');
46
47  SELECT * FROM teachers;
48
49
```

Data Output | Explain | Messages | Notifications

```
ERROR:  duplicate key value violates unique constraint "teachers_pkey"
DETAIL:  Key (teacher_id)=(1) already exists.
SQL state: 23505
```

(c) Let's try to insert another record with different primary key(teacher_id) but same phone number:

```
43  INSERT INTO teachers
44  (teacher_id,first_name, last_name,homeroom_number,phone,department,email)
45  VALUES(2,'Jim','Salk',8,'777-555-4321','Biology','jsalk@school.org');
46
47  SELECT * FROM teachers;
48
49
```

Data Output | Explain | Messages | Notifications

```
ERROR:  duplicate key value violates unique constraint "teachers_phone_key"
DETAIL:  Key (phone)=(777-555-4321) already exists.
SQL state: 23505
```

If we try same thing for same email error comes:

```
42
43  INSERT INTO teachers
44  (teacher_id,first_name, last_name,homeroom_number,phone,department,email)
45  VALUES(2,'Jim','Salk',8,'777-575-4321','Biology','jsalk@school.org');
46
47  SELECT * FROM teachers;
48
49
```

Data Output   Explain   Messages   Notifications

```
ERROR:  duplicate key value violates unique constraint "teachers_email_key"
DETAIL:  Key (email)=(jsalk@school.org) already exists.
SQL state: 23505
```

Hence all the constraints satisfied successfully.