Using SQL "schemas"

not the usual schemas

Schema: a kind of namespace

- "psql csc343h-dianeh" connects you to a database called csc343h-dianeh.
  (Substitute your cdf userid of course.)
- Everything defined (tables, types, etc.) goes into one big pot.
- Schemas let you create different namespaces.
- Useful for logical organization, and for avoiding name clashes.

Creating a schema

- You already have a schema called "public".
- You can also create your own. Example:

```
create schema University;
```

- To refer to things inside a particular schema, you can use dot notation:

qualify the table name by specifying a schema

```
create table University.Student (...);
select * from University.Student;
```

When you don't use dot notation

- If you refer to a name without specifying what schema it is within:
  - Any new names you define go in the schema called "public" – I already.
  - E.g., if you create a table called `frindle`, you actually are defining `public.frindle`.
  - When referring to a name, there is a search path that finds it.

The search path

- To see it the search path:
  show search_path;
- You can set the search path yourself. Example:
  set search_path to University, public;
- The default search path is: "$user", public
  - schema `"$user"` is not created for you, but if you create it, it's at the front of the search path.
  - schema `public` is created for you.

comma-separated list of schemas

we won't use this. Useful for multi-user DBs.

Removing a schema

- Easy:

```
drop schema University cascade;
```

- "`cascade`" means everything inside it is dropped too.
- To avoid getting an error message if the schema does not exist, add "`if exists`".

Usage pattern

- You can use this at the top of every DDL file:

```
drop schema if exists University cascade;
create schema University;
set search_path to University;
```

- Helpful during development, when you may want to change the schema, or test queries under different conditions.

Workflow

- One effective way to work:
  - Create a DDL file with the schema.
  - Create a file with inserts to put content in the database.
  - In the postgreSQL shell, import these.
  - Run queries directly in the shell or by importing queries written in files.