SQL:
Data Manipulation Language

CSC343 Introduction to Databases
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Schema: a kind of namespace

- “psql csc343h-DBuserID” connects you to a database called csc343h-DBuserID.
  (Substitute your cdf userid for DBuserID.)

- 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:
  ```sql
  create schema University;
  ```

• To refer to things inside a particular schema, you can use dot notation:
  ```sql
  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”
  • 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.
Removing a schema

• Easy:
  ```sql
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.