

# Postgres 1

# Postgres

- Object-Relational Database Management System
- Implements most of the SQL standard
- Has many extension
- [www.postgresql.org](http://www.postgresql.org)
- Runs on a variety of operating systems including Mac OS X, Linux and Windows

# Postgres

- We will look at only a few Postgres features

# Postgres psql

- Interactive terminal front end to Postgres
- SQL commands
- Meta-Commands

# Psql Meta-Commands

- `\connect`
  - Connect to a database
- `\list`
  - List available databases
- `\i`
  - Execute commands from a file

# psql Meta-Commands

- `\d`
  - List tables in the current database
- `\conninfo`
  - Information on the current database
- `\cd`
  - Set the current working directory
    - Useful for the `\i` command but not the copy command

# psql Meta-Commands

- \h
  - Help for an SQL command
- \?
  - Help for meta-commands
- \!
  - Execute command in shell
- \q
  - Quit psql

# Implement the Library Database in psql

- Creates
- loadTables
  - Copy command
- Psql commands



# Creates

- CREATE TABLE Author(aid int primary key, first VARCHAR(30), last VARCHAR(30));
- CREATE TABLE Book(booknum int primary key, title VARCHAR(50), pages int);
- CREATE TABLE Library(libnum int primary key, capacity int);
- CREATE TABLE Writes(aid int references Author(aid), booknum int references Book(booknum), percent int, primary key(aid, booknum));
- CREATE TABLE Copy(copynum int primary key, booknum int references Book(booknum), price decimal(8,2), libnum int references Library(libnum));

# loadTables

- copy author from '/Users/gendreau/classes/spring21/cs464/SQLReview/author.txt' delimiter '|';
- copy book from '/Users/gendreau/classes/spring21/cs464/SQLReview/book.txt' delimiter '|';
- copy writes from '/Users/gendreau/classes/spring21/cs464/SQLReview/writes.txt' delimiter '|';
- copy library from '/Users/gendreau/classes/spring21/cs464/SQLReview/library.txt' delimiter '|';
- copy copy from '/Users/gendreau/classes/spring21/cs464/SQLReview/copies.txt' delimiter '|'

# Implement Library Database

```
toms-air:SQLReview gendreau$ psql
```

```
gendreau=# create database cs464lib;
```

```
CREATE DATABASE
```

```
gendreau=# \list
```

List of databases

Name	Owner	Encoding	Collate	Ctype	Access privileges
------	-------	----------	---------	-------	-------------------

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book	gendreau	UTF8	en_US.UTF-8	en_US.UTF-8	
cs464lib	gendreau	UTF8	en_US.UTF-8	en_US.UTF-8	

...

# Implement Library Database

```
gendreau=# \connect cs464lib
```

```
You are now connected to database "cs464lib" as user "gendreau".
```

```
cs464lib=# \cd
```

```
cs464lib=# \! pwd
```

```
/Users/gendreau
```

```
cs464lib=# \cd classes/spring19/cs464/SQLReview
```

```
cs464lib=# \! pwd
```

```
/Users/gendreau/classes/spring19/cs464/SQLReview
```

```
cs464lib=# \i creates
```

```
CREATE TABLE
```

```
CREATE TABLE
```

```
CREATE TABLE
```

```
CREATE TABLE
```

```
CREATE TABLE
```

# Implement Library Database

```
cs464lib=# \d
```

```
List of relations
```

Schema	Name	Type	Owner
public	author	table	gendreau
public	book	table	gendreau
public	copy	table	gendreau
public	library	table	gendreau
public	writes	table	gendreau

(5 rows)

# Implement Library Database

cs464lib=# \d author

Table "public.author"

Column	Type	Modifiers
aid	integer	not null
first	character varying(30)	
last	character varying(30)	

Indexes:

"author\_pkey" PRIMARY KEY, btree (aid)

Referenced by:

TABLE "writes" CONSTRAINT "writes\_aid\_fkey" FOREIGN KEY (aid) REFERENCES author(aid)

# Implement Library Database

cs464lib=# \i loadTables

COPY 18

COPY 16

COPY 19

COPY 8

COPY 475

# Implement Library Database

```
cs464lib=# select * from author;
```

```
aid | first | last
```

```
-----+-----+-----
```

```
1 | Jane | Austen
```

```
2 | Mark | Twain
```

```
3 | James | Joyce
```

```
4 | Herman | Melville
```

```
5 | Franz | Kafka
```

```
6 | Leo | Tolstoy
```

```
7 | Joseph | Conrad
```

```
8 | Tom | Paine
```

```
9 | Isaiah | Berlin
```

```
10 | John | Bell
```

```
11 | Moshe | Machover
```

```
...
```

```
18 | George | Eliot
```

```
(18 rows)
```

```
cs464lib=# \q
```

```
toms-air:SQLReview gendreau$
```