

# PostgreSQL Mini-Manual

CS166: Database Management Systems

Department of Computer Science and Engineering  
University of California Riverside

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# 1 Getting Started

This section will guide you through the steps to preparing your student account for the creation of a PostgreSQL DBMS.

## 1.1 Where to Put Your Files

This year you no longer get accounts specific to each course that you take. Instead, you've been given a folder called **Classes** which is located in your home directory. Inside this folder you should find a symbolic link to a folder called **cs166**. Many of the files that you will be using for this project are quite large and will cause your student account to exceed its storage limits. Therefore you should place the files within the **cs166** folder which will provide the space you will need for these files.

## 1.2 Creating a Directory Structure

Within your **cs166** folder you should create a directory called **project**. Within the **project** folder create the three folders **database**, **tables**, and **data**.

```
$ mkdir project
$ mkdir project/database
$ mkdir project/tables
$ mkdir project/data
```

These directories will be used for the following purposes:

- **project** Will hold all of the files for the class project.
- **project/database** Will hold the database files created by Postgres.
- **project/tables** Will hold the table definitions that you will create for the project.
- **project/data** Will hold the files that contain the data that you will load into the database.

# 2 Initializing the DBMS

In order to function properly, Postgres must know where your database is located. To do this you export the variable **PGDATA**. To set this variable,

cd to your **project** directory and type the following:

```
$ export PGDATA=$PWD/database
```

Now that Postgres can figure out where you want to put your database, it can copy some files to that directory that it needs in order to manage any databases that you create there. This is done by executing the command **initdb**.

```
$ initdb
```

There may be a lot of output to the screen. The only thing that you need to concern yourself about at the moment is that part of the output states that you have been successful and can now start the database server.

### 3 Starting the DBMS

Postgres now has all the information that it needs and has set up the files that it need in order to provide you with a DBMS. Now you need to start the database server by typing the following:

```
$ pg_ctl start -o -i -l logfile
```

**NOTE:** if the **PGDATA** variable is not set you must specify the database directory with the **-D** option.

**NOTE:** **-o** specifies that you are sending arguements to the postmaster. **-i** is an arguement passed to the postmaster that allows you to connect to the database using java.

### 4 Shutting Down the DBMS

Before you log out, you should always make sure that the database is not still running. To see if the postmaster is still running you can issue the command:

```
$ pg_ctl status
```

If the postmaster is still running you can shut it down with the command:

```
$ pg_ctl stop
```

**NOTE:** As with the **pg\_ctl start** command, if the **PGDATA** variable is not set it must be specified with the **-D** option for both the **pg\_ctl status** and **pg\_ctl stop** commands.

## 5 Creating and Deleting a Database

In order to create or delete a database the postmaster must be running. Once the postmaster is running, you can create a database called **mydatabase** by issuing the command:

```
$ createdb mydatabase
```

To delete the database that you just created type:

```
$ dropdb mydatabase
```

## 6 Starting the Client Terminal

From the client terminal you can create tables, queries, etc. in the database. To start the client terminal type:

```
$ psql mydatabase
```