

CSE 180 - Lab 1

Setup, Gradiance, Postgres, and Unix

Dev

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About Me:

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- Office Hours (SnE Library 332) :
 - Tuesdays: 10-11am
 - Fridays: 11am-noon



Course Links and Information

- Canvas: <https://canvas.ucsc.edu/courses/65281>
- Piazza: <https://piazza.com/ucsc/fall2023/cse180/>
- General Resources, Syllabus: Both on Canvas and Piazza
- Syllabus, slides, announcements, assignments, and solutions will be posted on Piazza

piazza

Gradiance

- Graded automatically, multiple chances
- The last score is what counts
- <http://www.gradiance.com/services>
- Class Token: **9525FB87**

The screenshot shows the Gradiance Online Accelerated Learning interface. The top navigation bar includes the Gradiance logo, a search bar, and a user profile section for Devashish. The main content area displays a welcome message, class information (Class Token: 4316D250; Current Enrollment: 38), and a list of administrative tasks:

- Click Handouts to create handouts for your class.
- Click Tutorials to find existing tutorials (including those already set up by Gradiance), assign existing tutorials to your class, or create new tutorials.
- Click Homeworks to find existing homeworks (including those already set up by Gradiance), assign existing homeworks to your class, or create new homeworks.
- Click Lab Projects to find existing lab projects (already set up by Gradiance) and/or assign them to your class.
- Click Reports to generate reports on student activity (e.g., class score report).
- Click Class Administration to perform administrative tasks like setting up a TA, adjusting student scores, accessing class roster etc.
- Click Question Bank to find available questions and/or create new questions.

Canvas

- Will be used for submissions, exams, grading, and recordings.
- Can be accessed at canvas.ucsc.edu
- Any issues with grading will be addressed by the TAs
- In case of disagreement with the TAs, will be addressed by the professor
- DO NOT contact the readers
- Recordings, if made, will be posted under Yuja on Canvas



Working with the Unix Timeshare

- <https://its.ucsc.edu/unix-timeshare/tutorials/how-to-connect.html>
- Mac, Linux, and Unix-like systems:
 - Open terminal
`ssh <cruzid>@unix.ucsc.edu`
 - Look for fingerprint:
`nvvCsc0wN+RhcjTnJPy0AIzEFp6rSJb2kBXVH9NN0mo.`
 - Enter your UCSC BLUE password

Unix timeshare on Windows

- Method 1: Set up Windows Subsystem for Linux (WSL)
 - <https://docs.microsoft.com/en-us/windows/wsl/install>
 - Install OpenSSH on the WSL
 - Follow the instructions for Mac/Linux
- Method 2: Install a SSH Client
 - <https://www.bitvise.com/ssh-client> or <https://www.putty.org/>
 - Follow the instructions here for Windows: <https://its.ucsc.edu/unix-timeshare/tutorials/how-to-connect.html>



Moving Files to and from Unix Timeshare



- Use scp, or modern alternatives like sftp and rsync
- Copy to remote: scp localfile user@remote:directory/file
`scp dev-lab1.sql dev@unix.ucsc.edu:~/CSE180/
scp -r CSE180 dev@unix.ucsc.edu:~/`
- Sync with rsync
`rsync -a ~/CSE180 dev@unix.ucsc.edu:~/CSE180`
- Change the order to copy from remote
`rsync -a dev@unix.ucsc.edu:CSE180 ~/CSE180`
- For GUI fans: <https://filezilla-project.org>

PostgreSQL

- <https://www.postgresql.org>
- Open Source, Relational Database
- Class server: **cse180-db.lt.ucsc.edu**
- Log into PostgreSQL with:
psql -h cse180-db.lt.ucsc.edu -U username
- Change password:
ALTER ROLE username WITH PASSWORD 'newpassword';
- Or **\password** PostgreSQL command



Play around in psql!

- `\?` List of all Postgres Commands
- `\h` SQL command help
- `\dt` show available tables
- `\d table_name` describes tables
- `\password` changes the password (please remember your password!)
- Postgres maps all identifiers to lowercase (unless specified with “Quotes”)
- Case doesn’t matter for SQL commands, we use it for readability

Schemas

- Schemas are collections of tables, and other named objects
- We use schemas to
 - Allow you to have multiple sets of tables in a database
 - To organize tables into logical groups based on assignments
 - Ensure that there is no collision
- **CREATE SCHEMA LAB1;**



Search Path and getting started

- SHOW SEARCH_PATH;
- ALTER ROLE <name> SET SEARCH_PATH TO Lab1;
- Log out, log back in
- SHOW SEARCH_PATH;
- Deleting schema and tables (Caution! ⚠)
DROP SCHEMA LAB1 CASCADE;

A note on ChatGPT



The Structured Query Language

- Not a procedural programming language!
- Declarative:
 - What do you need vs. How to do something
 - Optimized Answers
- Used in a variety of places

SQL Example: Tacos!

Taquerias		
Name	Address	License
Los Pericos	139 Water St.	B7462A
Vallarta	1221 Mission St.	C9982A
Santa Cruz	2215 Mission St.	D88F6A

Type	Filling
Tacos	Veggie
Tacos	Meat
Super Tacos	Veggie
Super Tacos	Meat

Sells

Taqueria	Taco	Price
Los Pericos	Tacos	7.50
Los Pericos	Super Tacos	8.50
Vallarta	Tacos	8.00
Vallarta	Super Tacos	9.00
Santa Cruz	Tacos	6.00
Santa Cruz	Super Tacos	9.00

Creating Tables



```
CREATE TABLE Taquerias (
    Name VARCHAR(30),
    Address VARCHAR(50),
    License CHAR(6),
    PRIMARY KEY (Name)
);
```

Tacos



```
CREATE TABLE Tacos (
    Type VARCHAR(30),
    Filling VARCHAR(50),
    PRIMARY KEY (Type, Filling)
);
```

Sells!



```
CREATE TABLE Sells (
    Taqueria VARCHAR(30),
    Taco VARCHAR(30),
    Price NUMERIC(5,2),
    PRIMARY KEY (Taqueria, Taco),
    FOREIGN KEY (Taqueria) REFERENCES Taquerias,
    FOREIGN KEY (Taco) REFERENCES TACOS,
);
```