CIS 215 Week 6 Guided Notes

# Lecture 1: Intro to SQL

## What is SQL?

What is SQL?

* SQL is meant for handling **\_\_\_\_\_**

SQL: Sequel or S-Q-L

## SQL Terms

Databases, Tables

* SQL has **\_\_\_\_\_\_** and these **\_\_\_\_\_\_** contain **\_\_\_\_\_\_**

CRUD

* **What does CRUD stand for?**

SQL Types

\*Post Prompt: What are some differences between the important/common data types in programming language and the ones shown above for SQL?\*

## SQL on CSNLinux

Your Databases

Logging Into SQL

* **Did you have any problems logging into your SQL account?**

SQL Databases

* The command for accessing your database is **\_\_\_\_**

## SQL Basics: Creating a Table

SQL Commands: Create

SQL Commands: Create Table

* When making a new table, start with **\_\_\_\_\_\_**

SQL Commands: Create, name

* Your table name should not contain **\_\_\_\_\_\_\_**

SQL Commands: Create, columns

* Your table should contain an **\_\_\_\_\_**

SQL Efficiency

* **What’s an example of data that would use CHAR? What about VARCHAR?**

SQL: Key/Value Pairs

* We need to add **\_\_\_\_\_\_** to the ID column

SQL: Incrementing ID

* We can use **\_\_\_\_\_\_** to increment the ID for us

SQL Columns: Describe

## SQL Basics: CRUD (Create)

SQL Commands: Create (Insert)

* The command that goes with Create in CRUD is **\_\_\_\_\_**

Activity: Create a table

\*Post Prompt: Using what you know about the CREATE TABLE and INSERT keywords, create a database of either music, books, or pets.

What columns of data might you want to store?

Insert a few rows of data into your table using the INSERT keyword.\*

## SQL Basics: CRUD (Read)

SQL Commands: Read (Select)

* The command that goes with Read in CRUD is **\_\_\_\_\_**

SQL Commands: Select Specifics

SQL: AND / LIKE / NOT

* Just like programming, you can use **\_\_\_\_**, **\_\_\_\_**, and **\_\_\_\_**
* **\_\_\_\_** looks for similar strings

SQL: Case (When/Else)

* Instead of if/else, you can use **\_\_\_\_** in SQL

SQL: Finishing the Example

* **What is the point of “END as …”?**

Activity: Select From a Table

\*Post Prompt: Select a group of items from your table using a SELECT statement.

This should not contain all items in the table.

Can you select data according to conditions (example: numbers > 90 or strings containing “yes”)?\*

## SQL Basics: CRUD (Update)

SQL Commands: Update

* You need both **\_\_\_\_** and **\_\_\_\_** to update a table.

SQL Commands: WHERE Extras

Activity: Update a Table

\*Post Prompt: Update some information for an item in your table.

Can you change an entire row?

Can you change just one item in a row?

Can you change one item for a group of rows?\*

## SQL Basics: CRUD (Delete)

SQL Commands: Delete

* To delete, use **\_\_\_\_\_**

SQL Commands: Delete Tables

Activity: Delete Rows From a Table

\*Post Prompt: Delete a group of rows from your table.\*

## SQL Practice

Practice Activities: Animal Shelter

Practice Activities: IMDB

Practice Activities: Houses

Practice Activities: You Do

\*Post Prompt: Complete one of these practice activities. It must be a different topic from your earlier table.

Put the commands you used in your post, then add a screenshot of your table at the end.\*

More Practice Activities

# Lecture 2: SQL + PHP, Passwords

## Config File

SQL & PHP: Config File

Config File: Errors

* **Do you have any errors with your config file?**

## Passwords (Simple)

Passwords

* Passwords should never be stored anywhere as **\_\_\_\_\_\_**

Hashing

Passwords in PHP

* We use the **\_\_\_** function to hash the password, and the **\_\_\_** function to validate the password.

Password Example

Password Example: Security

## Why Do We Need SQL?

Databases & Websites

* **Can you think of an example where a database might be used for a website?**

Adding to, Displaying From

## Prepared Statements

SQL & PHP: Queries

SQL & PHP: Sanitized Queries

* A **\_\_\_\_** attack involves manipulating SQL tables.

SQL & PHP: Prepared Statements

* **\_\_\_\_\_\_\_** are the easiest way to defend against **\_\_\_\_\_\_** attacks

SQL & PHP: Prepared Statements (general)

* To do a prepared statement, you first **\_\_\_\_** the statement, using **\_\_\_** where the data goes.
* Then you **\_\_\_\_** the statement.

Always Prepare

Activity: Prepared Statement Practice

\*Post Prompt: Try doing the same select commands from earlier in a new PHP file.

What happens if you try to use “DROP TABLES (table name);--”?

→ There’s an even worse “DROP TABLES IF EXISTS;” which drops any table in the database. Do NOT test using this one, you will lose everything if it is not done correctly.\*

## Fetch

Fetch

* To get the result of a select statement, you need to **\_\_\_**

Fetch: Example

Activity: Fetch Practice (In PHP)

\*Post Prompt: Try fetching data from a table.

How could you display this data to the webpage in a nice, human-readable format? You don’t need to write the code, just describe what you would do.\*

## Validation/Sanitization

Always Sanitize

* You should sanitize when **\_\_\_\_\_** and when **\_\_\_\_\_**

Helpful Functions: Validation

Helpful Functions: Sanitization

## Passwords (Advanced)

Passwords

Passwords: SQL Table

Passwords: Displaying

## Project 1 Discussion

Project 1, Part 2: SQL

* **Do you have any questions about project 1?**