Python -
SQL Introduction with SQLite

What is a Relational Database

- ACID = Atomicity, Consistency, Isolation and Durability

    - Atomicity - all commands are a single unit (Succeed or Fail)

    - Consistency - changes are implemented across system

    - Isolation - each transaction is isolated from other transactions

    - Durability - once change is created it persists

- Schema

- Table Joins

RDBMS
Relational Database Management Systems

- MySQL

- MariaDB

- Postgress

- MSSQL

- SQLite

Install SQLite3

- Should be installed on any system with Python3 installed.

- https://www.sqlite.org/

SQLite3 Commands

- sqlite3

- .header on

- .mode column

- .schema TABLENAME

- No ';' as delimiter

Delimiter ;

- ; ends a SQL Statement

Create a Database

- sqlite3

  - Creates a TEMPORARY database

- sqlite3 DATABASE

  - Either connects to database or creates one

Create Tables
Data Types???

- Primary Key?

  - rowid is automatically created and auto increments

- create table student(name, age, size);

- create table student(name text, age int, size text);

- create table(name text, age int, size text) strict;

Insert Data

- insert into table(column1, column2) values(VALUE, VALUE2);

Select Data

- select * from table;

- select column1, column3 from table;

- select rowid, column1, column2, column3 from table;

- order by column

  - order by column desc

Where Filter

- where column like '%VALUE%'

- where column > VALUE;

- where column = 'VALUE';

- where column > VALUE and column2 like '%VALUE%';

Update

- update table set column1 = VALUE where column2 = VALUE

Delete

- delete from table where column1 = 'VALUE';

- DON'T MESS UP!!!

- Use ROWID to make sure you only delete specific record

JOINS

- select * from table1 left outer join table2 on table1.column = table2.column;

- select table1.column, table1.column2, table2.column from left outer join table2 on table1.column = table2.column;

Python and SQLite3

- Create Table and Insert Record = sqlite-insert.py

- Select from Table = sqlite-select.py

- Make sure to commit changes on insert

- Make sure to close connection when finished

- Use ? values to prevent SQL Injection Attacks

- ChatGPT is your friend!

Labs

- lab-insert.py

  - This lab has you insert records into a database from the command line

- lab-search.py

  - This lab allows you to search records from a database in the command line

- lab-note.py

  - This lab has you create a note taking app that allows you to add and search a note database