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Programming Assignment 1 Design Specification

This program's purpose is to begin the design of a SQL type database in Python. Basic commands are implemented, including those to create or delete databases and tables, as well as to query and modify the tables.

Multiple databases are managed through the creation of directories on the target system. Creation and deletion use the 'mkdir' and 'rm -r' commands, respectively. Similarly, tables are created within the appropriate directories using the 'touch' command and subsequent editing using Python's file editing capabilities. Deletion of tables is executed with a simple 'rm' command.

In implementing the required functionalities, care was taken to make them as modular as possible. For example, attributes passed in with the 'CREATE TABLE' command are separated from the rest of the user input and put into a Python list. From there, it is trivial to manipulate the list, at the time of writing to the file, to add delimiters between attributes. In this way, a command with an N number of attributes will be parsed properly. Additionally, error handling is incorporated into each function. Two helper functions, designed to check if a table or database exists, are used frequently. Depending on which if-statements pass or fail, the appropriate error message will be displayed, informing the user of the issue.

Other unmentioned functionality uses a combination of built-in Python types and system calls. One notable example are the helper functions to check table/database existence. Using the 'subprocess' Python library and bash commands, detection of existence is quite simple.