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CS 457, Dr. Zhao
Oct 8 2022

Programming Assignment #1

Design Documentation

Functionality

I coded my project in python and used the OS module to manage my databases and tables. A "database" is a Linux directory, and a "table" is a file. For example, to create a database, I call the *os.mkdir()* function. To use a database, I call the *os.chdir()* function. The user can also drop databases, create/drop/alter tables, and select from tables. All of these functions are done using basic Linux commands from the python OS module.

Organization

I have a root folder called "pa1." Each new database is created as a directory inside that folder. Then, each new table is created as a text file inside those directories. You can have multiple databases and tables, but not of duplicate names. If a name already exists, the program will throw an exception and wait for the next command.

Implementation

The program continuously reads user input from the command line until the user inputs ".EXIT". There is a series of if/else if blocks that check what the user inputted. For example, there is a statement that checks if the user input had "DROP TABLE" in it. Then, each statement contains a try/except. For example, "DROP TABLE" will fail if the table doesn't exist, in which case the program prints an error and waits for more input. The main string parsing function I use is called *getInputVar()*, which takes the user input string and gets the substring at a specified index. For managing input data like "a1 int", I used a series of string parsing functions that extract the relevant information. I also added colors to the program output.

Execution

Run "python3 main.py < PA1_test.sql" inside the folder "pa1".