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CS 457

Project 1

Design Document

Project 1 manages a database. Tables are within the database. Each database is in the form of a folder and each table is in the form of a .txt file. The functionalities within this project are database creation, database deletion, table creation, table deletion, table updating, and query. There are ten functions outside the main while loop that tracks input.

The first function acts as a parser. It removes the semicolon at the end of each command, and next, the command itself. For example, with the string "CREATE DATABASE db_1;", after the function runs, the string is converted to "db_1".

The next function checks if the database selected exists by searching if a folder with the name of the database exists. It returns true or false. The third command checks if a table exists by searching if a .txt file with the table name exists. This also returns true or false.

The next seven functions are the commands. Function four creates a database. It simply runs the "mkdir" shell command if the database is not already created. Function five removes a database with the "rm -r" command. The sixth function changes the current database to the user's liking. It returns the current database.

The seventh function creates a table. This function is more complex because it splits the input line to find the name, then separates the attributes into a list. Next, it creates a .txt file in the system with the "touch" command. The file is then opened and a table created with the external library PrettyTable is inserted into the file. It must be noted that to run this program, one must install "prettytable" into their system. This function returns the table to be used in other functions. The eight function deletes the table with the "rm" command. The second to last function performs similar actions as the table creation function but appends a new attribute to the existing table. It does this by deleting the current contents of the file, adding the attribute to the already made table, and then the updated table is inserted into the file.

The tenth and last function is the query function. It selects items from tables. As the test script selects everything from the table, the function simply outputs the entire table. Assuming in later projects that not everything is to be selected from the table, the code will be part of a larger query function.

This is a simple data management program but it performs essential tasks for a real-life scenario.