Parker Nelms

CS 457 – Project 1

February 21, 2022

Dbmanager.py design document

**Compilation instructions:** PA1\_test.sql file must be in the same directory as the program file. In Ubuntu python interpreter: python3 <filepath>/Dbmanager.py < PA1\_test.sql

**Purpose:** The purpose of this program is to take SQL commands and do basic database operations to manage database properties and metadata.

**Organization implementation:** This program creates databases as new sub-directories of the folder the program file is held in. Any time a new database is created/used/dropped, the program searches this main directory for a database with that name and acts according to the result.

Tables are created as .txt files in the database they belong to. Similarly to databases, any operation on a table checks the currently used database for that table and then performs the operations.

Tables cannot share names with other tables in the same database. Databases cannot share names with other databases.

**Function implementations:** The main function takes in a command input and then checks if the first token is a valid command. If it is, it will make a call to the corresponding function using a dictionary. For example, if the first token is ‘CREATE’, the program will send the command to the create function to be handled.

The create function checks whether the creation target is a database or a table, then executes the actions for the correct one. In either case, the program will check if the created object already exists and, if not, creates it. The table function writes given attributes to the table.

The drop works in a similar way to the create function, but is much simpler since it only has to check if the object is a table or a database and if it exists, then deletes it.

The select function reads each line of the given table if it exists, formats it correctly, and prints it out to the console. It can only select all from the table currently, but it is set up to do more select operations in future projects.

The alter function checks if a table exists and then adds an attribute to the end of the top line. Alter is also set up to do more operations other than add later on. This function checks if the operation token is valid then calls it’s function if so. For example, if the operation token is ‘ADD’, the alter function will call the add function.

The add function implements the table append previously described.

The use function sets a bool, which says whether or not a database is being used, to true. It also sets the current database name string to the given database name.