**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”.