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CS 457

PA1 Design Document

**System Design**

**Database**

The program separates databases into their own folder (in the directory where the program is being run). This way the tables that will inevitably populate each database are kept separate from each other. These folders have the same name as the one specified during database creation. When selecting a database (USE command), a global string is constructed that holds the file path to the appropriate directory. Database-specific operations (such as SELECT) use this file path string in order to search in the correct location.

For Example, if a database was created called “db\_1”, a folder called “db\_1” will be created. If the command “USE db\_1” is entered, then a global string is constructed that contains the text: “db\_1/”. Further operations can use the string to easily construct the file path for tables.

**Tables**

Tables are separated into their own text file (although they are not suffixed with “.txt”). All the tables of a database sit within its associated folder. When choosing to SELECT from or ALTER a specified table, it is trivial to construct a new string from the existing file path string and the name of the specified table to and use said string to open the appropriate file.

For Example, if a table is created called “tbl\_1” (after entering the command “USE db\_1”), then a file called “tbl\_1” will be created in the “db\_1” folder. Further tables will also live in this folder. Using the file path string from before (“db\_1/”), a new string can be constructed that holds: “db\_1/tbl\_1”. This ends up being the (relative) file path for the tables associated file. This makes it trivial to read/write data from the table when using commands such as SELECT or ALTER. The metadata for each column sits on their own line within the file. When using SELECT it is trivial to read each line of the file and display the columns accordingly.