

Nick Alvarez
CS 657
D. Zhao
13 April 2021

Programming Assignment 3 Design Specification

This program's purpose is to continue the design of a SQL type database in Python. Basic commands were implemented in PA1, including those to create or delete databases and tables, as well as to query and modify the tables. In PA2, table contents could be updated and queried more effectively. In this revision, table joins were implemented.

There were two joins implemented in this revision: inner and left outer joins. Since no tables are altered, no file modification was necessary, which made the assignment somewhat simpler. Inner joins, the simpler of the two, take some kind of comparison (*E.id = S.employeeID*) and merge the tables based upon this. The program reads in the two tables and saves each line of the table in their respective lists, Table_1 and Table_2. Values are parsed from the command relating to table names and the values to compare (and their operand). A new list, Table_Join, is created. The join function has a nested for-loop which iterates through both tables and compares the specified values from the command. Matches are appended to Table_Join. If there is no correspondence for the specified value, then those columns are not joined from either table. Left outer joins do exactly the same as inner joins, however, if the program detects there were no matches found for a value from Table_1, it will insert that record anyways, with null information for Table_2's corresponding data.

One issue experienced while testing deletion of tuples on these new tables were line spacing issues, in that the pipe delimiter did not have a space between it and the value, causing an out of index error. This has been resolved.

Execution Commands

In a Unix environment, run the command

```
python3 main.py
```

Python 3.7 or newer is required due to some of the syntax and functions used.

No arguments are used with the file, the program presents a CLI to enter commands.

Ensure that all the modules are in the same folder (dbutils, tableutils, joinutils and queryutils).

Future revisions may place them into their own folder if necessary.

The included PA3_test.sql file contains the same commands but is modified in the following ways:

- Removed multi-line commands to make parsing simpler.
- Fixed spacing issue with "create table" commands, wherein the opening parentheses was not separated by a space from the table name.