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CS 457

Project 3

Design Document

Inner Join:

For this project, I implemented inner join by looping through the values in the first table and then looping through the values in the second table within the first loop. With the double for loop, I then combined the current row of the first table with the rows of the second table. This resulted in a table that had each of the values in the second table applied to each individual item in the first table. Once the tables were combined, I then looped through the entries and compared the necessary values according to the command's conditional. If the conditional was true, then I saved that entry into a separate list, to ensure support for selects without the '*' character. With the list of valid entries complete, I then looped through each of the entries and printed the necessary columns based on the select parameter.

Left Outer Join:

For this join, I went through the exact same steps as the inner join but added some extra steps at the end to find any remaining values in the left table. To do this, I took the finished inner join table and truncated all of the values from the left table to find the unique values. Once I had the unique values, I then compared those values to the inner join table to find the missing values. Knowing what the missing values are, I was then able to fill in the rest of the entry to match up to that of the rest of the table and just printed it at the end of the function.

Compilation and Execution:

To compile the code, you first want to make sure you have Python 3.10 or higher installed and added to your path. Additionally, you'll want to be using a Windows or Linux machine.

Windows can be version 10 or 11, and for Linux this program was tested on an Ubuntu 22.04.1 LTS version. Then you take the zip file and extract it into a clean directory where you want the databases to be saved in. Once you have the files extracted, you can then open a command line and switch the current working directory into the one containing the extracted files. When inside that directory, you will then use the python command `"python japerez_pa3.py"`. This will start the program in its user interactive mode, where you will be able to submit commands into the command line. In the case that you want to use a test script, you would first use the command `".exit"` to terminate the command line interface and then input the command `"python japerez_pa3.py testscript.sql"`. Once you press enter, the program will automatically open, process, and output the results of the commands within that test script.