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CS 457 - DBMS
30 March 2022
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Programming Assignment Design Document 2

System Overview

The system allows a user to have access to the CREATE, DROP, USE, SELECT, ALTER, DELETE, UPDATE and EXIT commands. This means a user is able to create and drop both tables and databases, use a database and access the tables within it, select information from a table, alter attributes of a table, conditionally delete and update entries, and exit the database management system. The names of databases are case sensitive, but tables are not.

A user is able to interact with the database by manually entering their commands line-by-line or by copy-pasting commands. Users may also break up their commands over multiple lines if they so choose.

Structure:

- Built using Python
- Accepts commands line-by-line or as a copy-and-pasted block of commands
- Databases are represented by folders within the home folder
- Tables are represented by a json file and an accompanying csv file
    - json file: table data
    - csv file: name of original data
    - The two files work together to store all the original data and make them retrievable
    - Table data are held in a pandas DataFrame while in use

System Limitations

The system is generally unable to handle an unexpected number of arguments being passed into functions. However, it is able to handle an argument with a random number of non-keyword tokens. Additionally, the system can generally handle situations where there are misspelled words with an expected number of arguments.

The system is also unable to directly parse an SQL file.

Example System Execution

```
CREATE DATABASE CS457_PA2;
USE CS457_PA2;
CREATE TABLE Product (pid int, name varchar(20), price float);

insert into Product values(1,   'Gizmo',        19.99);
insert into Product values(2,   'PowerGizmo',   29.99);
insert into Product values(3,   'SingleTouch',  149.99);
insert into Product values(4,   'MultiTouch',   199.99);
insert into Product values(5,   'SuperGizmo',   49.99);
Database CS457_PA2 created.
Using database CS457_PA2.
Table product created.
1 new record inserted.
1 new record inserted.
1 new record inserted.
1 new record inserted.
1 new record inserted.
select * from Product;

update Product
set name = 'Gizmo'
where name = 'SuperGizmo';
pid int | name varchar(20) | price float
1       | Gizmo          | 19.99
2       | PowerGizmo     | 29.99
3       | SingleTouch    | 149.99
4       | MultiTouch     | 199.99
5       | SuperGizmo     | 49.99
1 record modified.
update Product
set price = 14.99
where name = 'Gizmo';
2 records modified.
select * from Product;
pid int | name varchar(20) | price float
1       | Gizmo          | 14.99
2       | PowerGizmo     | 29.99
3       | SingleTouch    | 149.99
4       | MultiTouch     | 199.99
5       | Gizmo          | 14.99
delete from product
where name = 'Gizmo';
2 records deleted.
delete from product
where price > 150;
1 record deleted.
select * from Product;

select name, price
from product
where pid != 2;
pid int | name varchar(20) | price float
2       | PowerGizmo     | 29.99
3       | SingleTouch    | 149.99
name varchar(20) | price float
PowerGizmo      | 29.99
SingleTouch     | 149.99
.exit
All done.
```