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Real image of the project

DBMS

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Content

Description of the project

A Computer Database is a structured collection of records or data that is stored in a computer system. On the other hand, a Database Management System (DBMS) is a complex set of software programs that controls the organization, storage, management, and retrieval of data in a database. DBMS are categorized according to their data structures or types. The DBMS accepts requests for data from the application program and instructs the operating system to transfer the appropriate data.

Extensible Markup Language (XML) (encoding: ISO-8859-1) is a set of rules for encoding documents in machine readable form. It is defined in the XML 1.0 Specification produced by the W3C, and several other related specifications, all gratis open standards.

Project features:

- o Create database
- o Create table
- o Insert into table
- o Delete from table
- o Drop database
- o Drop table
- o Select from table
- o Update table

Used Design Pattern

1) Factory Design Pattern

We have used Factory design pattern to create Objects from the text representation:

‘12345’ -> Creates a String Object and stores it in the table

12345 -> Creates an Integer Object and stores it in the table

Also we have used Factory Design pattern to generate the correct Commands for the SQL queries which makes the implementation as abstract as possible

2) Singleton Design Pattern

We have used Factory design in classes such as: All Factory classes, Database Manager and FilesHandler. Since we only need one instance of each of these classes

3) Facade Design Pattern

Table, DatabaseManager and FilesHandler all use Instance of other classes inside them to do some functionalities

4) Filter Design Pattern

We have used Filter design pattern in Conditions where there is a ConditionFilter interface and all filter must implement that interface. There where 3 conditions in the project : “=”, “>”, “<”

5) Commands Design Pattern

For each Command, There is a class that implements the Command interface such that every command can be simply executes as command.exec(). There factory classes which generate the correct command for a specific query

User manual

We have 8 statement to be done :

1- to Create database you should write :

“ Create database database_name ”

2- to Create table you should write :

“ Create table table_name(column_name column_type , ...) “

3- to Insert into table you should write :

“ insert into table_name values (record_value , ...)”

4- to Select from table you should write :

“ select * from table_name “

5- to Delete from table you should write :

“Delete from table_name where condition”

6- to Drop table you should write :

“Drop table table_name”

7- to Drop database you should write :

“Drop database database_name”

8- to Update table you should write :

“ Update table_name set column_name = record_value where condition “

Application control

You write the SQL statement by the syntax that is informed before...

If you need to exit from the program you should write “ close “

Sample run

1-

```
"C:\Program Files\Java\jdk-11.0.2\bin\java.exe" "-javaagent:C:\Program F
Write your SQL statement : ( to Exit write 'close' )
create database dbms
Write your SQL statement : ( to Exit write 'close' )
create table test(name varchar, age int , size int )
Write your SQL statement : ( to Exit write 'close' )
insert into test values ('AboBakr' , 20 , 170)
1
Write your SQL statement : ( to Exit write 'close' )
insert into test values ('Fares' , 21 , 171)
1
Write your SQL statement : ( to Exit write 'close' )
insert into test values ('Hazem' , 22 , 172)
1
Write your SQL statement : ( to Exit write 'close' )
insert into test values ('Kareem' , 19 , 169)
1
Write your SQL statement : ( to Exit write 'close' )
update test set size = 173 where name = 'Kareem'
1
Write your SQL statement : ( to Exit write 'close' )
select * from test
'AboBakr' 20 170
'Fares' 21 171
'Hazem' 22 172
'Kareem' 19 173
```

2-

```
Write your SQL statement : ( to Exit write 'close' )
select * from test
'AboBakr' 20 170
'Fares' 21 171
'Hazem' 22 172
'Kareem' 19 173
Write your SQL statement : ( to Exit write 'close' )
delete from test where  name = 'AboBakr'
1
Write your SQL statement : ( to Exit write 'close' )
select * from test
'Fares' 21 171
'Hazem' 22 172
'Kareem' 19 173
Write your SQL statement : ( to Exit write 'close' )
delete from test where age = 22
1
Write your SQL statement : ( to Exit write 'close' )
select * from test
'Fares' 21 171
'Kareem' 19 173
Write your SQL statement : ( to Exit write 'close' )
delete from test where size = 169
0
Write your SQL statement : ( to Exit write 'close' )
delete from test where size = 173
1
Write your SQL statement : ( to Exit write 'close' )
select *  from test
'Fares' 21 171
Write your SQL statement : ( to Exit write 'close' )
close
Syntax Error
Write your SQL statement : ( to Exit write 'close' )
close

Process finished with exit code 0
```