DBMS REPORT

CS221 (Programming - 2)

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Including User Guide

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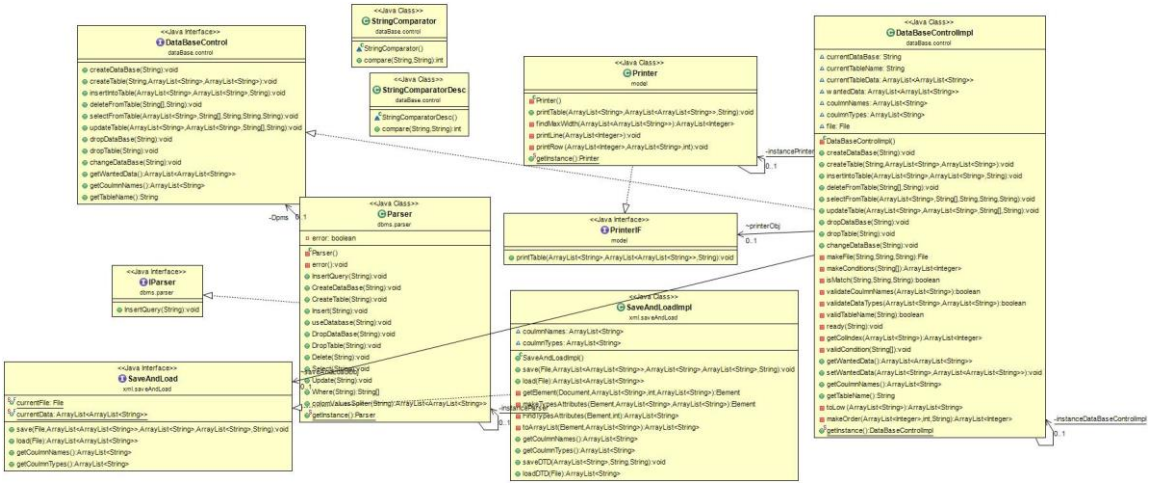
PROBLEM STATMENT

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. On the other hand, Extensible Markup Language (XML) 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.

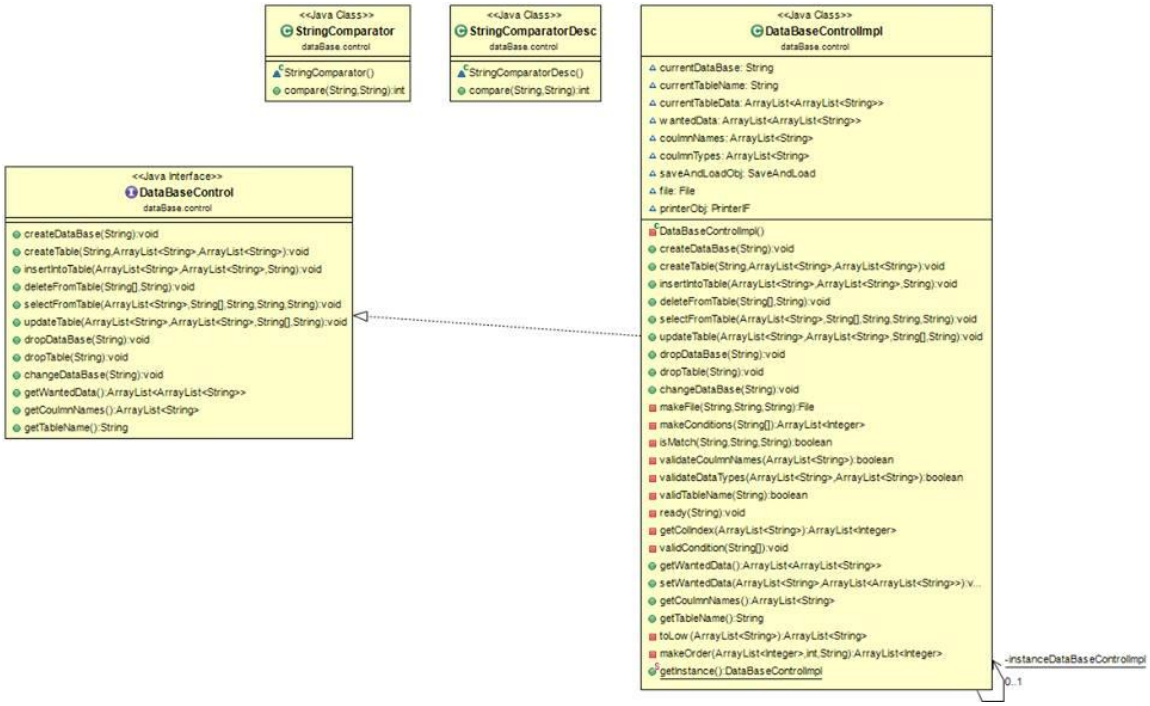
DESIGN

UML

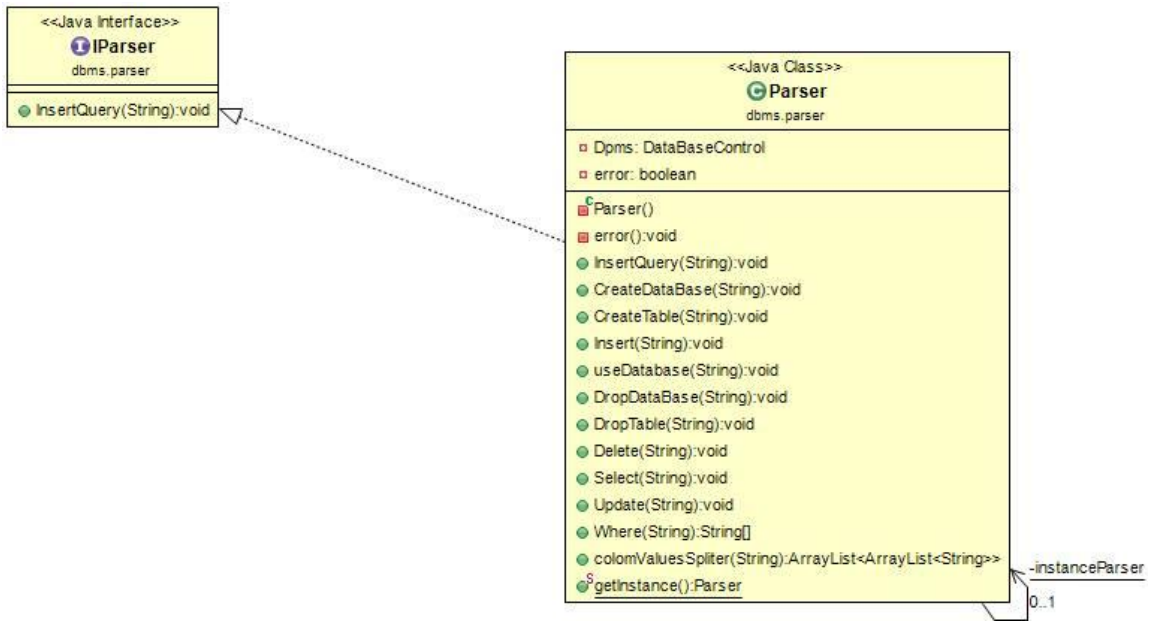
UML diagram for the DBMS.



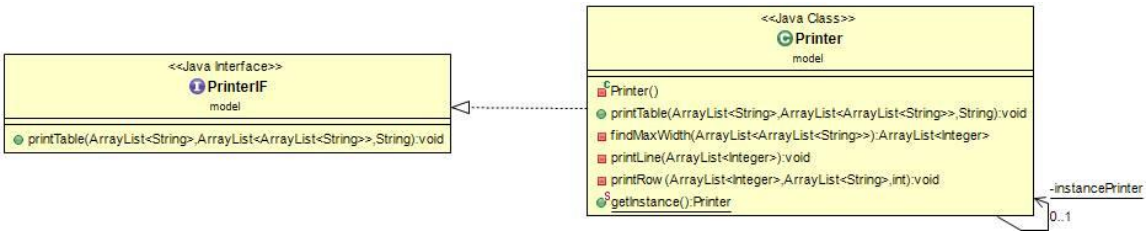
UML diagram for the Database control.



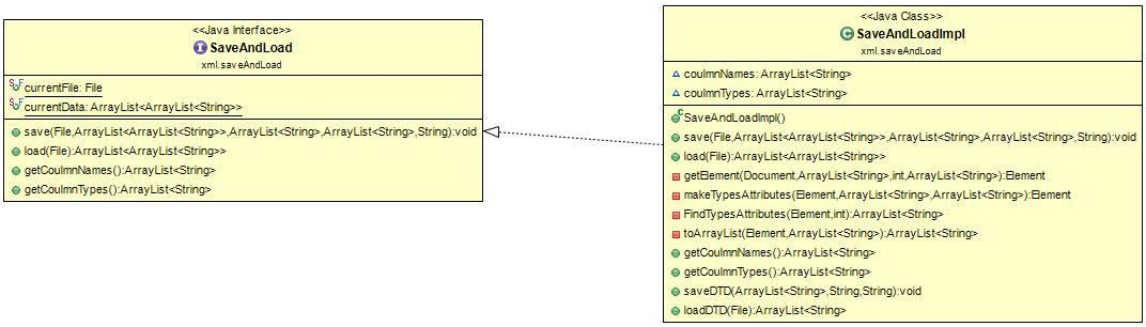
UML diagram for the Parser.



UML diagram for the Printer.



UML diagram for the Save and load.



Parser

First we split the word to detect which operation will perform then we use regular expression to valid the correct syntax, using to validate SQL command and extract data from the command .

Save and Load using DOM

By using Document Builder Factory, Document Builder and Element objects.

Save and Load using DTD

By using print writer objects we didn't use any jar , we implement it our selves .

Database control

Using to link between order and database and perform the action of the SQL command.

Printer

to show the data in table.

MVC

We have 2 package one of them to perform "control " the action (database control) and another package (model) to show the data in table.

Design pattern

Some of the design pattern used in this app:

- Singleton design pattern :in our application we just need one object for each parser class, DataBaseControl class and Printer class so we use singleton pattern by applying private constructor and static method to get an instance of the classes.
- Delegation design pattern: We use object from data base control inside parser class to use function of SQL command , and object from printer inside database control class.
- Interface Design pattern : We provide interface for parser , Database control ,printer and save and load .

FEATURES

MVC Architecture

The implementation is based on the famous MVC pattern.

SQL command

It is provided to use a lot of order to manage your data like : insert , update , delete ,create and drop , also you can switch between database you want to use .

User-friendly

User can enter command insensitive word , also semicolon doesn't require , its provide to show data from table sorted by using "order by" , if he use incorrect command we show massage that detect the error he made , and we show all data if he change any things of data.

USER GUIDE

Data Command

1-Select: it's using to show data in table ,it should be in form "

```
SELECT column_name,column_name
FROM table_name;
```

"

2-Where :to detect special cells to perfrom action , it should be in form "

```
SELECT column_name,column_name
FROM table_name
WHERE column_name operator value;
```

"

3-order by :to show data sorted by key , it should be in form "

```
SELECT column_name, column_name
FROM table_name
ORDER BY column_name ASC|DESC, column_name ASC|DESC;
```

"

4-insert into : to make new data in database , it should be in form "

```
INSERT INTO table_name
VALUES (value1,value2,value3,...);
```

"

Or "

```
INSERT INTO table_name (column1,column2,column3,...)
VALUES (value1,value2,value3,...);
```

"

5-update : to change some data in our database , it should be in form "

```
UPDATE table_name
SET column1=value1,column2=value2,...
WHERE some_column=some_value;
```

"

6-Delete : to delete some data in our database , it should be in form "

```
DELETE FROM table_name
WHERE some_column=some_value;
```

"

Note: Be very careful when deleting records. You cannot undo this statement!

Database command

-Create database: to create new database , it should be in form "

```
CREATE DATABASE dbname;
```

"

-Create table :to create new table in our database , it should be in form "

```
CREATE TABLE table_name
(
column_name1 data_type(size),
column_name2 data_type(size),
column_name3 data_type(size),
....
);"
```

-Drop table : to delete table from database , it should be in form "

```
   Drop table table_name
```

"

-Drop database : to delete database , it should be in form "

```
   Drop database database_name
```

"