DBMS

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Description

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.

Design Decisions

Design pattern for FileBuilder

We choose Singleton Design Pattern to implement FileBuilder Which read and write xml , create and delete Directory and Create DTD scheme files.

Advantages

1-we forced the program to not create more than one instance of FileBuilder.

2- we save the memory because there's only one instance of FileBuilder.

Design Decisions

Design pattern for conditions

We choose Command Design Pattern to implement FileBuilder which compare between two values and return true or false.
we create five classes which implement command interface:

1. EqualOper
2. greaterOper
3. smallerOper
4. greaterOrEqual
5. smallerOrEqual

Advantages

1-we can easily deal with conditions by command interface and make code more readable

Design Decisions

Design pattern for conditionFactory

We choose Factory Design Pattern to implement condition factory which take an operator and return an object of current condition.

Advantages

1-instead of using if and else statements we easily give this class the operator and it choose the condition

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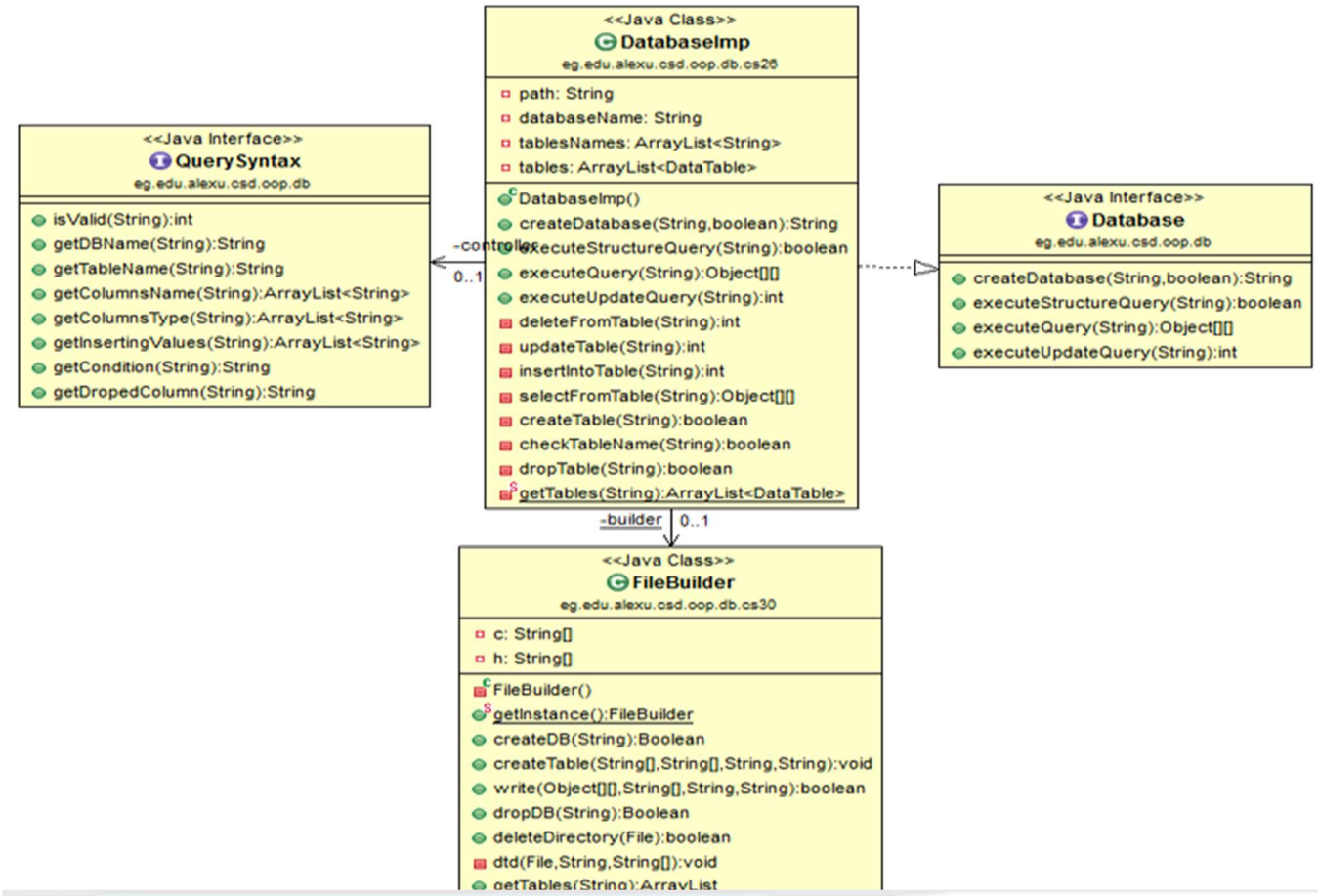
UML for FileBuilder

UML Diagrams

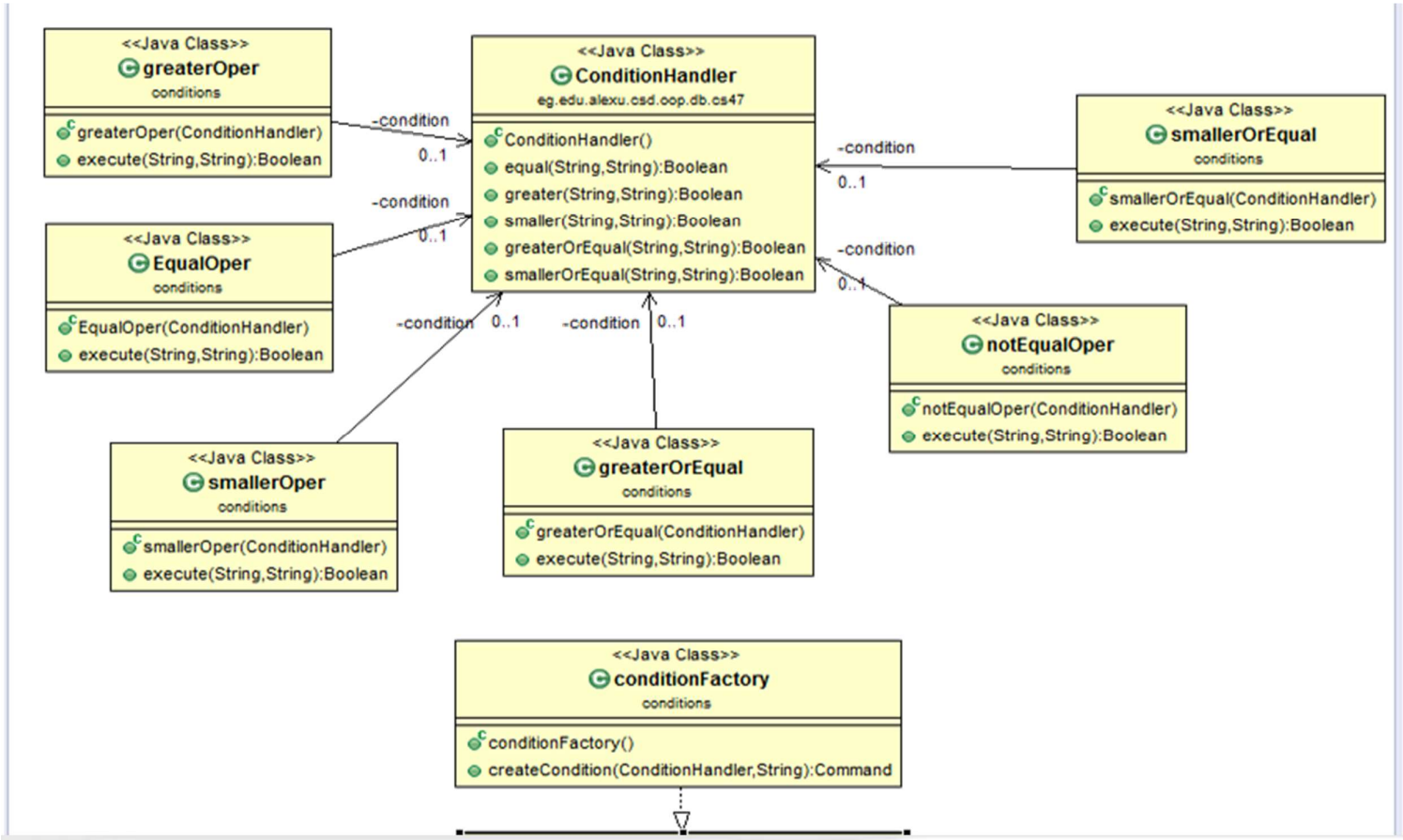
UML for DataTable

UML for DataTable



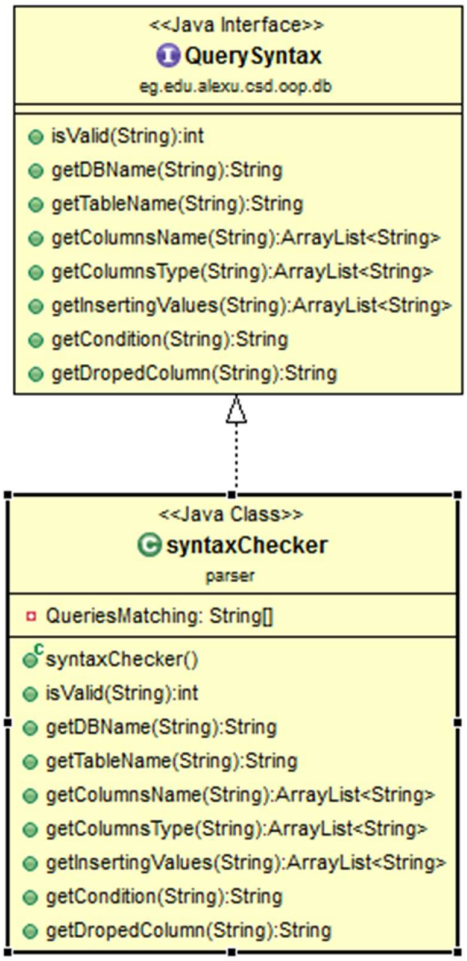
UML Diagrams

UML for Condition



UML Diagrams

UML for Query


<<Java Interface>>
QuerySyntax
eg.edu.alexu.csd.oop.db
isValid(String):int
getDBName(String):String
getTableName(String):String
getColumnsName(String):ArrayList<String>
getColumnsType(String):ArrayList<String>
getInsertingValues(String):ArrayList<String>
getCondition(String):String
getDropedColumn(String):String
<<Java Class>>
syntaxChecker
parser
QueriesMatching: String[]
syntaxChecker()
isValid(String):int
getDBName(String):String
getTableName(String):String
getColumnsName(String):ArrayList<String>
getColumnsType(String):ArrayList<String>
getInsertingValues(String):ArrayList<String>
getCondition(String):String
getDropedColumn(String):String

Screen shots

```
          DataBase Mangement System
SQL>create database computer
Query OK
SQL>create table components (number int , types varchar )
Query OK
SQL>insert into components values(23 , apple)
Query Ok , 1 rows edited
SQL>insert into components values(43 , hp)
Query Ok , 1 rows edited
SQL>insert into components values(353 , intel)
Query Ok , 1 rows edited
SQL>select * from components
-----------------------------------
| 23| apple
-----------------------------------
| 23| apple
-----------------------------------
| 43| hp
-----------------------------------
| 43| hp
-----------------------------------
| 353| intel
-----------------------------------
| 353| intel
-----------------------------------
SQL>select number from components
-----------------------------------
| 23
-----------------------------------
| 23
-----------------------------------
| 43
-----------------------------------
| 43
-----------------------------------
| 353
```

Screen shots

```
          DataBase Mangement System
SQL>ksdfjlkvasdjlvj;mlsd
syntax error
SQL>creat database mahmoud
syntax error
SQL>create database koko23
Query OK
SQL>create table dkfk
Exception ,syntax error
SQL>create table hk(sdjhiv int , idfhsizhxf varchar)
Query OK
SQL>insert into hk
Syntax Error
```