

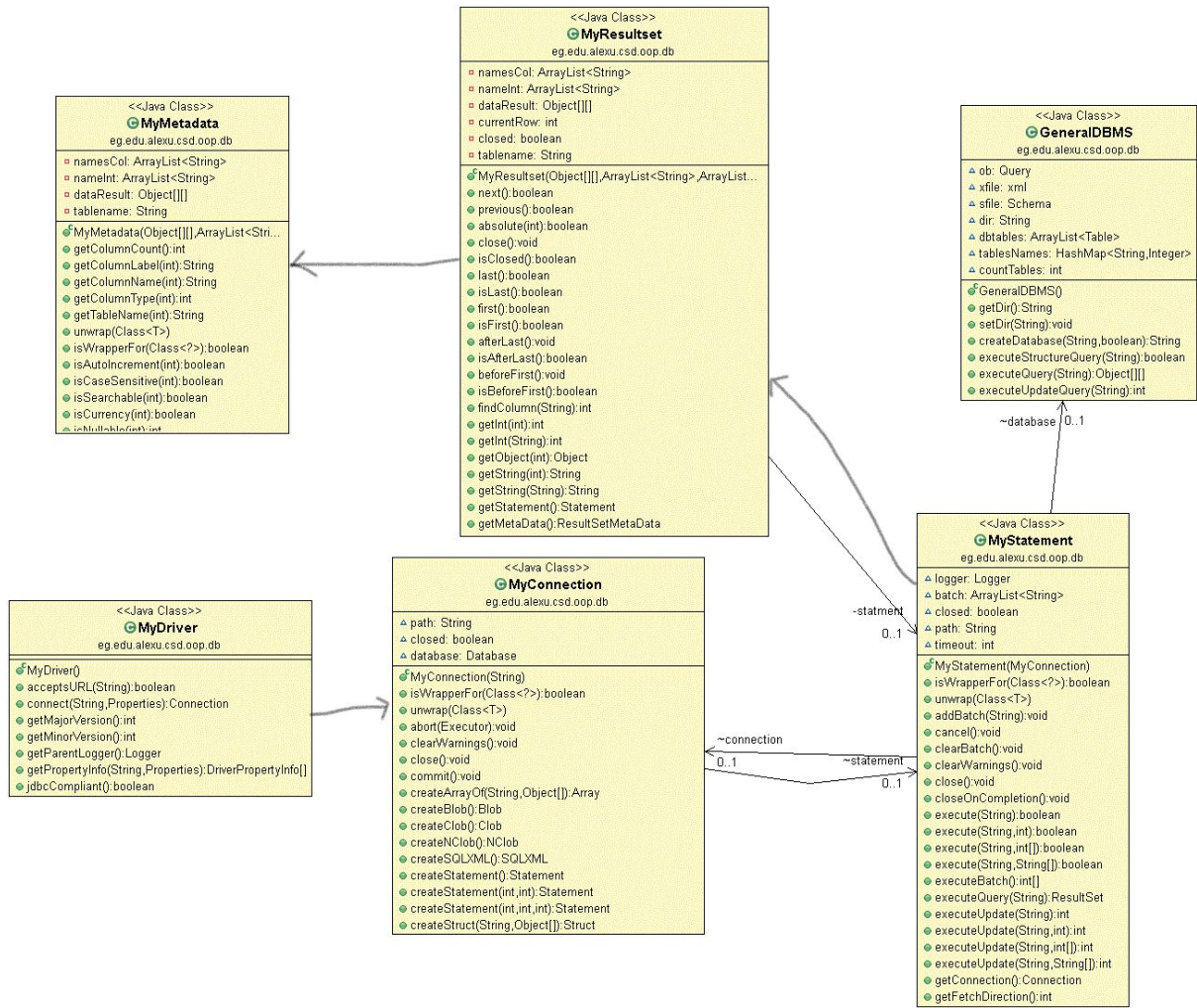


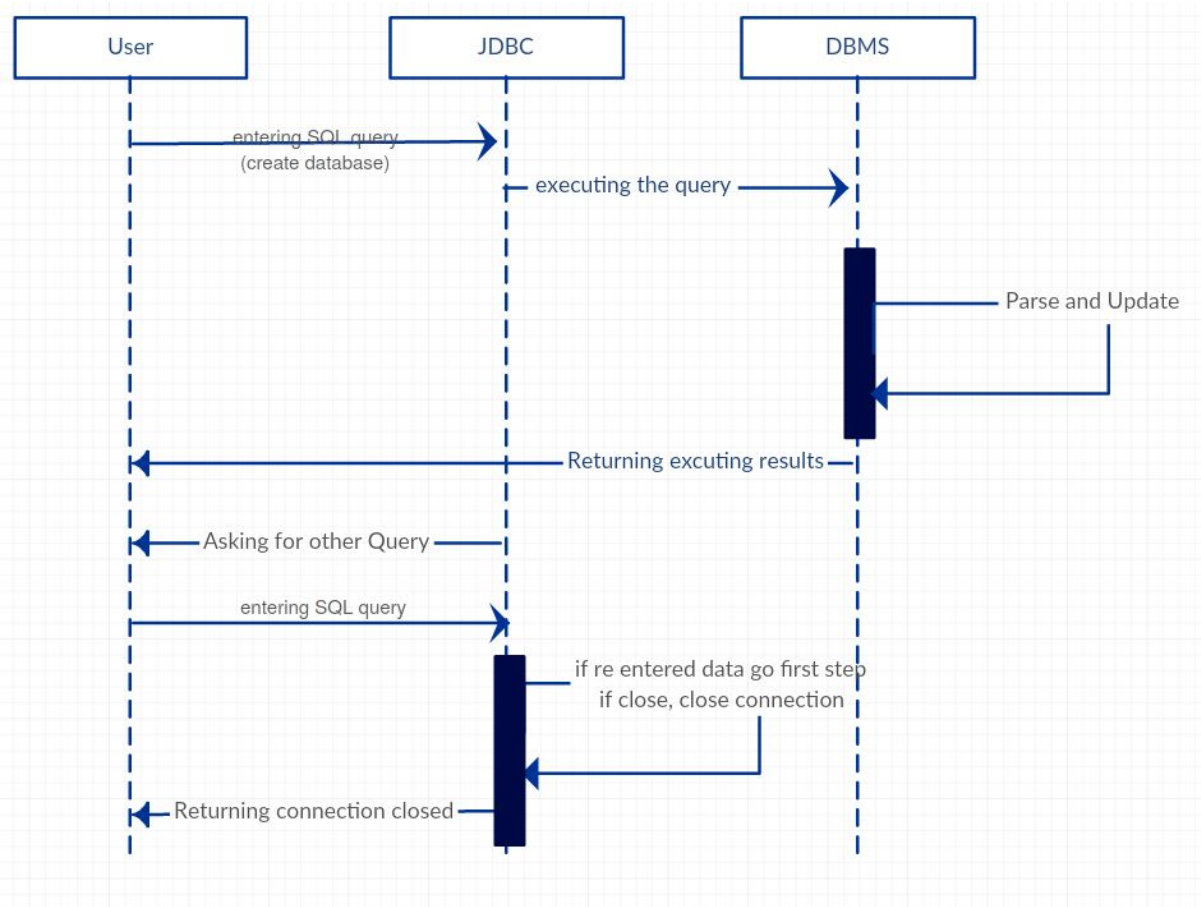
## *JDBC API*

### *□Description:*

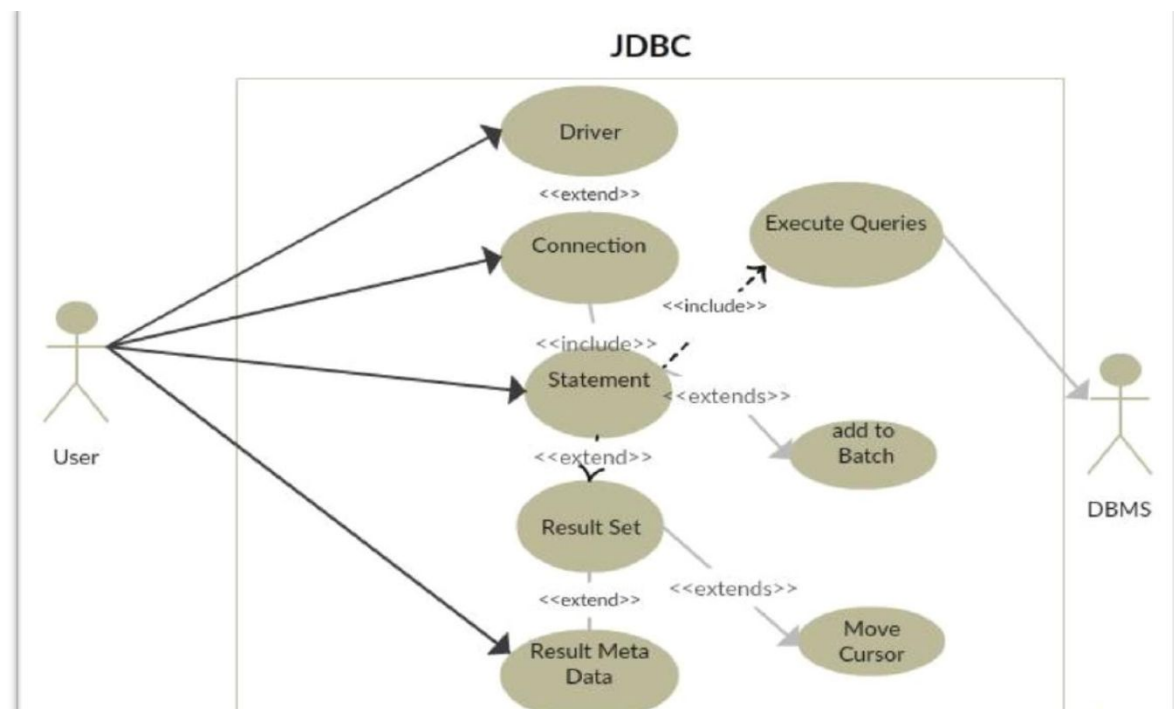
- *JDBC(java database connectivity) is a java API to connect java applications with the database.*
- *These applications access databases using SQL queries .*
- *JDBC uses more than one interface to access data such as:*
  - Driver interface.*
  - Connection interface.*
  - Statement interface.*
  - ResultSet interface.*
  - ResultSet MetaData interface.*

### *□UML Diagram:*

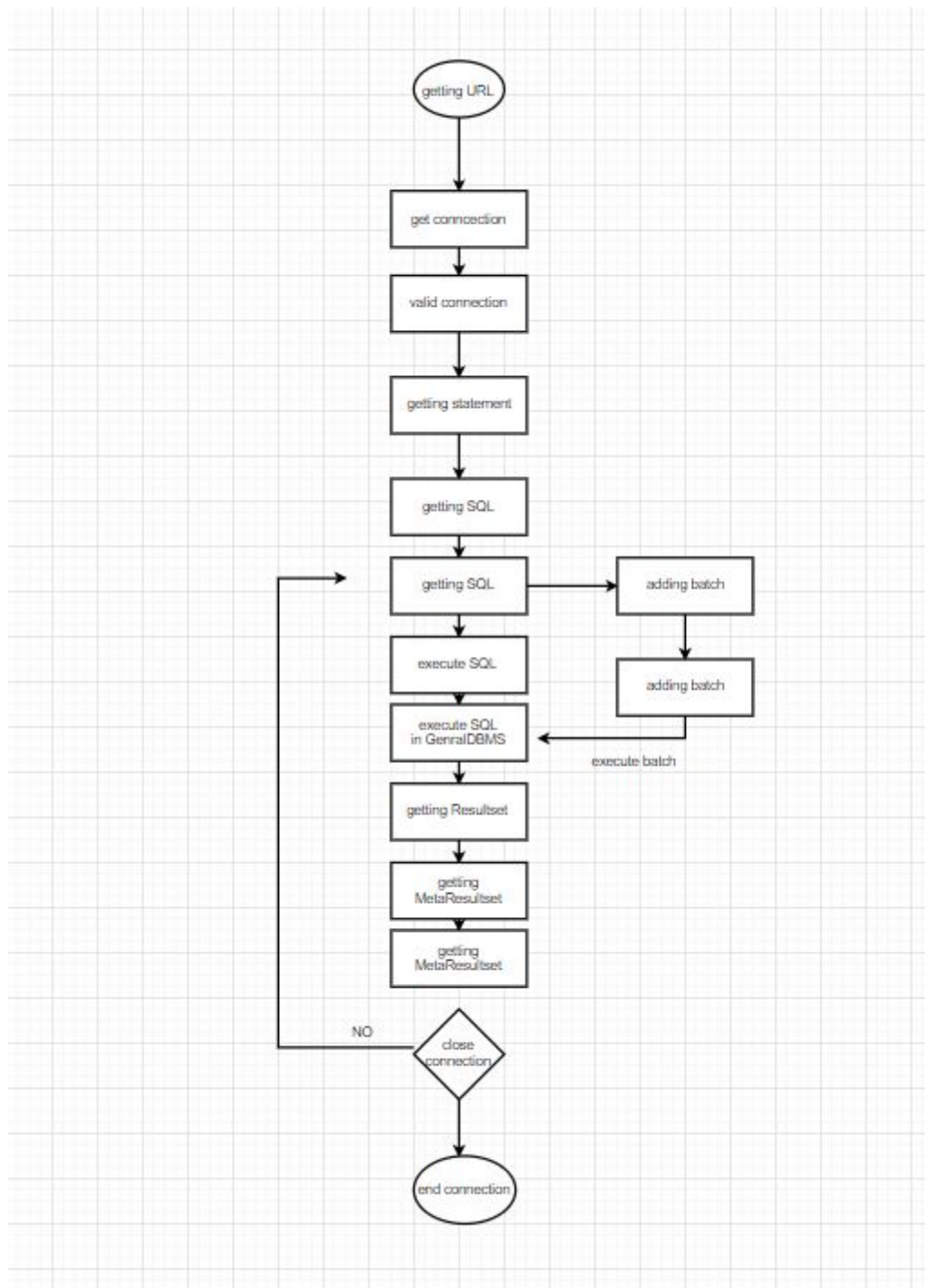




### 3-use case



#### 4- state diagram



## ❑ *Command snapshots:*

- create database

C:\WINDOWS\system32\cmd.exe

```
C:\Users\Public\workspace\lab4>java -jar C:\Users\Public\workspace\lab4\jdbc.jar
Dec 05, 2019 5:19:41 PM eg.edu.alexu.csd.oop.db.MyDriver acceptsURL
INFO: url is accepted
Dec 05, 2019 5:19:41 PM eg.edu.alexu.csd.oop.db.MyDriver connect
INFO: connection has been created sucessfully
Dec 05, 2019 5:19:41 PM eg.edu.alexu.csd.oop.db.MyConnection createStatement
INFO: Statement is created sucessfully
create database test
Dec 05, 2019 5:19:58 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
```

- create table

C:\WINDOWS\system32\cmd.exe

```
C:\Users\Public\workspace\lab4>java -jar C:\Users\Public\workspace\lab4\jdbc.jar
Dec 05, 2019 5:19:41 PM eg.edu.alexu.csd.oop.db.MyDriver acceptsURL
INFO: url is accepted
Dec 05, 2019 5:19:41 PM eg.edu.alexu.csd.oop.db.MyDriver connect
INFO: connection has been created sucessfully
Dec 05, 2019 5:19:41 PM eg.edu.alexu.csd.oop.db.MyConnection createStatement
INFO: Statement is created sucessfully
create database test
Dec 05, 2019 5:19:58 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
CREATE TABLE table_name6(column_name1 varchar, column_name2 int, column_name3 varchar)
Dec 05, 2019 5:21:52 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
```



## ● Insert into table

C:\WINDOWS\system32\cmd.exe

```
C:\Users\Public\workspace\lab4>java -jar C:\Users\Public\workspace\lab4\jdbc.jar
Dec 05, 2019 5:23:08 PM eg.edu.alexu.csd.oop.db.MyDriver acceptsURL
INFO: url is accepted
Dec 05, 2019 5:23:09 PM eg.edu.alexu.csd.oop.db.MyDriver connect
INFO: connection has been created sucessfully
Dec 05, 2019 5:23:09 PM eg.edu.alexu.csd.oop.db.MyConnection createStatement
INFO: Statement is created sucessfully
create database test
Dec 05, 2019 5:23:19 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
CREATE TABLE table_name1(column_name1 varchar, column_name2 int, column_name3 varchar)
Dec 05, 2019 5:23:43 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
INSERT INTO table_name1(column_name1, COLUMN_NAME3, column_NAME2) VALUES ('value2', 'value4', 5)
Dec 05, 2019 5:24:35 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
```

## ● Update table

C:\WINDOWS\system32\cmd.exe

```
C:\Users\Public\workspace\lab4>java -jar C:\Users\Public\workspace\lab4\jdbc.jar
Dec 05, 2019 5:26:49 PM eg.edu.alexu.csd.oop.db.MyDriver acceptsURL
INFO: url is accepted
Dec 05, 2019 5:26:49 PM eg.edu.alexu.csd.oop.db.MyDriver connect
INFO: connection has been created sucessfully
Dec 05, 2019 5:26:49 PM eg.edu.alexu.csd.oop.db.MyConnection createStatement
INFO: Statement is created sucessfully
create database test
Dec 05, 2019 5:26:59 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
CREATE TABLE table_name1(column_name1 varchar, column_name2 int, column_name3 varchar)
Dec 05, 2019 5:27:29 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
INSERT INTO table_name1(column_NAME1, COLUMN_name3, column_name2) VALUES ('value1', 'value3', 4)
Dec 05, 2019 5:27:51 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
UPDATE table_name1 SET column_name1='1111111111', COLUMN_NAME2=2222222, column_name3='333333333'
Dec 05, 2019 5:28:13 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
```

## ● Select from table

C:\WINDOWS\system32\cmd.exe

```
C:\Users\Public\workspace\lab4>java -jar C:\Users\Public\workspace\lab4\jdbc.jar
Dec 05, 2019 5:34:00 PM eg.edu.alexu.csd.oop.db.MyDriver acceptsURL
INFO: url is accepted
Dec 05, 2019 5:34:00 PM eg.edu.alexu.csd.oop.db.MyDriver connect
INFO: connection has been created sucessfully
Dec 05, 2019 5:34:00 PM eg.edu.alexu.csd.oop.db.MyConnection createStatement
INFO: Statement is created sucessfully
create database test
Dec 05, 2019 5:34:08 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
CREATE TABLE table_name1(column_name1 varchar, column_name2 int, column_name3 varchar)
Dec 05, 2019 5:34:31 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
INSERT INTO table_name1(column_NAME1, COLUMN_name3, column_name2) VALUES ('value1', 'value3', 4)
Dec 05, 2019 5:34:58 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
INSERT INTO table_name1(column_NAME1, COLUMN_name3, column_name2) VALUES ('value1', 'value3', 4)
Dec 05, 2019 5:35:14 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
INSERT INTO table_name1(column_name1, COLUMN_NAME3, column_NAME2) VALUES ('value2', 'value4', 5)
Dec 05, 2019 5:35:36 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
select * from table_name1
column_name1      column_name2      column_name3
value1            4                 value3
value1            4                 value3
value2            5                 value4
```

## ● Invalid query

C:\WINDOWS\system32\cmd.exe

```
C:\Users\Public\workspace\lab4>java -jar C:\Users\Public\workspace\lab4\jdbc.jar
Dec 05, 2019 5:32:54 PM eg.edu.alexu.csd.oop.db.MyDriver acceptsURL
INFO: url is accepted
Dec 05, 2019 5:32:54 PM eg.edu.alexu.csd.oop.db.MyDriver connect
INFO: connection has been created sucessfully
Dec 05, 2019 5:32:54 PM eg.edu.alexu.csd.oop.db.MyConnection createStatement
INFO: Statement is created sucessfully
create database test
Dec 05, 2019 5:33:09 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
create tabl table_name1
Dec 05, 2019 5:33:25 PM eg.edu.alexu.csd.oop.db.MyStatement execute
SEVERE: Invalid query
java.sql.SQLException: Invalid query
```



## ● Delete from table

C:\WINDOWS\system32\cmd.exe

```
C:\Users\Public\workspace\lab4>java -jar C:\Users\Public\workspace\lab4\jdbc.jar
Dec 05, 2019 5:30:53 PM eg.edu.alexu.csd.oop.db.MyDriver acceptsURL
INFO: url is accepted
Dec 05, 2019 5:30:53 PM eg.edu.alexu.csd.oop.db.MyDriver connect
INFO: connection has been created successfully
Dec 05, 2019 5:30:53 PM eg.edu.alexu.csd.oop.db.MyConnection createStatement
INFO: Statement is created successfully
create database test
Dec 05, 2019 5:31:03 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed successfully
CREATE TABLE table_name1(column_name1 varchar, column_name2 int, column_name3 varchar)
Dec 05, 2019 5:31:35 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed successfully
INSERT INTO table_name1(column_NAME1, COLUMN_name3, column_name2) VALUES ('value1', 'value3', 4)
Dec 05, 2019 5:31:55 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed successfully
INSERT INTO table_name1(column_name1, COLUMN_NAME3, column_NAME2) VALUES ('value2', 'value4', 5)
Dec 05, 2019 5:32:26 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed successfully
DELETE From table_name1
Dec 05, 2019 5:32:41 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed successfully
```

## ● Drop table

Select C:\WINDOWS\system32\cmd.exe

```
C:\Users\Public\workspace\lab4>java -jar C:\Users\Public\workspace\lab4\jdbc.jar
Dec 05, 2019 5:19:41 PM eg.edu.alexu.csd.oop.db.MyDriver acceptsURL
INFO: url is accepted
Dec 05, 2019 5:19:41 PM eg.edu.alexu.csd.oop.db.MyDriver connect
INFO: connection has been created successfully
Dec 05, 2019 5:19:41 PM eg.edu.alexu.csd.oop.db.MyConnection createStatement
INFO: Statement is created successfully
create database test
Dec 05, 2019 5:19:58 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed successfully
CREATE TABLE table_name6(column_name1 varchar, column_name2 int, column_name3 varchar)
Dec 05, 2019 5:21:52 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed successfully
drop table table_name6
Dec 05, 2019 5:22:23 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed successfully
```



- Drop database

C:\WINDOWS\system32\cmd.exe

```
C:\Users\Public\workspace\lab4>java -jar C:\Users\Public\workspace\lab4\jdbc.jar
Dec 05, 2019 5:22:44 PM eg.edu.alexu.csd.oop.db.MyDriver acceptsURL
INFO: url is accepted
Dec 05, 2019 5:22:44 PM eg.edu.alexu.csd.oop.db.MyDriver connect
INFO: connection has been created sucessfully
Dec 05, 2019 5:22:44 PM eg.edu.alexu.csd.oop.db.MyConnection createStatement
INFO: Statement is created sucessfully
create database test
Dec 05, 2019 5:22:55 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
drop database test
Dec 05, 2019 5:23:01 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
```

- Not existing table name


C:\WINDOWS\system32\cmd.exe

```
C:\Users\Public\workspace\lab4>java -jar C:\Users\Public\workspace\lab4\jdbc.jar
Dec 05, 2019 5:24:53 PM eg.edu.alexu.csd.oop.db.MyDriver acceptsURL
INFO: url is accepted
Dec 05, 2019 5:24:53 PM eg.edu.alexu.csd.oop.db.MyDriver connect
INFO: connection has been created sucessfully
Dec 05, 2019 5:24:53 PM eg.edu.alexu.csd.oop.db.MyConnection createStatement
INFO: Statement is created sucessfully
create database test
Dec 05, 2019 5:25:00 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
CREATE TABLE table_name1(column_name1 varchar, column_name2 int, column_name3 varchar)
Dec 05, 2019 5:25:30 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
INSERT INTO table_name1(column_NAME1, COLUMN_name3, column_name2) VALUES ('value1', 'value3', 4)
Dec 05, 2019 5:26:17 PM eg.edu.alexu.csd.oop.db.MyStatement execute
INFO: The query has been executed sucessfully
UPDATE table_name7 SET column_name1='1111111111', COLUMN_NAME2=2222222, column_name3='333333333'
java.sql.SQLException: This table name is not found

    at eg.edu.alexu.csd.oop.db.GeneralDBMS.executeUpdateQuery(GeneralDBMS.java:194)
    at eg.edu.alexu.csd.oop.db.MyStatement.execute(MyStatement.java:97)
    at eg.edu.alexu.csd.oop.db.main.main(main.java:51)
```

## ❏ *User guide:*

- Open the command line

 C:\WINDOWS\system32\cmd.exe

```
C:\Users\Public\workspace\lab4>java -jar C:\Users\Public\workspace\lab4\jdbc.jar
Dec 05, 2019 6:21:43 PM eg.edu.alexu.csd.oop.db.MyDriver acceptsURL
INFO: url is accepted
Dec 05, 2019 6:21:43 PM eg.edu.alexu.csd.oop.db.MyDriver connect
INFO: connection has been created sucessfully
Dec 05, 2019 6:21:43 PM eg.edu.alexu.csd.oop.db.MyConnection createStatement
INFO: Statement is created sucessfully
```

- Enter sql queries.
- Results and error messages would appear on the command