JBDC API

Names:

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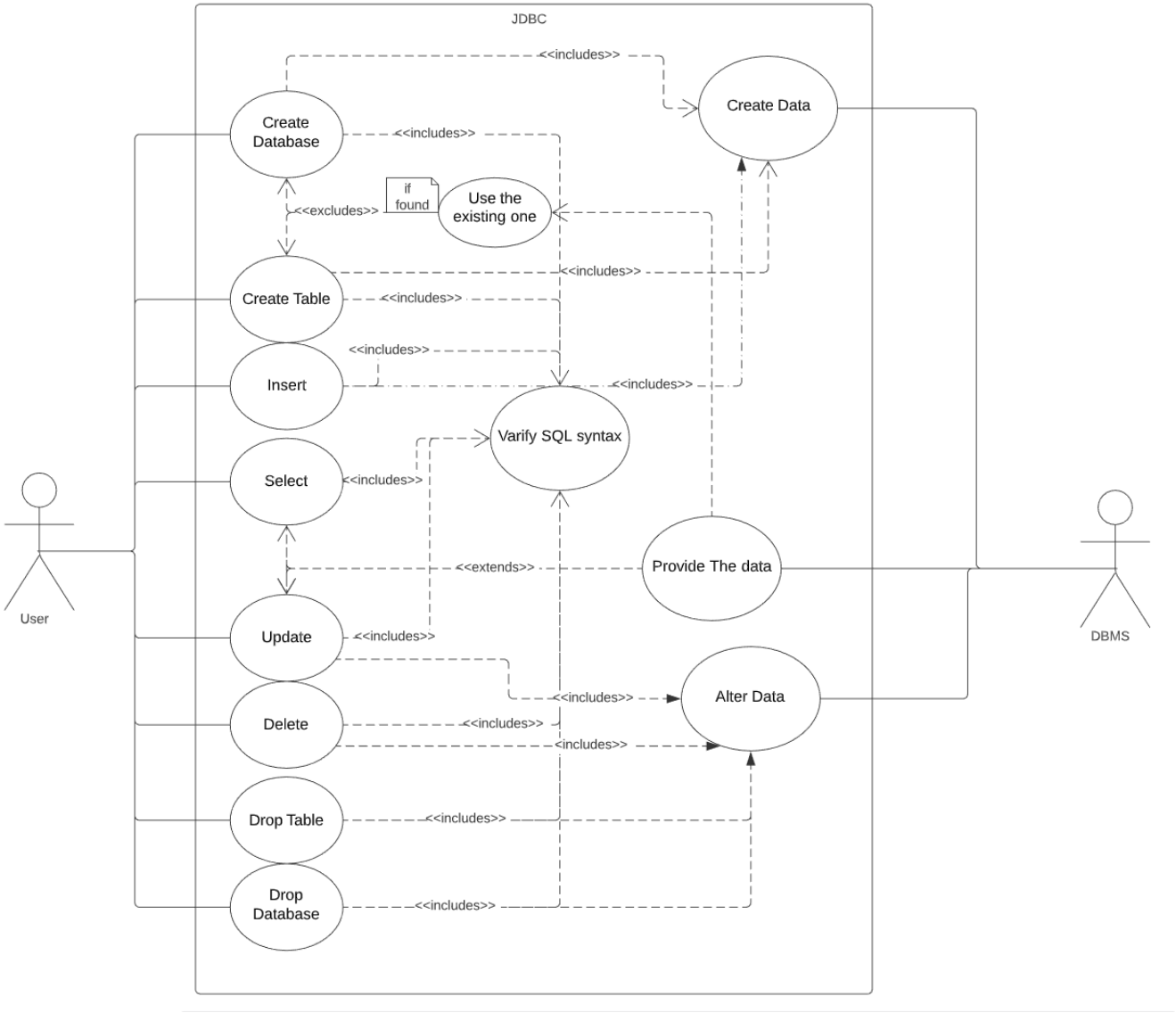
UML

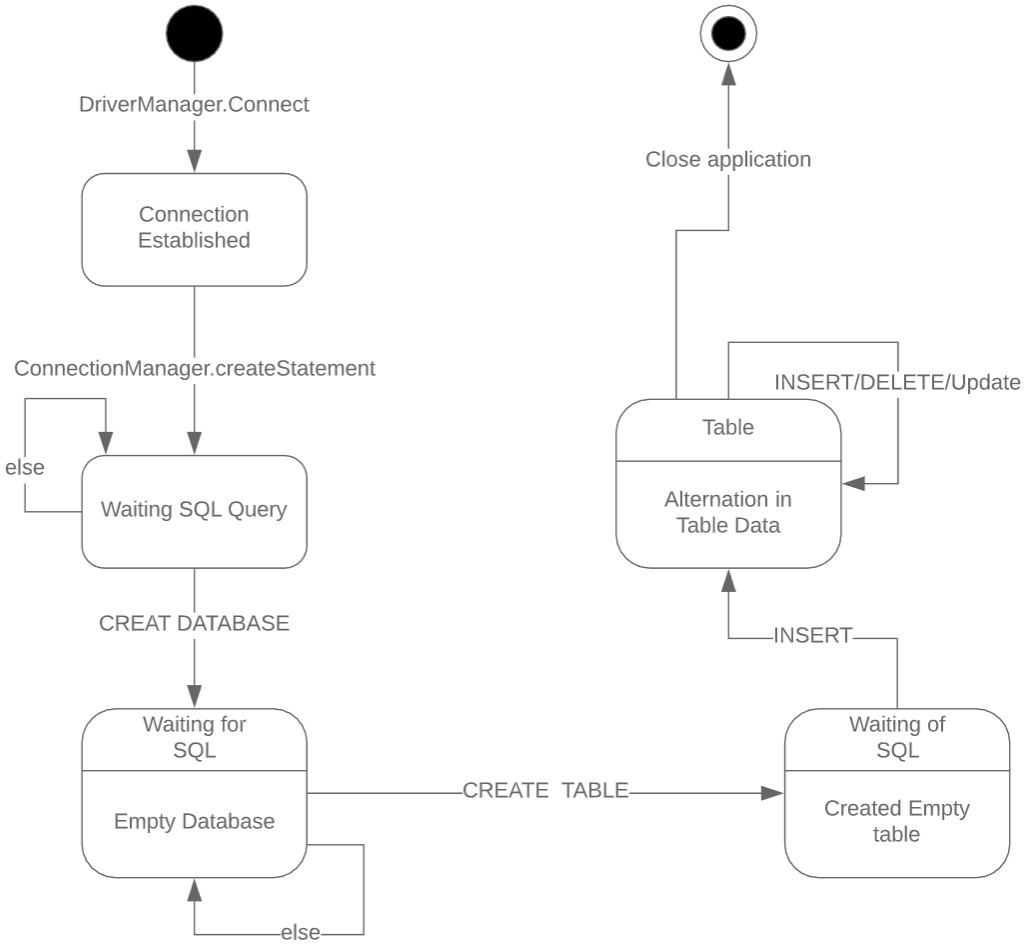
Use Case:


JDBC
<<includes>>
Create Data
Create Database
<<includes>>
if found
<<excludes>>
Use the existing one
<<includes>>
Create Table
<<includes>>
<<includes>>
Insert
<<includes>>
Varify SQL syntax
Select
<<includes>>
User
<<extends>>
Provide The data
DBMS
Update
<<includes>>
<<includes>>
Alter Data
Delete
<<includes>>
<<includes>>
Drop Table
<<includes>>
Drop Database
<<includes>>

State Diagram:

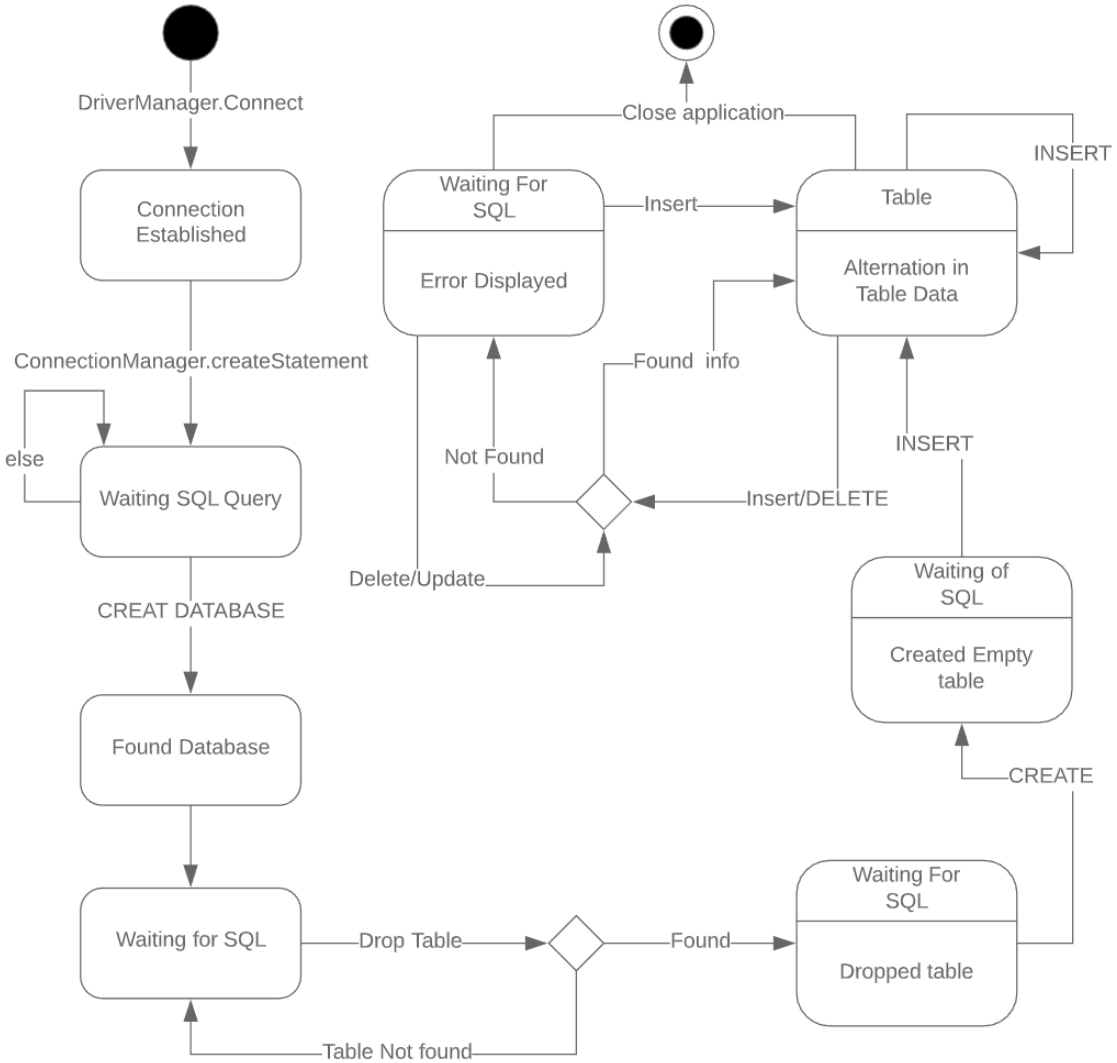
Scenario 1:

Creating a new database, creating a table and inserting/updating/deleting data



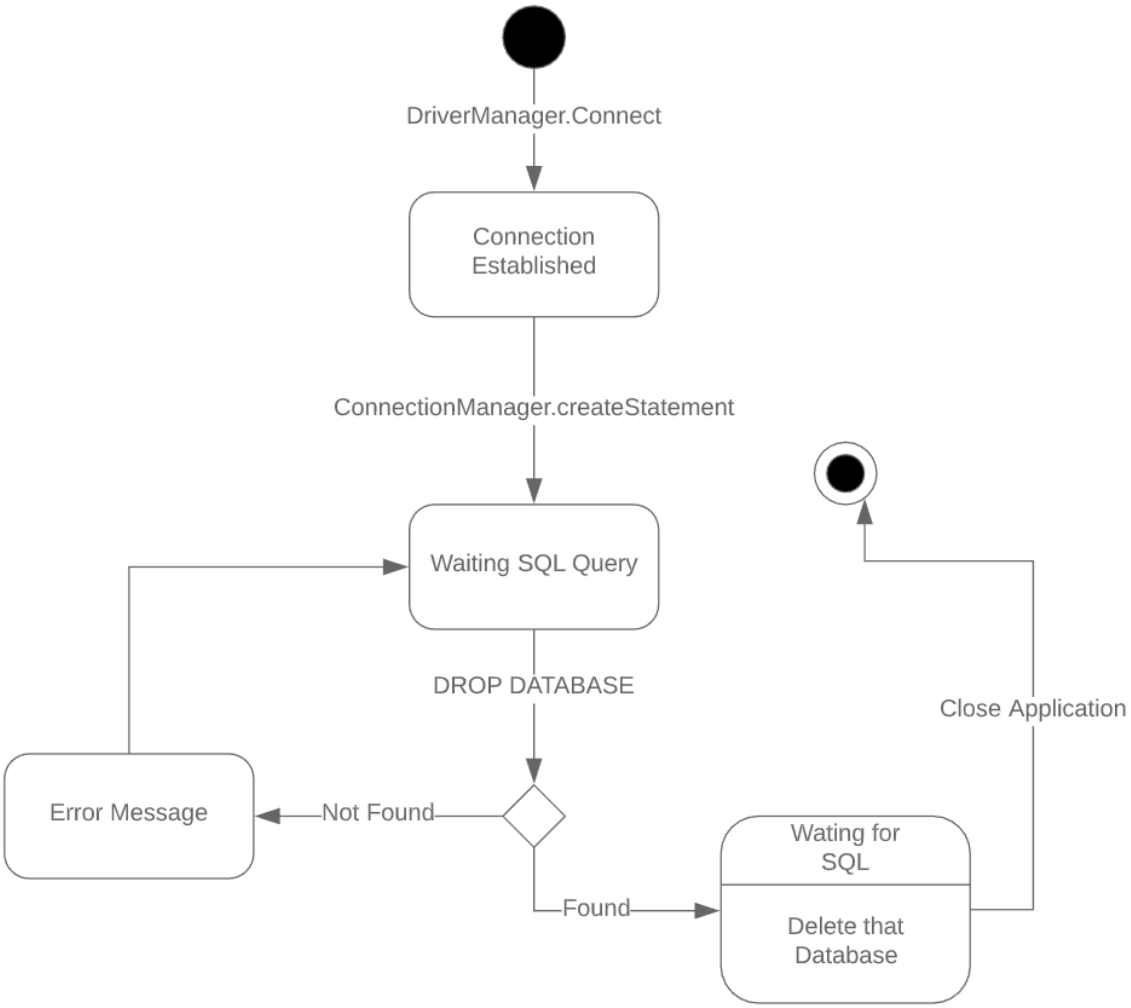
Scenario 2:

Selecting an existent, then dropping a table and creating a new table, and modifying the data inside it

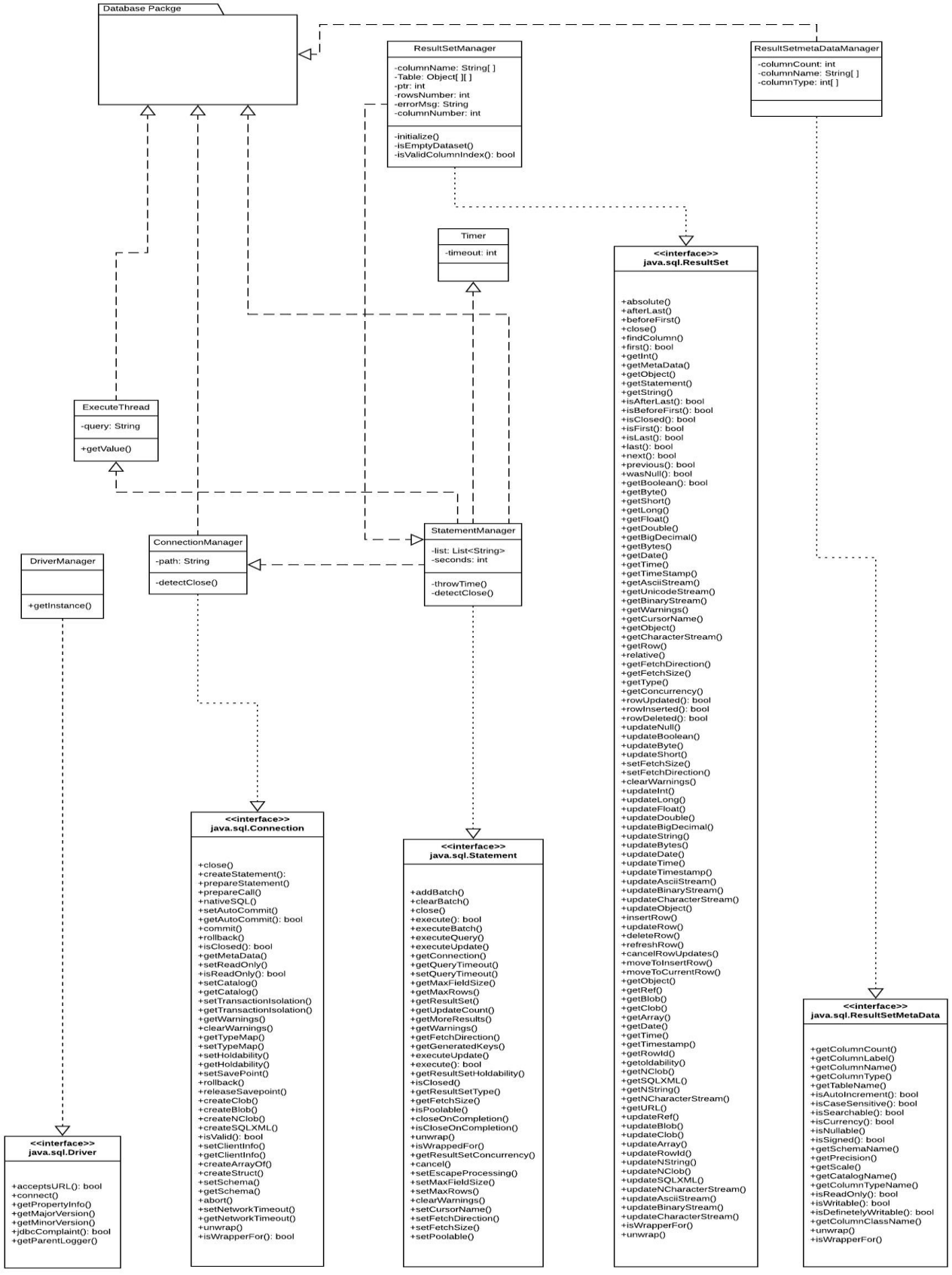


Scenario 3:

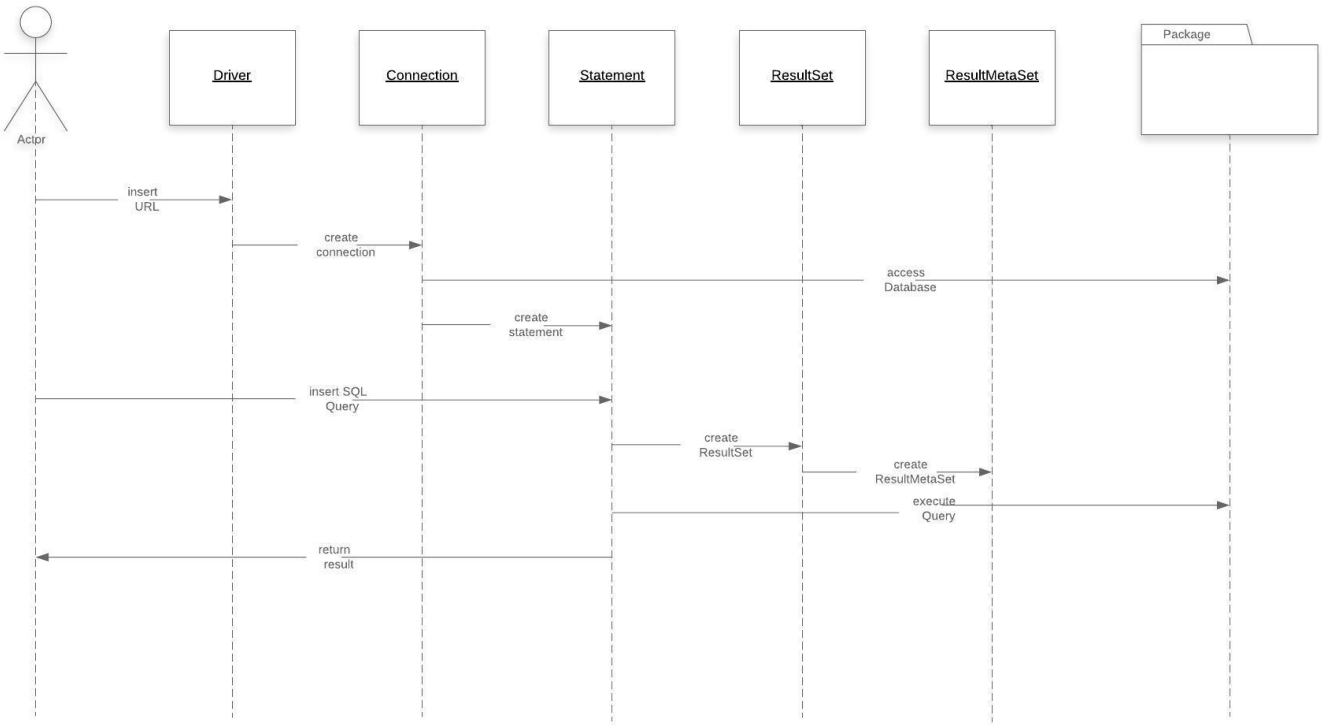
Dropping a Database.



Class Diagram:



Sequence Diagram:



Design Description

- ***DriverManager class*** accepts a URL and connects the JBDC to the DBMS and data
- ***ConnectionManager class*** secured the initial and following connection to the DBMS and uses “Logger” and creates statements using the StatementManager.
- ***StatementManager class*** adds, executes, and clears batch, and executes updates and Queries, and throws a time limit during execution using Threads Design Pattern.
- ***Timer class*** a class extending Thread and overriding the method
- ***ExecuteThread class*** executes a thread
- ***ResultSetManager class*** initializes the data array and checks if empty or not, and if the column index is valid and handles the data.
- ***ResultSetMetaDataManager class*** returns the meta of the data (column count, column name, column type, and table name).

User Guide

- First you create the database by statement "create database <database name>".
- Then you create a table by statement "create table <table name>".
- You can insert data to the table using the keyword "insert".
- After that you can print the data by "select" keyword and you can use "where" keyword if there is one or more conditions.
- you can also delete from the table by "delete" keyword .
- you may change anything in the table using "update" keyword so that you can update your table.
- Whenever you want to drop a table or a database you will use "drop" keyword.
- Your entries must obey the syntax of SQL, otherwise you will be given an error.

Sample Runs

D:\Uni\Java\C221-Lab4\58-26-17-37-simple-jdbc\classes\artifacts\JDBC_jar\Databases\test1\test1one.xml

```
<?xml version="1.0" encoding="UTF-8"?>
- <test1one>
  - <Entity>
      <id>1</id>
      <name>pete</name>
      <age>20</age>
    </Entity>
  - <Entity>
      <id>2</id>
      <name>amy</name>
      <age>50</age>
    </Entity>
  - <Entity>
      <id>3</id>
      <name>ali</name>
      <age>10</age>
    </Entity>
  - <Entity>
      <id>4</id>
      <name>adel</name>
      <age>25</age>
    </Entity>
</test1one>
```

C:\WINDOWS\system32\cmd.exe

```
D:\Uni\Java\C221-Lab4\58-26-17-37-simple-jdbc\classes\artifacts\JDBC_jar>java -jar JDBC.jar
Dec 06, 2019 11:52:29 PM eg.edu.alexu.csd.oop.jdbc.cs58.DriverManager connect
INFO: The connection is Created
Dec 06, 2019 11:52:29 PM eg.edu.alexu.csd.oop.jdbc.cs58.ConnectionManager createStatement
INFO: The statement is created now
Enter sql query :)
CREATE DATABASE test1
Dec 06, 2019 11:52:37 PM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
CREATE TABLE test1One(ID int, name varchar, age int)
Dec 06, 2019 11:53:14 PM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
INSERT INTO test1One(ID, name, age) VALUES(1,'Pete', 20)
Dec 06, 2019 11:54:30 PM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
INSERT INTO test1One(ID, name, age) VALUES(2,'Amy',50)
Dec 06, 2019 11:54:55 PM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
INSERT INTO test1One(ID, name, age) VALUES(3,'Ali',10)
Dec 06, 2019 11:55:12 PM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
INSERT INTO test1One(ID, name, age) VALUES(4,'Adel',25)
Dec 06, 2019 11:55:25 PM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
```

D:\Uni\Java\C221-Lab4\58-26-17-37-simple-jdbc\classes\artifacts\JDBC_jar\Databases\test1\test1one.xml

```
<?xml version="1.0" encoding="UTF-8"?>
- <test1one>
  - <Entity>
      <id>1</id>
      <name>leo</name>
      <age>20</age>
    </Entity>
  - <Entity>
      <id>2</id>
      <name>leo</name>
      <age>50</age>
    </Entity>
  - <Entity>
      <id>3</id>
      <name>leo</name>
      <age>10</age>
    </Entity>
  - <Entity>
      <id>4</id>
      <name>leo</name>
      <age>25</age>
    </Entity>
</test1one>
```

C:\WINDOWS\system32\cmd.exe

```
D:\Uni\Java\C221-Lab4\58-26-17-37-simple-jdbc\classes\artifacts\JDBC_jar>java -jar JDBC.jar
Dec 07, 2019 12:04:31 AM eg.edu.alexu.csd.oop.jdbc.cs58.DriverManager connect
INFO: The connection is Created
Dec 07, 2019 12:04:31 AM eg.edu.alexu.csd.oop.jdbc.cs58.ConnectionManager createStatement
INFO: The statement is created now
Enter sql query :)
create database test1
Dec 07, 2019 12:04:45 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
update test1One set Name = 'Leo'
Dec 07, 2019 12:06:37 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
```

D:\Uni\Java\C221-Lab4\58-26-17-37-simple-jdbc\classes\artifacts\JDBC_jar\Databases\test1\test1one.xml

```
<?xml version="1.0" encoding="UTF-8"?>
- <test1one>
  - <Entity>
      <id>2</id>
      <name>leo</name>
      <age>50</age>
    </Entity>
</test1one>
```

```
C:\WINDOWS\system32\cmd.exe

D:\Uni\Java\C221-Lab4\58-26-17-37-simple-jdbc\classes\artifacts\JDBC_jar>java -jar JDBC.jar
Dec 07, 2019 12:04:31 AM eg.edu.alexu.csd.oop.jdbc.cs58.DriverManager connect
INFO: The connection is Created
Dec 07, 2019 12:04:31 AM eg.edu.alexu.csd.oop.jdbc.cs58.ConnectionManager createStatement
INFO: The statement is created now
Enter sql query :)
create database test1
Dec 07, 2019 12:04:45 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
update test1One set Name = 'Leo'
Dec 07, 2019 12:06:37 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
delete from test1One where age<50
Dec 07, 2019 12:07:45 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
```

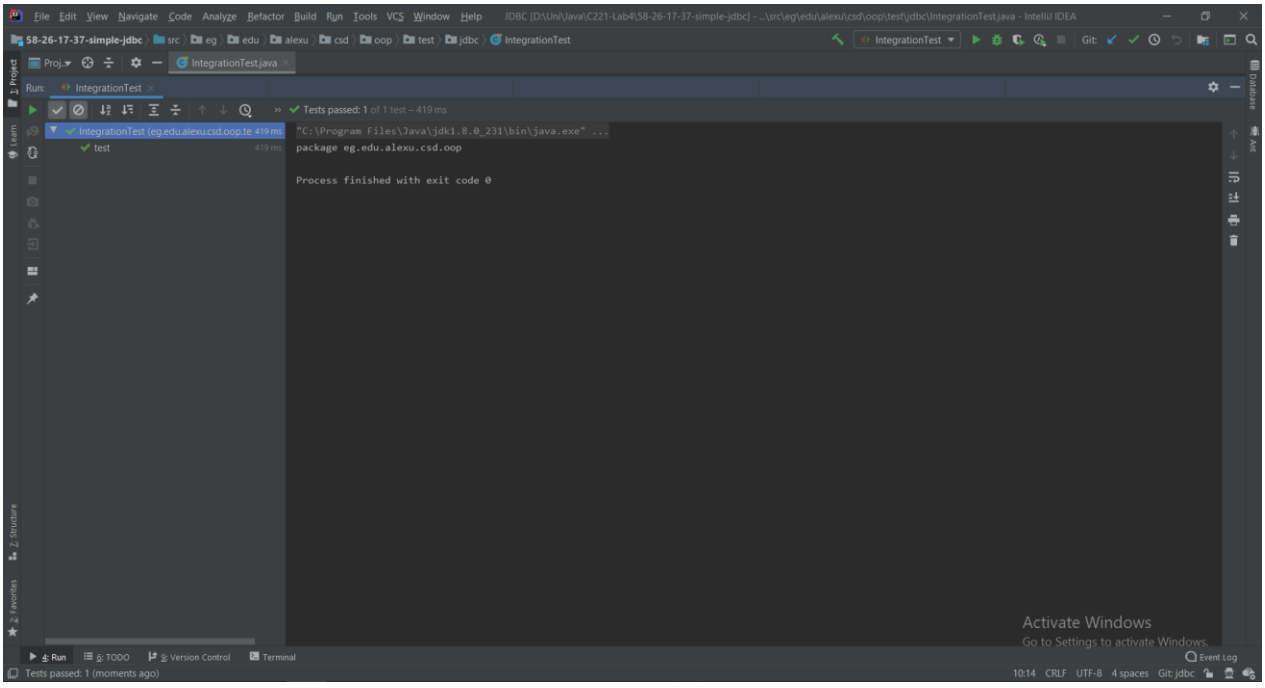
D:\Uni\Java\C221-Lab4\58-26-17-37-simple-jdbc\classes\artifacts\JDBC_jar\Databases\test1\test1one.xml

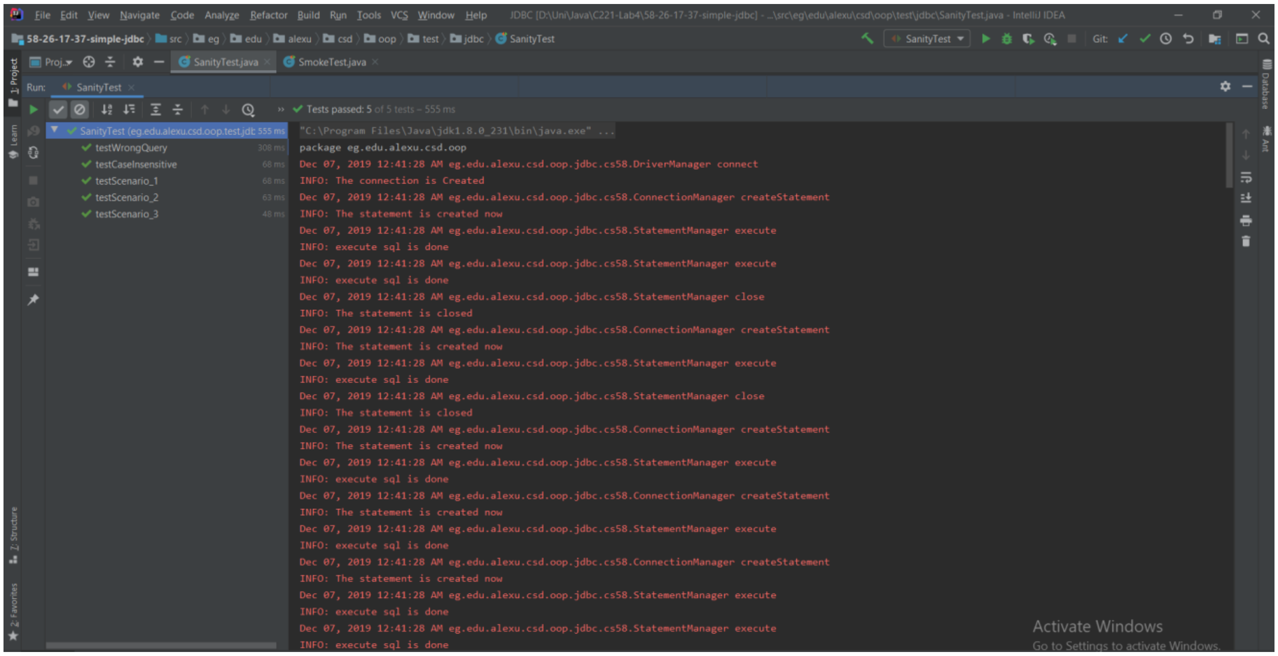
```
<?xml version="1.0" encoding="UTF-8"?>
- <test1one>
  - <Entity>
      <id>2</id>
      <name>leo</name>
      <age>50</age>
    </Entity>
  - <Entity>
      <id>3</id>
      <name>wayne</name>
      <age>45</age>
    </Entity>
  - <Entity>
      <id>4</id>
      <name>bruce</name>
      <age>55</age>
    </Entity>
  - <Entity>
      <id>45</id>
      <name>sauce</name>
      <age>55</age>
    </Entity>
</test1one>
```

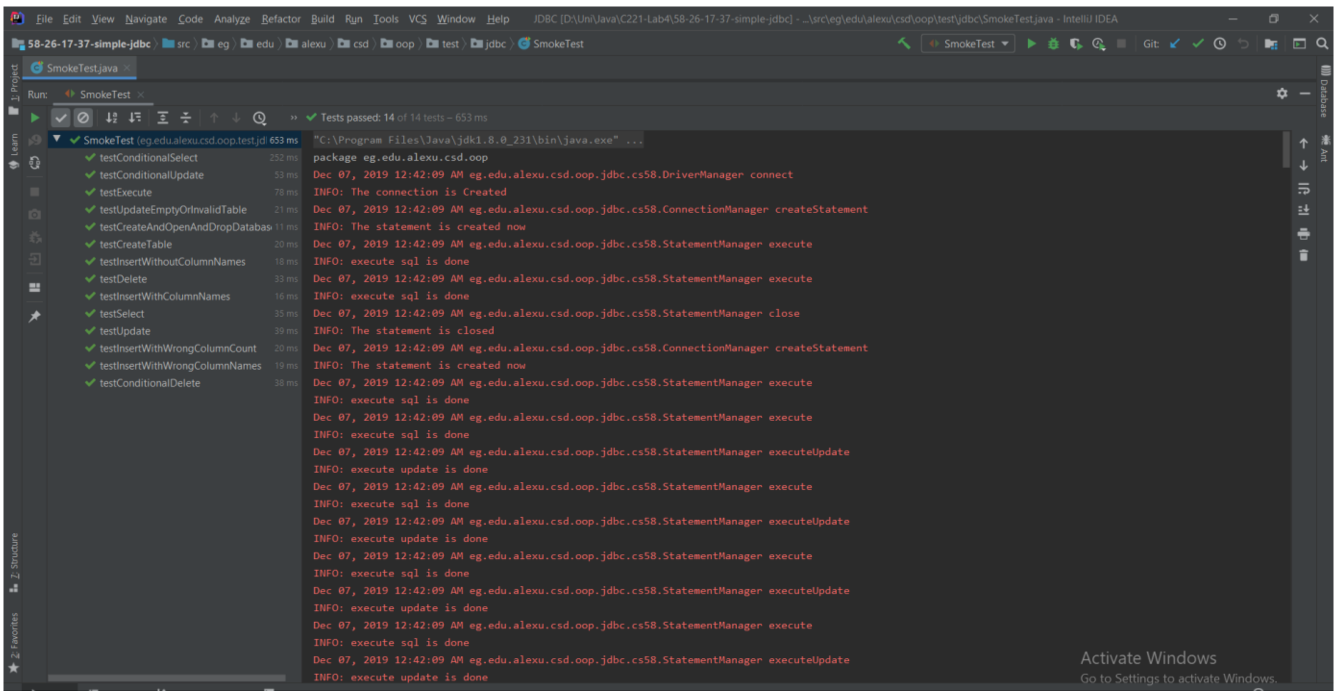
```
C:\WINDOWS\system32\cmd.exe

D:\Uni\Java\C221-Lab4\58-26-17-37-simple-jdbc\classes\artifacts\JDBC_jar>java -jar JDBC.jar
Dec 07, 2019 12:04:31 AM eg.edu.alexu.csd.oop.jdbc.cs58.DriverManager connect
INFO: The connection is Created
Dec 07, 2019 12:04:31 AM eg.edu.alexu.csd.oop.jdbc.cs58.ConnectionManager createStatement
INFO: The statement is created now
Enter sql query :)
create database test1
Dec 07, 2019 12:04:45 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
update test1One set Name = 'Leo'
Dec 07, 2019 12:06:37 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
delete from test1One where age<50
Dec 07, 2019 12:07:45 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
insert into test1One (ID, Name, age) VALUES (3, 'Wayne', 45)
Dec 07, 2019 12:09:03 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
insert into test1One (ID, Name, age) VALUES (4, 'bruce', 55)
Dec 07, 2019 12:09:20 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Enter sql query :)
insert into test1One (ID, Name, age) VALUES (45, 'sauce', 55)
Dec 07, 2019 12:09:40 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
```

Tests: ALL PASSED




File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
JDBC [D:\Uni\Java\C221-Lab4\58-26-17-37-simple-jdbc] - ...\src\eg\edu\alexu\csd\oop\test\jdbc\SanityTest.java - IntelliJ IDEA
58-26-17-37-simple-jdbc src eg edu alexu csd oop test jdbc SanityTest
SanityTest
SanityTest.java
SmokeTest.java
Run: SanityTest
Tests passed: 5 of 5 tests – 555 ms
SanityTest (eg.edu.alexu.csd.oop.test.jdl 555 ms
testWrongQuery
testCaseInsensitive
testScenario_1
testScenario_2
testScenario_3
"C:\Program Files\Java\jdk1.8.0_231\bin\java.exe" ...
package eg.edu.alexu.csd.oop
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.DriverManager connect
INFO: The connection is Created
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.ConnectionManager createStatement
INFO: The statement is created now
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager close
INFO: The statement is closed
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.ConnectionManager createStatement
INFO: The statement is created now
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager close
INFO: The statement is closed
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.ConnectionManager createStatement
INFO: The statement is created now
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.ConnectionManager createStatement
INFO: The statement is created now
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.ConnectionManager createStatement
INFO: The statement is created now
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Dec 07, 2019 12:41:28 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Activate Windows
Go to Settings to activate Windows.


File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
JDBC [D:\Uni\Java\C221-Lab4\58-26-17-37-simple-jdbc] - ...\src\eg\edu\alexu\csd\oop\test\jdbc\SmokeTest.java - IntelliJ IDEA
58-26-17-37-simple-jdbc src eg edu alexu csd oop test jdbc SmokeTest
SmokeTest
SmokeTest.java
Run: SmokeTest
Tests passed: 14 of 14 tests – 653 ms
SmokeTest (eg.edu.alexu.csd.oop.test.jd 653 ms
testConditionalSelect
testConditionalUpdate
testExecute
testUpdateEmptyOrInvalidTable
testCreateAndOpenAndDropDatabas
testCreateTable
testInsertWithoutColumnNames
testDelete
testInsertWithColumnNames
testSelect
testUpdate
testInsertWithWrongColumnCount
testInsertWithWrongColumnNames
testConditionalDelete
"C:\Program Files\Java\jdk1.8.0_231\bin\java.exe" ...
package eg.edu.alexu.csd.oop
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.DriverManager connect
INFO: The connection is Created
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.ConnectionManager createStatement
INFO: The statement is created now
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager close
INFO: The statement is closed
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.ConnectionManager createStatement
INFO: The statement is created now
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager executeUpdate
INFO: execute update is done
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager executeUpdate
INFO: execute update is done
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager executeUpdate
INFO: execute update is done
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager execute
INFO: execute sql is done
Dec 07, 2019 12:42:09 AM eg.edu.alexu.csd.oop.jdbc.cs58.StatementManager executeUpdate
INFO: execute update is done
Activate Windows
Go to Settings to activate Windows.