

OOP Assignment 4

JDBC API

Karim Mohamed Ali

Youssef Abdallah Youssef

Michael Ramy Ramsis

Mazen Ahmed Khater

Application description:

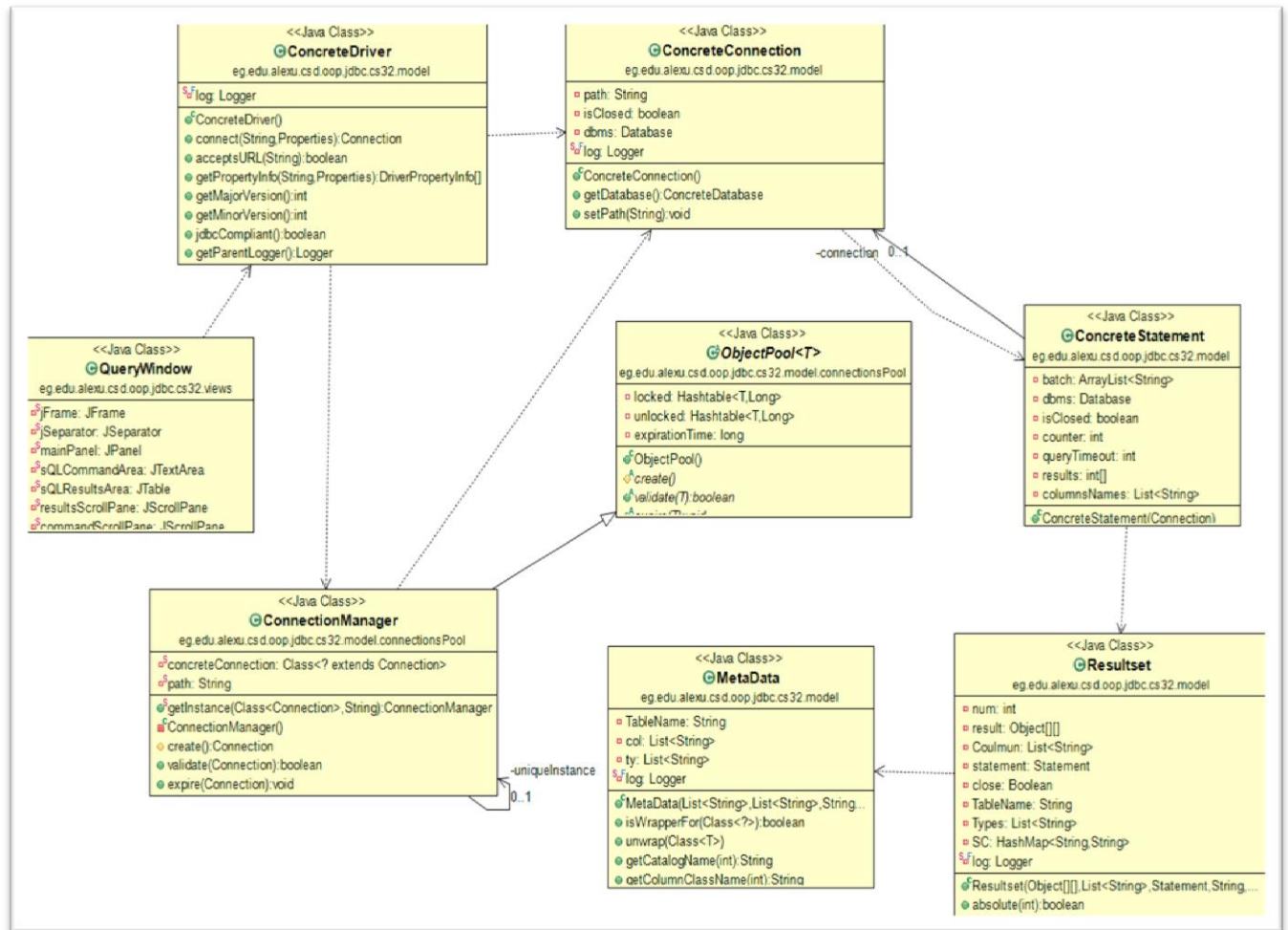
Java Database Connectivity (JDBC):

Provide an access to databases, regardless of the driver and database product.

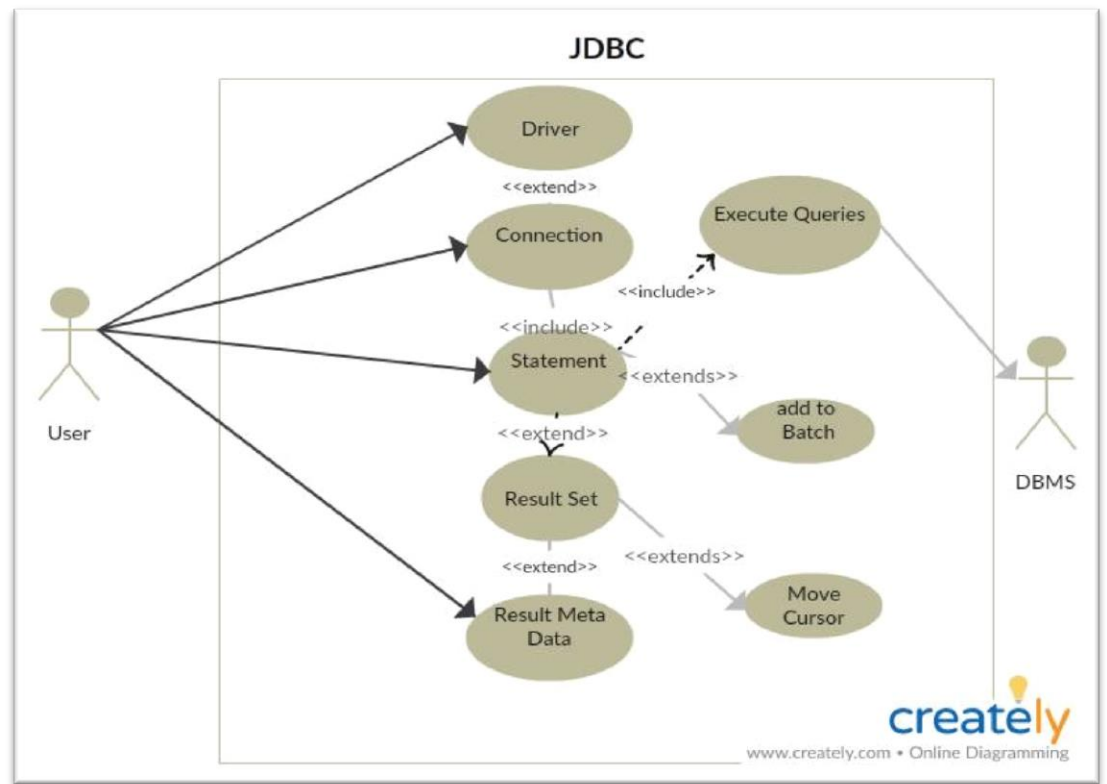
Implementation of JDBC main interfaces (Driver, Connection, Statement, ResultSet, ResultSetMetaData).

UML:

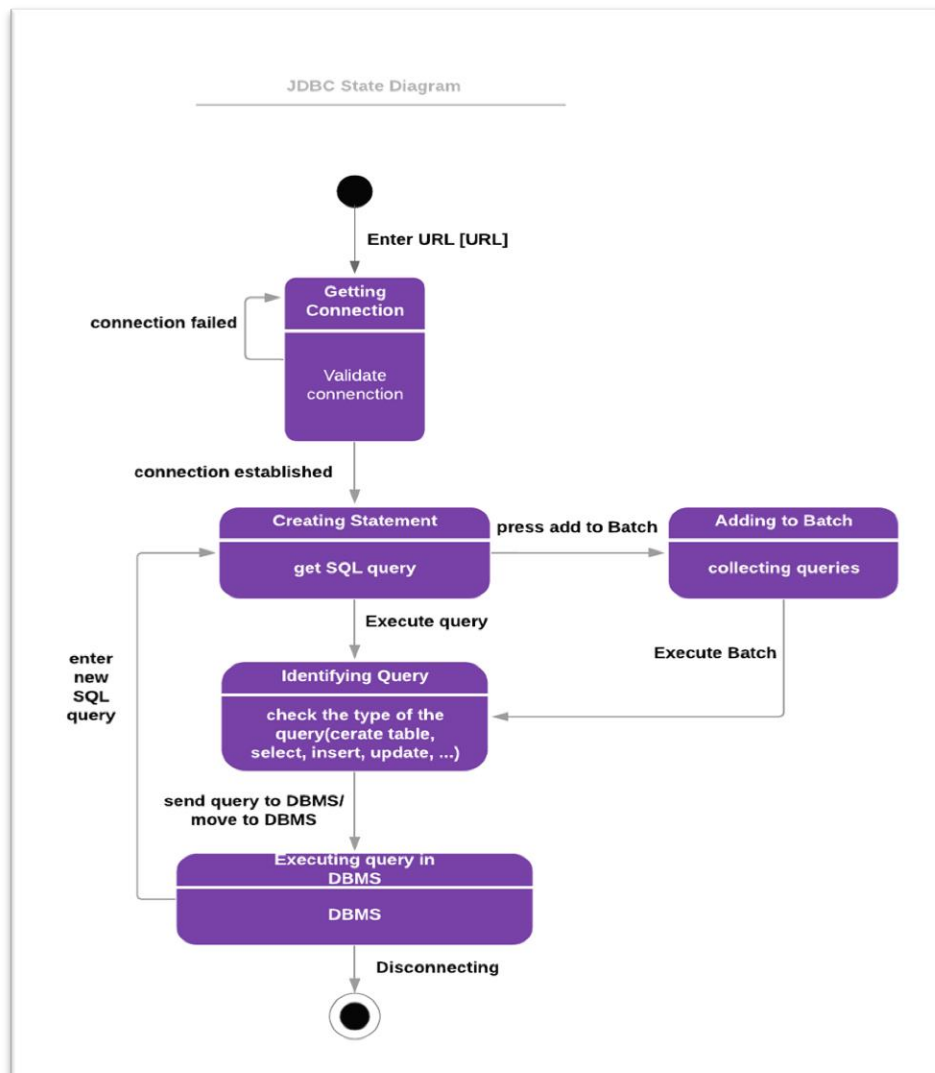
• Class Diagram:



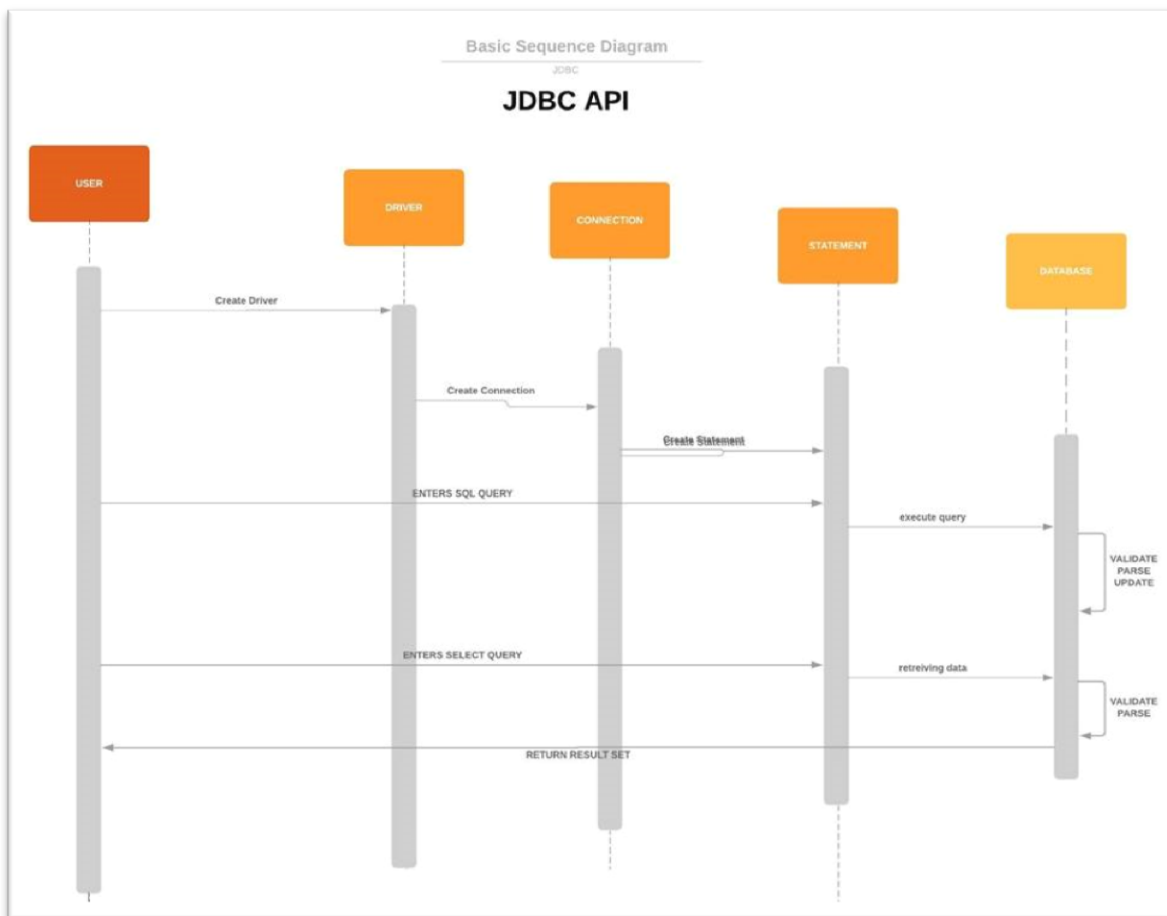
- Use Case:



- State Diagram:



- Sequence diagram:



Design:

Object Pool:

We used a connection pool to make use of closed connections that are not used anymore, after 50 seconds the pool gets rid of the closed connection otherwise if the user make a connection the pool will make use of it.

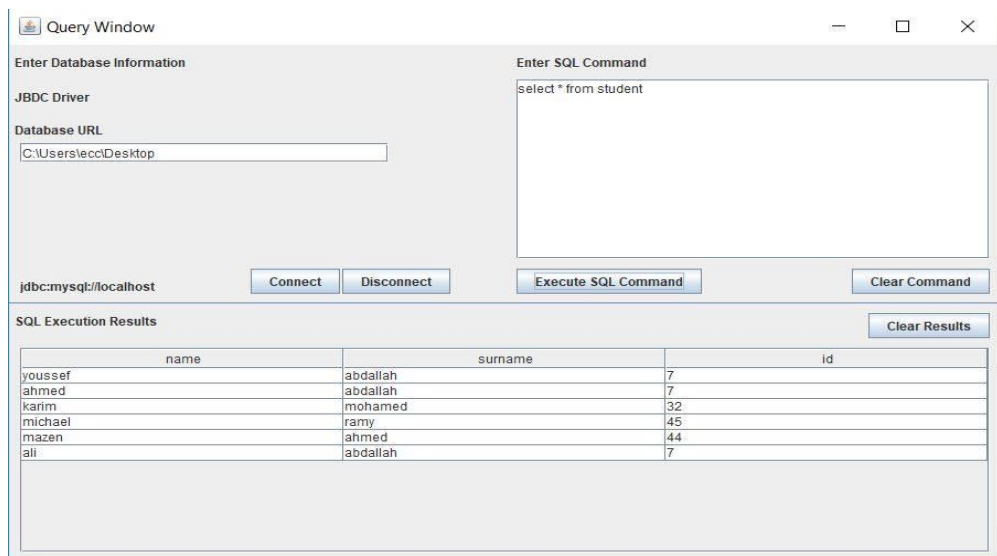
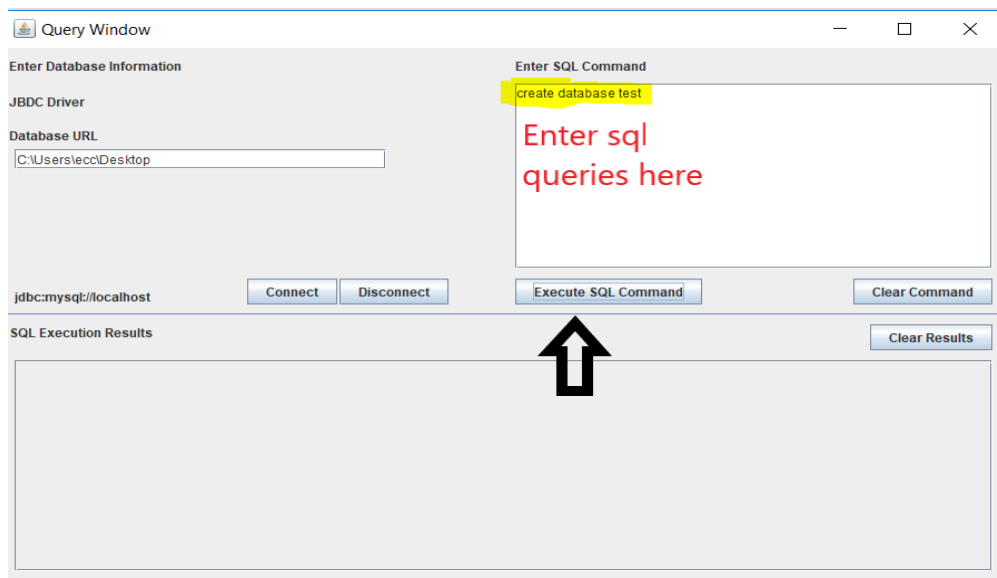
We implemented an abstract parametrized class (generic) for the object pool and the connection pool extends from it.

Singleton:

There is a unique instance of the connection pool so we used the singleton design pattern here.

We also made use of other fundamental design patterns such as delegation, interface... etc.

Screenshots:



Query Window

Enter Database Information

JDBC Driver

Database URL
C:\Users\lecc\Desktop

jdbc:mysql://localhost

Connect Disconnect

Enter SQL Command

create table student(name varchar, surname varchar, id int)

Execute SQL Command Clear Command

SQL Execution Results

Clear Results

Query Window

Enter Database Information

JDBC Driver

Database URL
C:\Users\lecc\Desktop

jdbc:mysql://localhost

Connect Disconnect

Enter SQL Command

insert into student values(youssef, abdallah, 62)
insert into student values(ahmed, abdallah, 3)
insert into student values(karim, mohamed, 32)
insert into student values(michael, ramy, 45)
insert into student values(mazen, ahmed, 44)
insert into student values(ali, abdallah, 7)

Execute SQL Command Clear Command

SQL Execution Results

Clear Results

Query Window

Enter Database Information

JDBC Driver

Database URL
C:\Users\lecc\Desktop

jdbc:mysql://localhost

Connect Disconnect

Enter SQL Command

select * from student

Execute SQL Command Clear Command

SQL Execution Results

Clear Results

name	surname	id
youssef	abdallah	7
ahmed	abdallah	7
karim	mohamed	32
michael	ramy	45
mazen	ahmed	44
ali	abdallah	7

Query Window

Enter Database Information

JBDC Driver

Database URL

C:\Users\lecc\Desktop

jdbc:mysql://localhost

Connect

Disconnect

Enter SQL Command

select name from student where surname=abdallah

Execute SQL Command

Clear Command

SQL Execution Results

Clear Results

name
youssef
ahmed
ali

Query Window

Enter Database Information

JBDC Driver

Database URL

C:\Users\lecc\Desktop

jdbc:mysql://localhost

Connect

Disconnect

Enter SQL Command

update student set id=7 where surname=abdallah

Execute SQL Command

Clear Command

SQL Execution Results

Clear Results

Row Updated!
