

Programming2

JDBC API

Assignment report

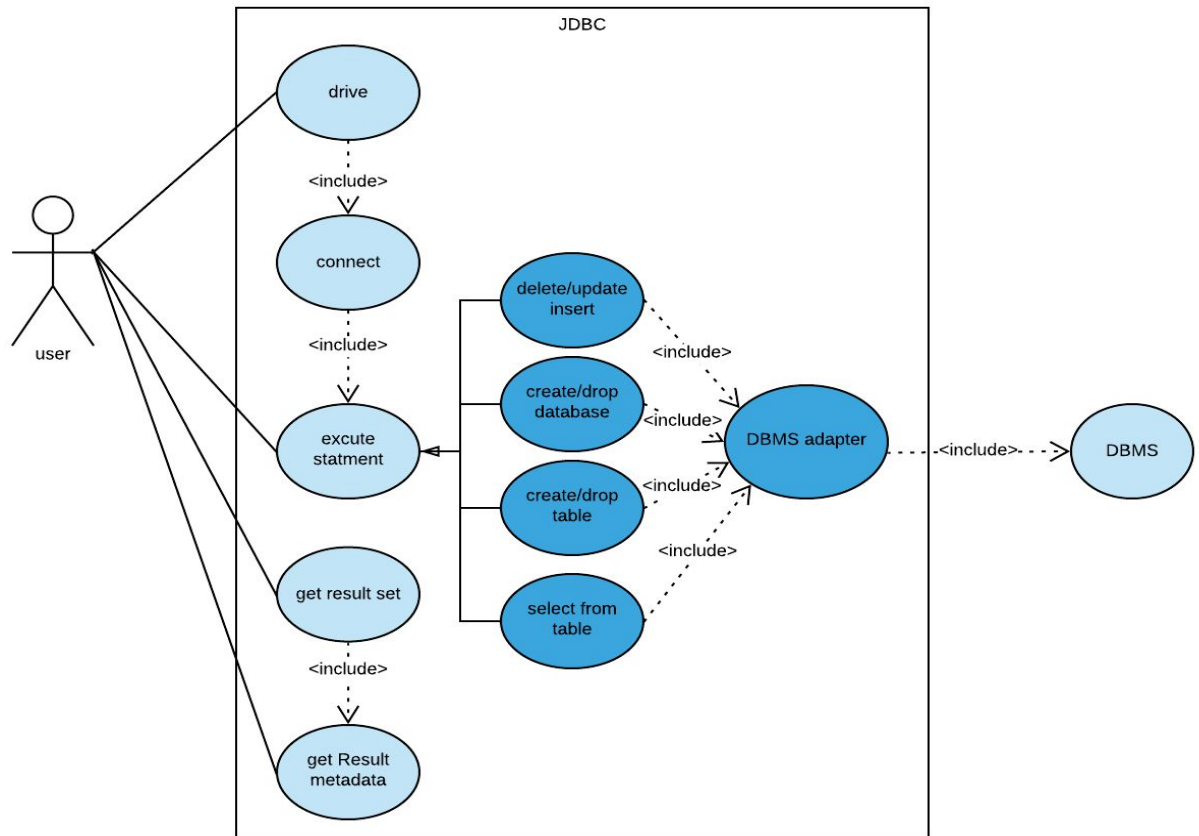
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Content

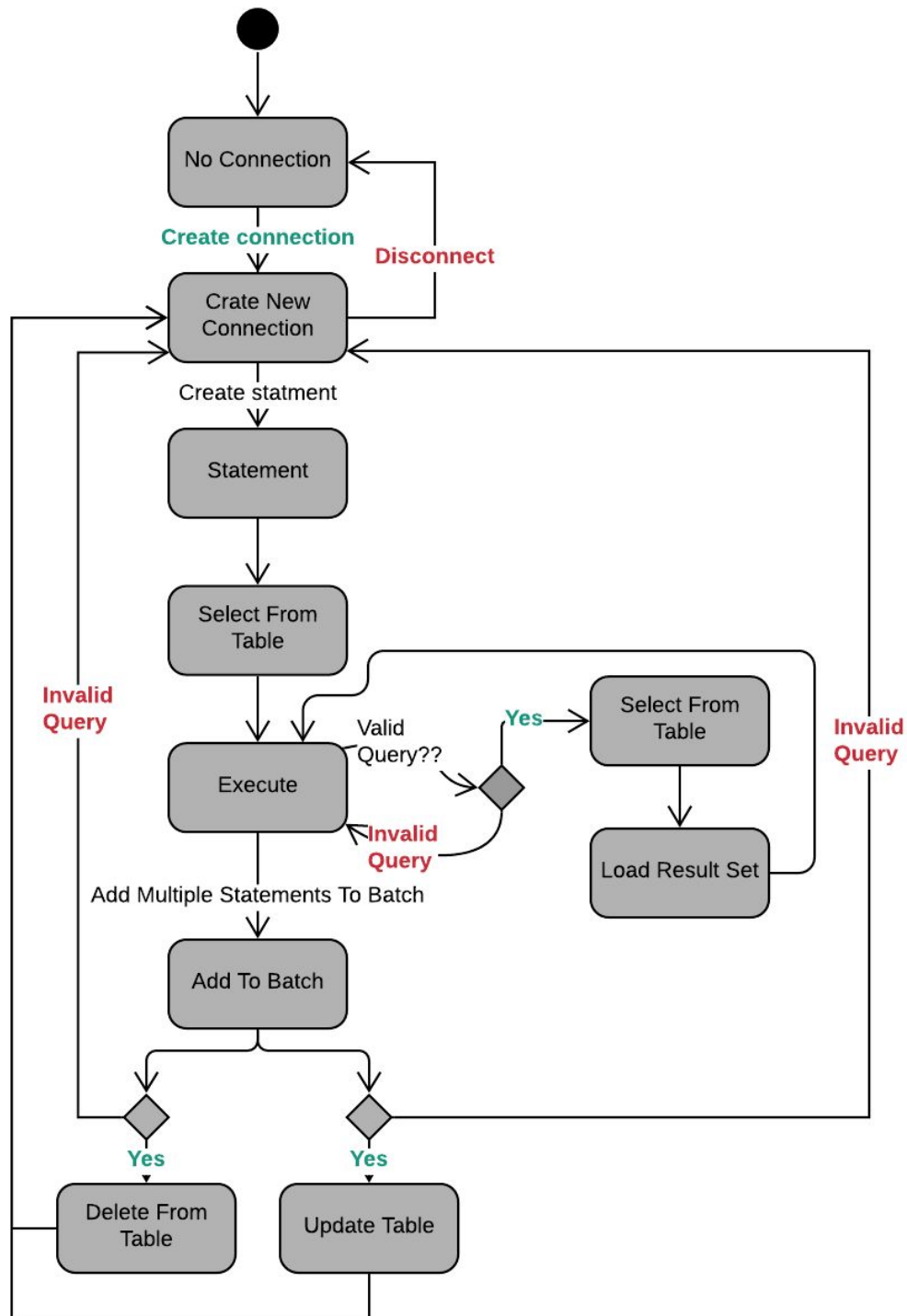
- ❑ UML diagram.
- ❑ Design description.
- ❑ User guide.
- ❑ Snapshots of GUI.

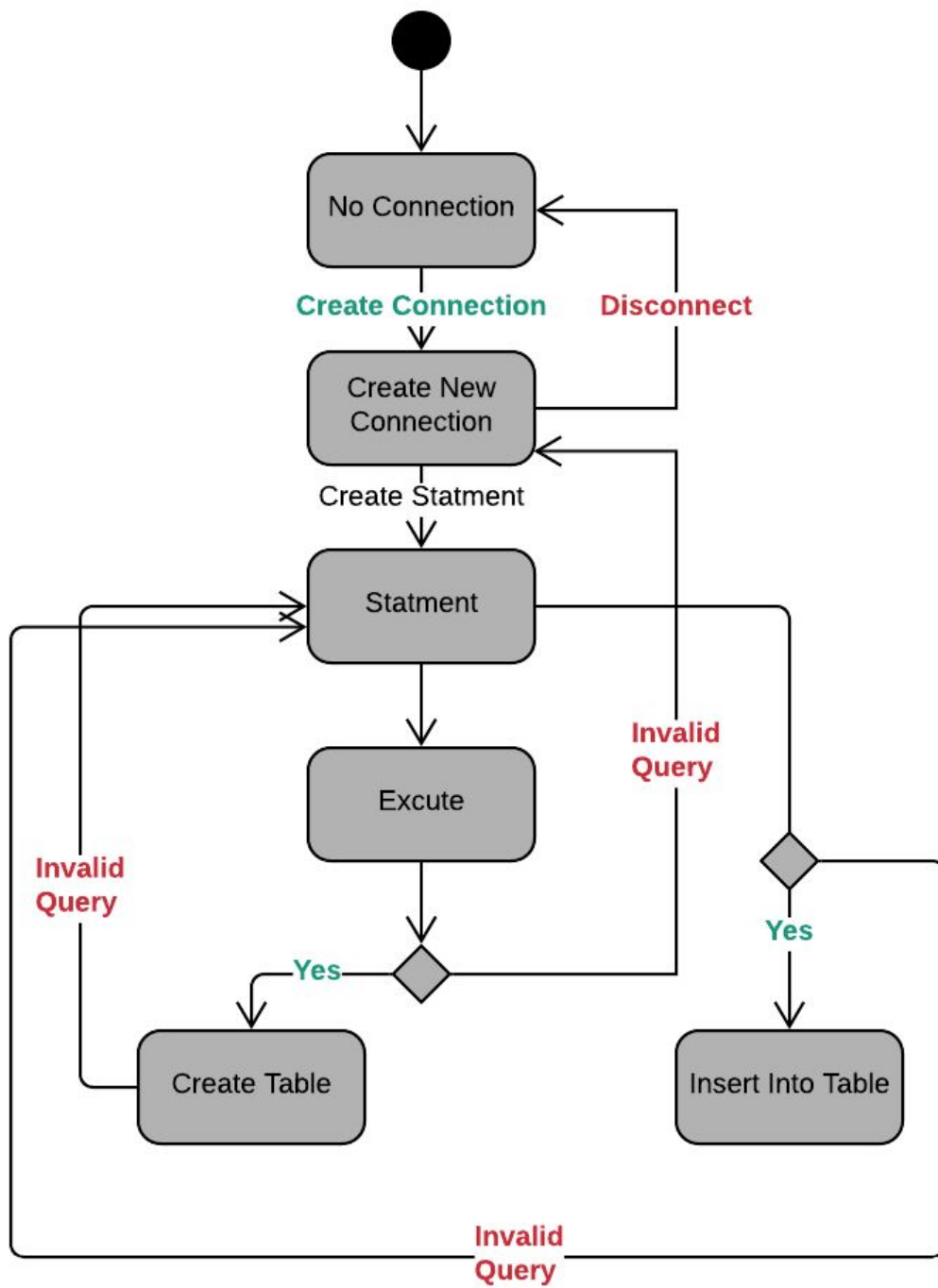
UML diagram:

❖ Use case :

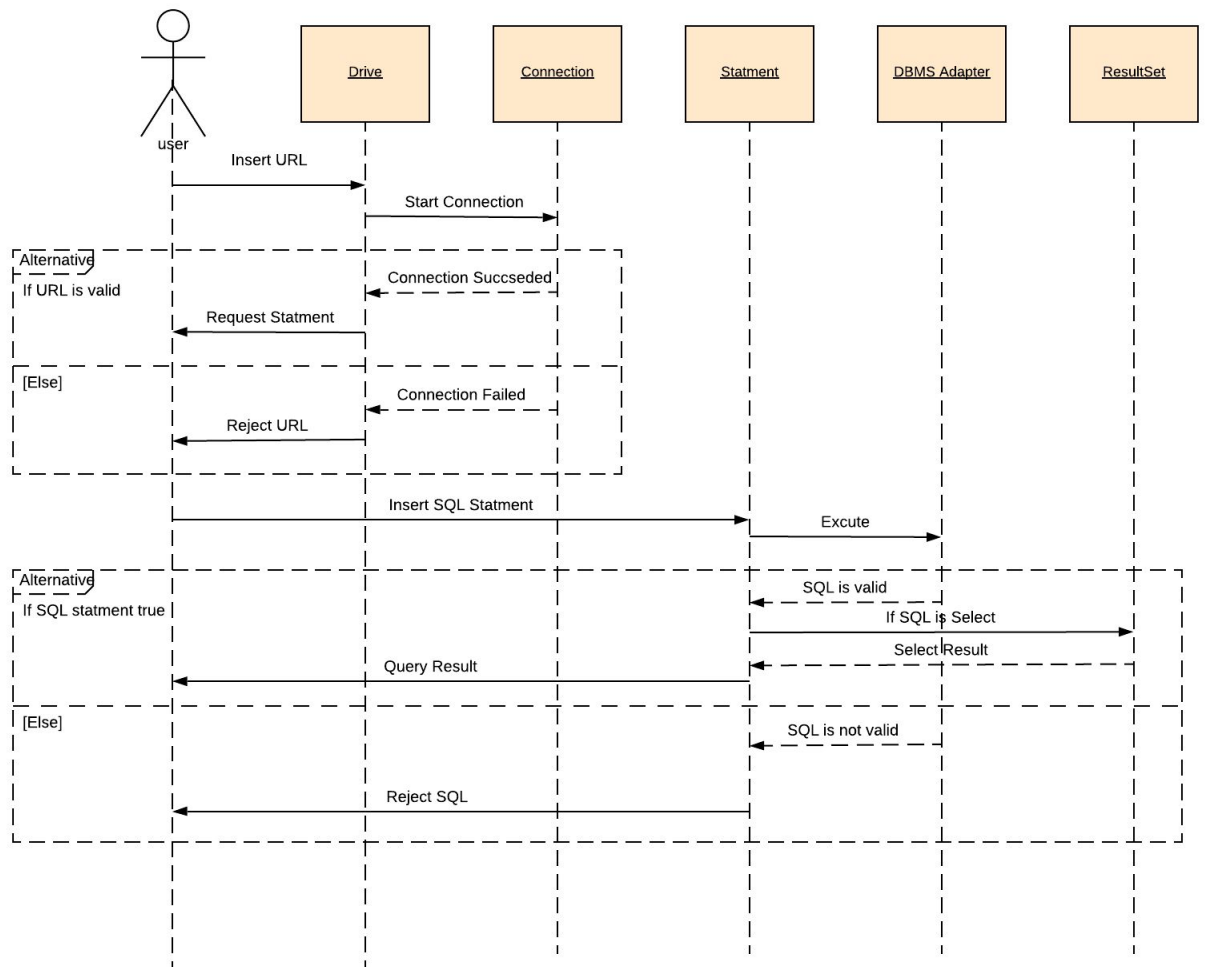




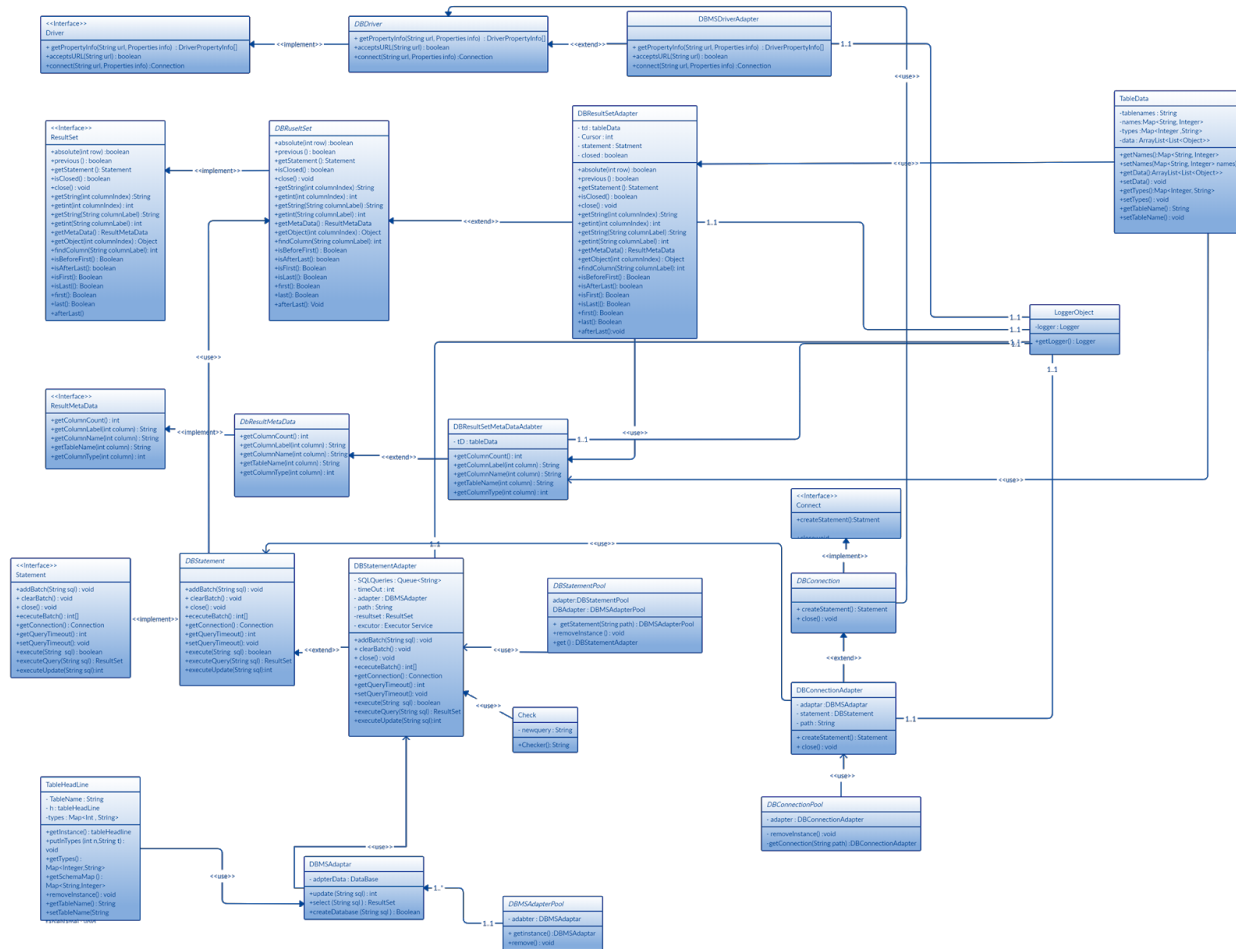




❖ Sequence Diagram



❖ Detailed class diagram:



Design description and decisions:

- When user executes query the check class parses the beginning of the query and sends it to the DBMS adaptor which sends query to appropriate function in the dbms.
- The driver create a connection that make the communication with the required path.
- The Connection creates statement for the user to interact with the connected database and execute queries on it.
- Batch is used to hold queries to be executed at a time.
- Result set is used to store data that was fetched from the table.
- Result metadata store the metadata of the fetched data.

Used Design patterns:

→ Pool:

We used it to avoid repeated instantiation of Connection, Statement, and ResultSet, also to close the object after using it. It increased the performance of the program.

→ Adapter:

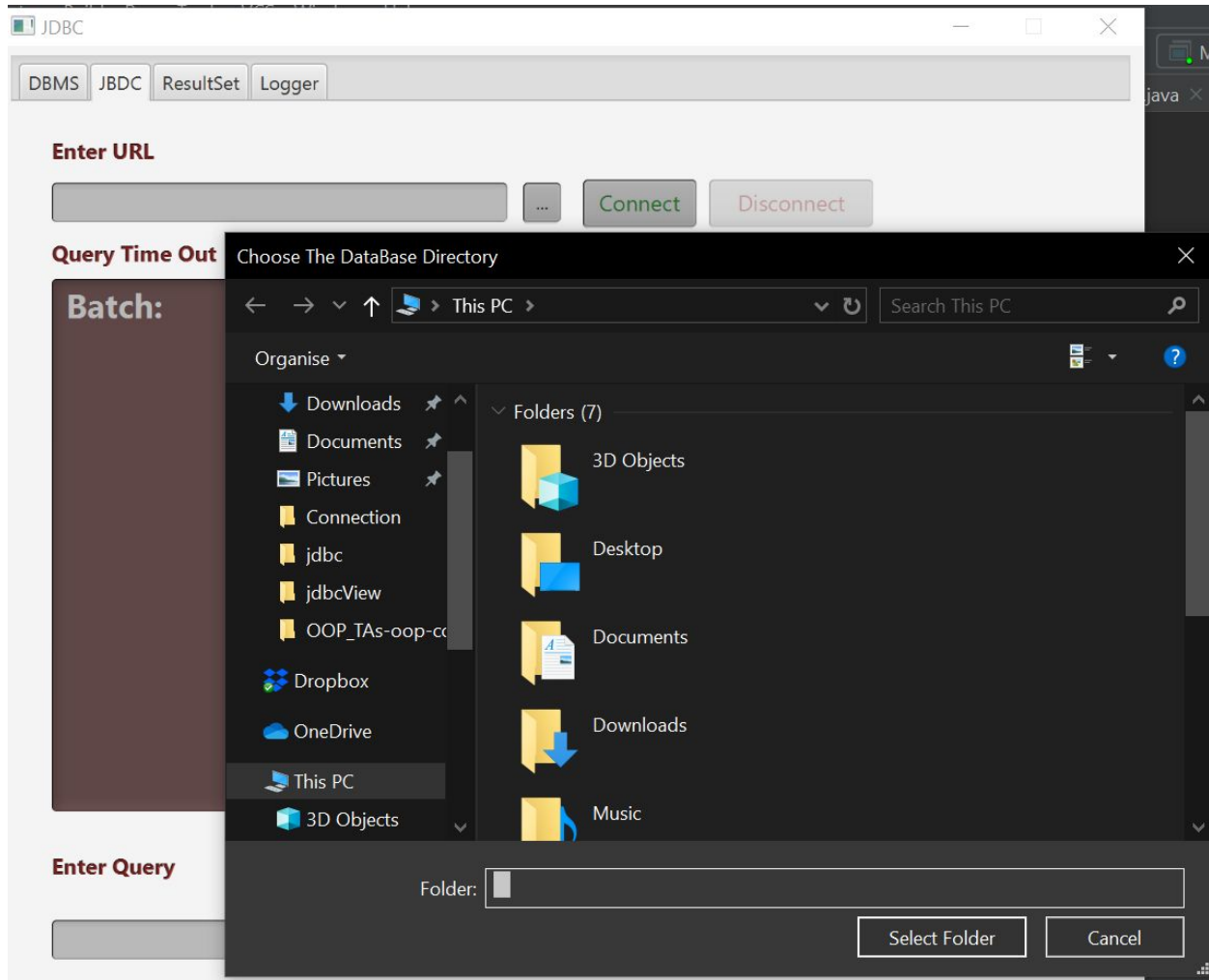
We used it to return the required execute methods only from DBMS

User guide & GUI Snapps:

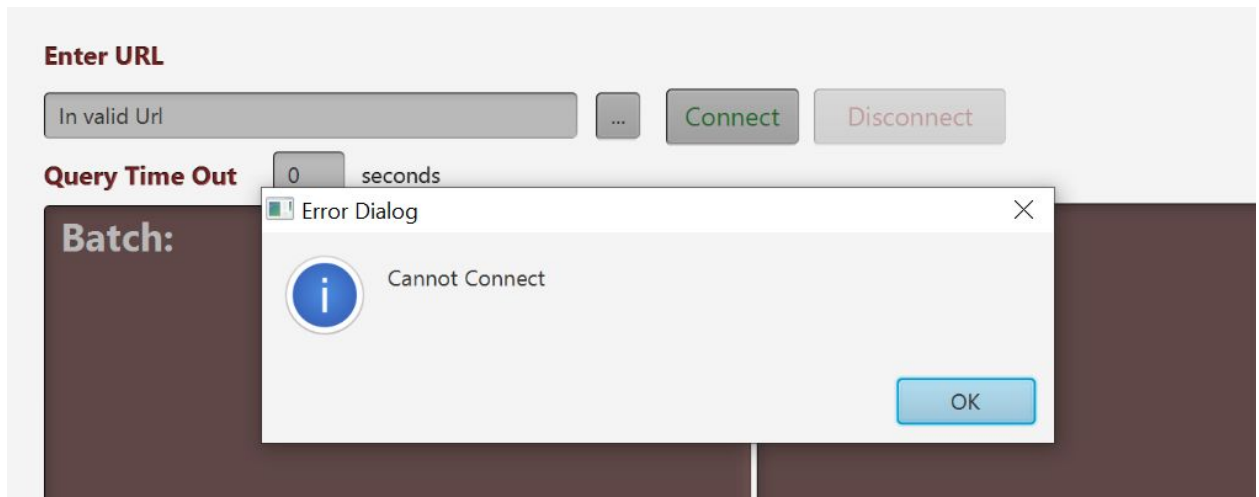
→ Write the URL in the text field

The screenshot shows a Java Swing window titled "JDBC" with standard window controls (minimize, maximize, close). The window has a tabbed interface with four tabs: "DBMS", "JBDC", "ResultSet", and "Logger". The "JBDC" tab is currently selected. Inside the "JBDC" tab, there is a section titled "Enter URL" with a text input field containing "jdbc:xmlldb://localhost", a small button with three dots, a green "Connect" button, and a greyed-out "Disconnect" button. Below this is a "Query Time Out" section with a numeric input field set to "0" and the text "seconds". The main area of the window is divided into three large dark brown rectangular panels. The left panel is labeled "Batch:". The top right panel is labeled "Batch Output:". The bottom right panel is labeled "Execute Output:". At the bottom of the window, there is a section titled "Enter Query" with a large text input field. To the right of this field are four buttons: "Add To Batch", "Execute", "Execute Batch", and "Clear".

→ Or you can choose the database directory from file chooser window



→ If you entered an invalid URL An error message will be shown



→ Write the query you want to execute or add in the batch in the text field down in the GUI

The screenshot shows a window titled "JDBC" with a tabbed interface containing "DBMS", "JDBC", "ResultSet", and "Logger". The "JDBC" tab is active. It features a section for "Enter URL" with a text field containing "jdbc:xmlldb://localhost", a dropdown menu, and "Connect" and "Disconnect" buttons. The status "Connected" is displayed in green. Below this is a "Query Time Out" section with a spinner set to "0" and the unit "seconds". The main area is divided into three large dark panels: "Batch:" on the left, and "Batch Output:" and "Execute Output:" on the right. At the bottom, the "Enter Query" section has a text field containing "CREATE TABLE table_name1(column_name1 varchar, column_name2 int, colu" and buttons for "Add To Batch", "Execute", "Execute Batch", and "Clear".

→ Press Execute And the output of the execution will be shown in the Execute Output Window

The screenshot shows a window titled "JDBC" with a tabbed interface containing "DBMS", "JDBC", "ResultSet", and "Logger". The "JDBC" tab is active. It features a section for "Enter URL" with a text field containing "jdbc:xmlldb://localhost", a dropdown menu, and buttons for "Connect", "Disconnect", and a status indicator "Connected". Below this is a "Query Time Out" section with a numeric input set to "0" and the unit "seconds". The main area is divided into three panels: "Batch:" (empty), "Batch Output:" (empty), and "Execute Output:" (containing the text "SQL Executed!"). At the bottom, there is an "Enter Query" section with a text field and buttons for "Add To Batch", "Execute" (highlighted with a blue border), "Execute Batch", and "Clear".

→ You can add queries to the batch by pressing add to batch button

The screenshot shows a window titled "JDBC" with a tabbed interface containing "DBMS", "JDBC", "ResultSet", and "Logger". The "JDBC" tab is active.

Enter URL

jdbc:xmlldb://localhost ... **Connect** **Disconnect** **Connected**

Query Time Out 0 seconds

Batch:

```
INSERT INTO table_name1(column_NAME1, COLUMN_name
INSERT INTO table_name1(column_NAME1, COLUMN_name
INSERT INTO table_name1(column_name1, COLUMN_NAME
```

Batch Output:

Execute Output:

SQL Executed!

Enter Query

Add To Batch **Execute** **Clear**

Execute Batch

→ Press Execute Batch to execute the batch the number of successful queries will be shown in the batch output window

The screenshot shows a window titled "JDBC" with a tabbed interface containing "DBMS", "JDBC", "ResultSet", and "Logger". The "JDBC" tab is active. It features a section "Enter URL" with a text field containing "jdbc:xmlldb://localhost", a "Connect" button, a "Disconnect" button, and a "Connected" status indicator. Below this is a "Query Time Out" section with a spinner set to "0" and the label "seconds". The main area is divided into two panels: "Batch:" on the left and "Batch Output:" on the right. The "Batch:" panel contains three lines of SQL: "INSERT INTO table_name1(column_NAME1, COLUMN_name", "INSERT INTO table_name1(column_NAME1, COLUMN_name", and "INSERT INTO table_name1(column_NAME1, COLUMN_name". The "Batch Output:" panel displays "3 Query executed successfully +". Below these panels is an "Execute Output:" panel which is currently empty. At the bottom, there is an "Enter Query" section with a text field and three buttons: "Add To Batch", "Execute", and "Clear". A prominent "Execute Batch" button is located below the "Enter Query" text field.

Enter URL

jdbc:xmlldb://localhost ... **Connect** **Disconnect** **Connected**

Query Time Out 0 seconds

Batch:

```
INSERT INTO table_name1(column_NAME1, COLUMN_name
INSERT INTO table_name1(column_NAME1, COLUMN_name
INSERT INTO table_name1(column_NAME1, COLUMN_name
```

Batch Output:

3 Query executed successfully +

Execute Output:

Enter Query

Add To Batch Execute Clear

Execute Batch

→ You can execute the selection query by writing the query in the text field below and press execute

The screenshot shows a web-based JDBC application interface. At the top, there are tabs for 'DBMS', 'JDBC', 'ResultSet', and 'Logger', with 'JDBC' currently selected. Below the tabs, the 'Enter URL' section contains a text field with 'jdbc:xmlldb://localhost', a dropdown menu, and 'Connect' and 'Disconnect' buttons. The status 'Connected' is displayed in green. The 'Query Time Out' section shows a value of '0' seconds. The main area is divided into two panels: 'Batch:' on the left and 'Batch Output:' on the right. The 'Batch:' panel contains three lines of SQL: 'INSERT INTO table_name1(column_NAME1, COLUMN_name', 'INSERT INTO table_name1(column_NAME1, COLUMN_name', and 'INSERT INTO table_name1(column_NAME1, COLUMN_name'. The 'Batch Output:' panel shows the message '3 Query executed successfully +'. Below these panels is the 'Execute Output:' section, which is currently empty. At the bottom, the 'Enter Query' section has a text field containing 'SELECT * FROM table_name1' and three buttons: 'Add To Batch', 'Execute', and 'Clear'. There is also an 'Execute Batch' button.

JDBC

DBMS JDBC ResultSet Logger

Enter URL

jdbc:xmlldb://localhost ... Connect Disconnect **Connected**

Query Time Out 0 seconds

Batch:

```
INSERT INTO table_name1(column_NAME1, COLUMN_name
INSERT INTO table_name1(column_NAME1, COLUMN_name
INSERT INTO table_name1(column_NAME1, COLUMN_name
```

Batch Output:

3 Query executed successfully +

Execute Output:

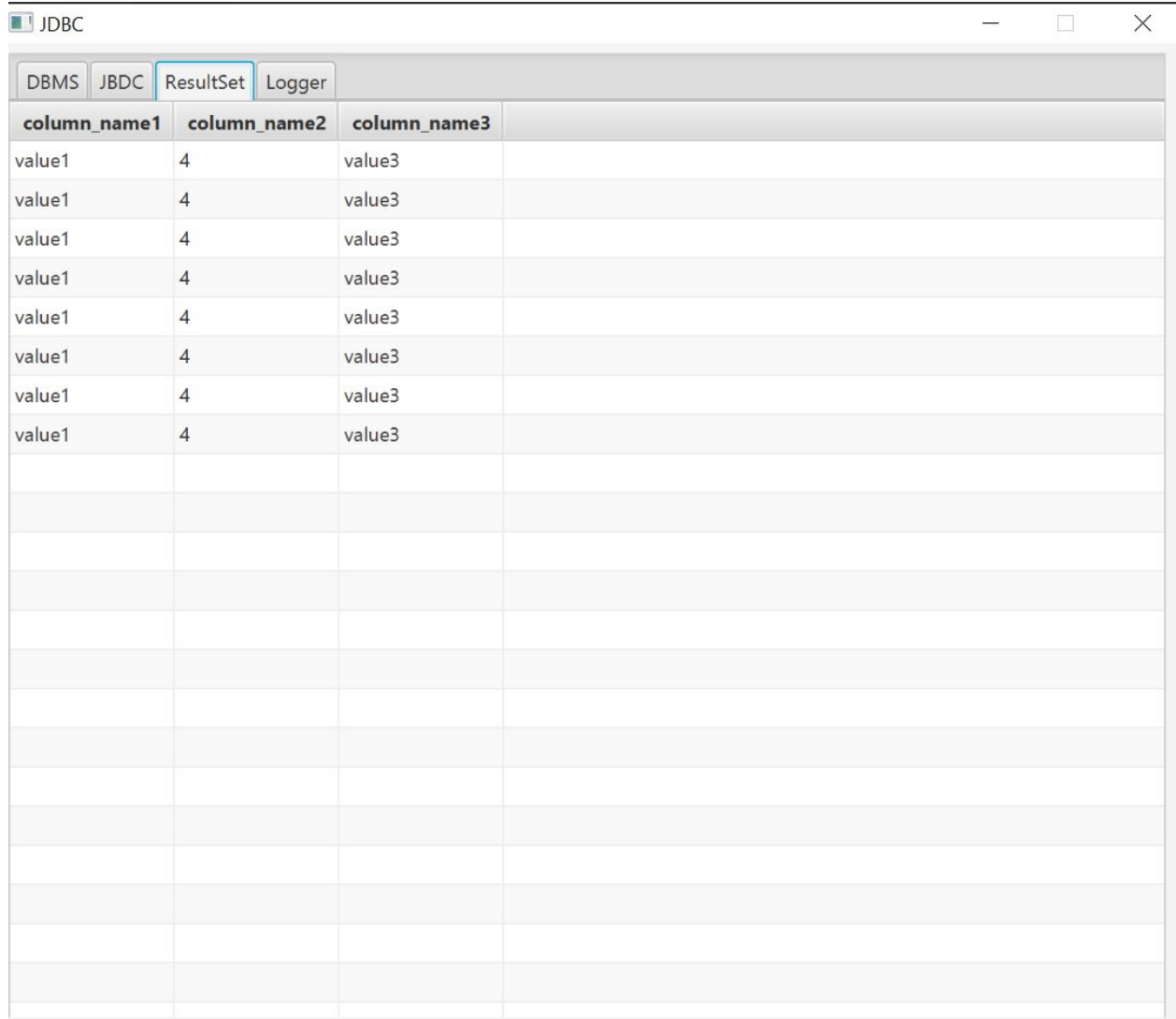
Enter Query

SELECT * FROM table_name1

Add To Batch Execute Clear

Execute Batch

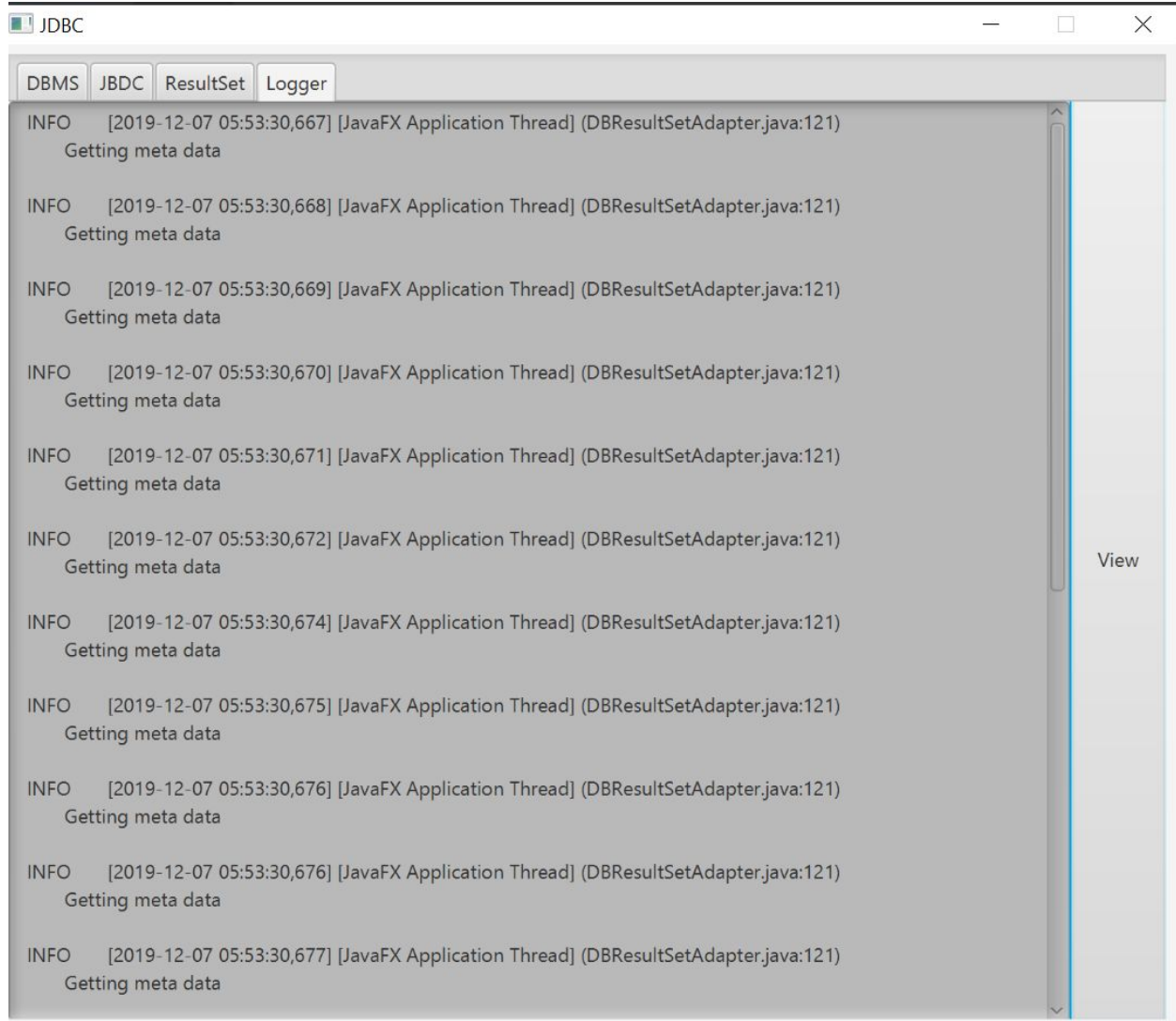
→ The selected data will be shown in the ResultSet tab



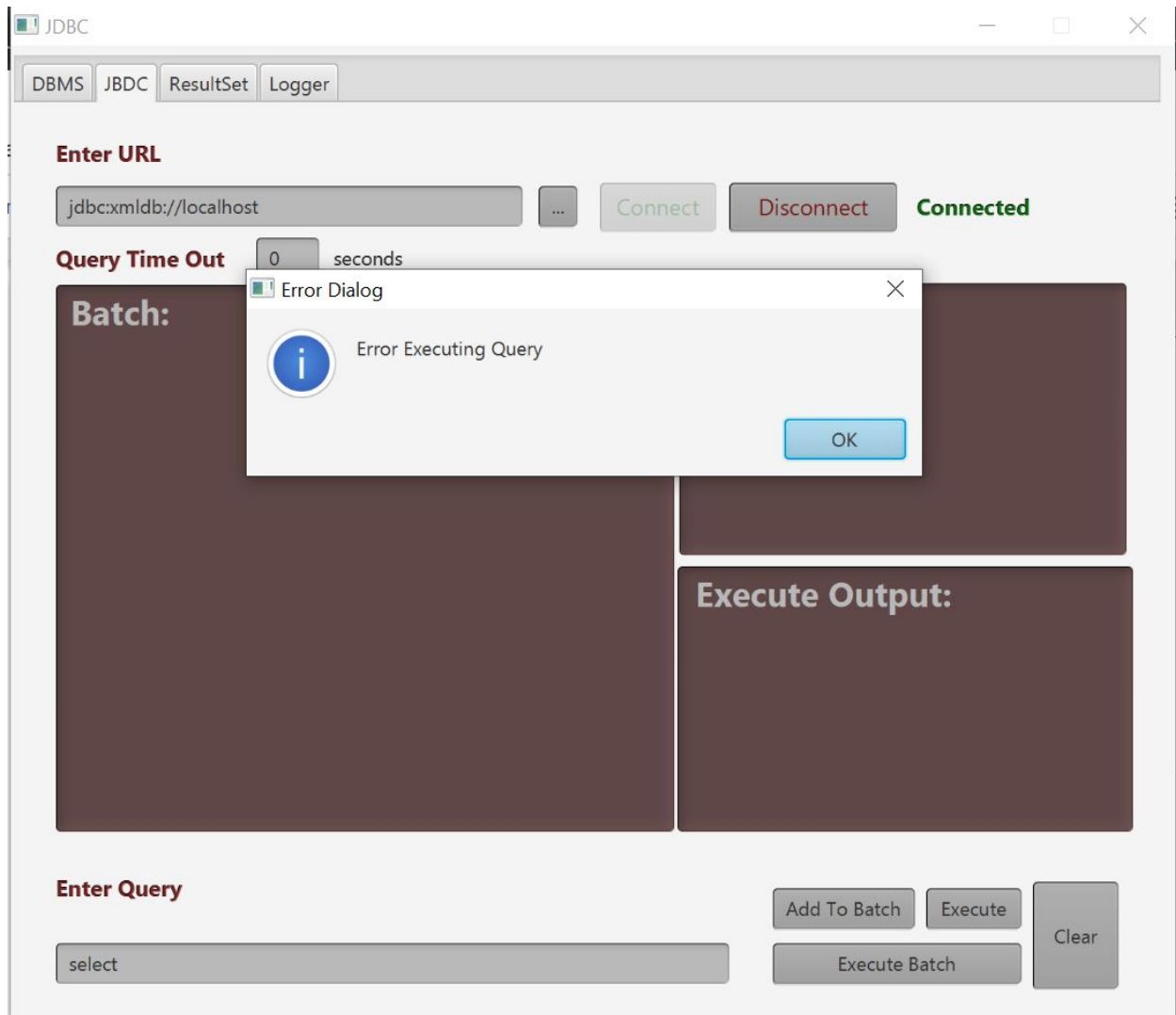
The screenshot shows a window titled "JDBC" with four tabs: "DBMS", "JDBC", "ResultSet", and "Logger". The "ResultSet" tab is selected and displays a table with four columns. The first three columns are labeled "column_name1", "column_name2", and "column_name3". The first eight rows contain data, while the remaining rows are empty. The data in the first eight rows is as follows:

column_name1	column_name2	column_name3	
value1	4	value3	
value1	4	value3	
value1	4	value3	
value1	4	value3	
value1	4	value3	
value1	4	value3	
value1	4	value3	
value1	4	value3	

→ You can view the logger file in the GUI in the logger tab by pressing the view button



→ If you tried to execute a wrong query an error dialogue will be shown



→ Finally you can disconnect from the connection by pressing disconnect

The screenshot shows a window titled "JDBC" with a standard Windows title bar (minimize, maximize, close buttons). Inside the window, there is a tabbed interface with four tabs: "DBMS", "JBDC", "ResultSet", and "Logger". The "JBDC" tab is currently selected. Below the tabs, the "Enter URL" section contains a text input field with the value "jdbc:xmlldb://localhost", a small button with three dots, a green "Connect" button, a greyed-out "Disconnect" button, and the text "Disconnected" in red. Below this is the "Query Time Out" section with a small input field and the text "seconds". The main area of the window is divided into three large dark brown rectangular boxes: "Batch:" on the left, "Batch Output:" on the top right, and "Execute Output:" on the bottom right. At the bottom of the window is the "Enter Query" section, which includes a text input field containing the word "select". To the right of this input field are four buttons: "Add To Batch", "Execute", "Execute Batch", and "Clear".