DBMS

Team Names:

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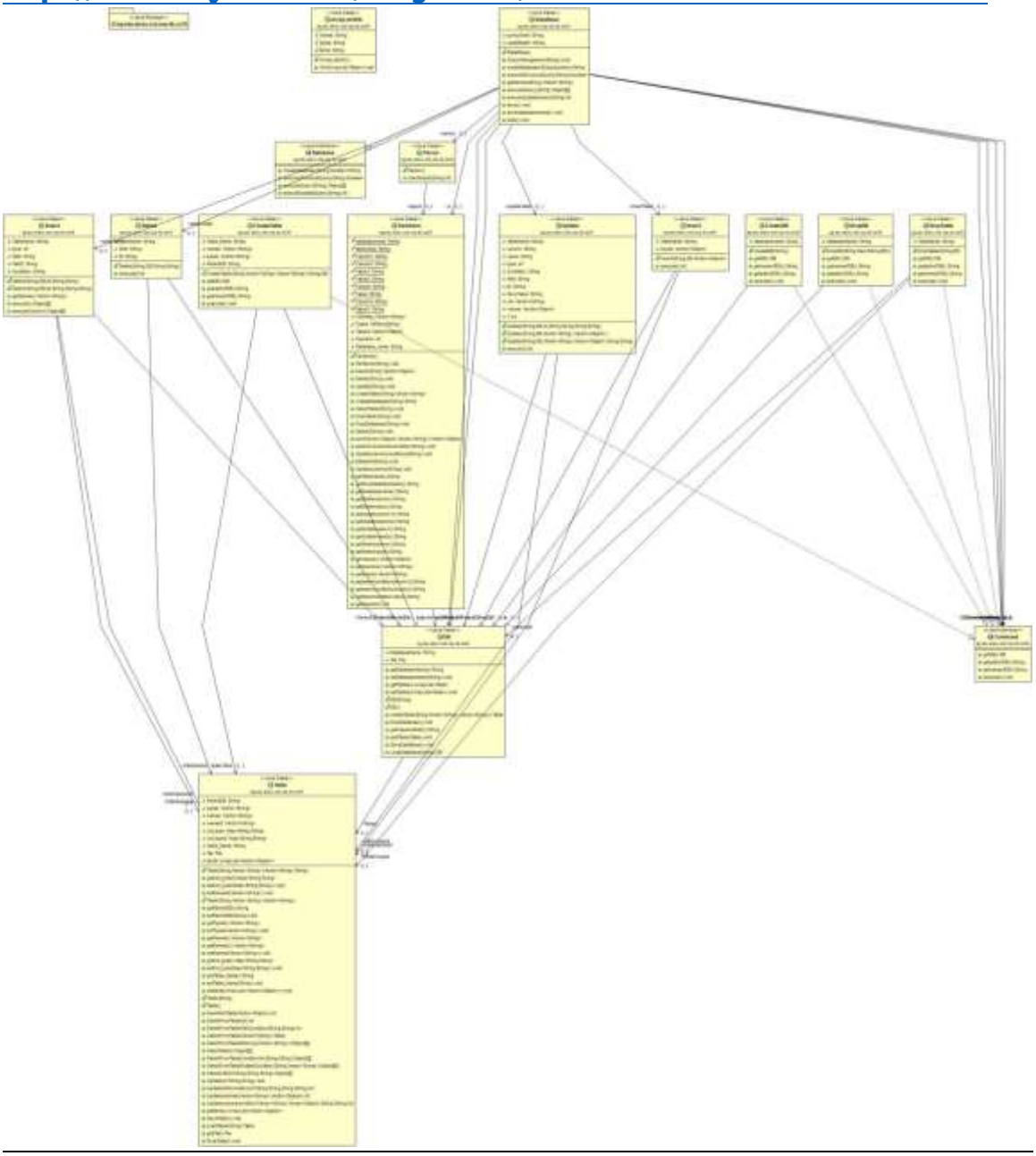
Report:

Description:

- DBMS software which manages databases and handles SQL statements on them.

UML (Design): for better viewing and zooming check el UML here :

https://www.easyzoom.com/imageaccess/94e8cc5857c849ed8166e88f663a8a47



Assumptions:

- The statements handled are in the form of the well-known SQL statements any differences will be considered a wrong input.
- If the type of the column is varchar, the value should be between single quotes.

User Manual:

- When the program opens a window will appear with a an area which can't be edited by the user, and a text field at the top in which the user can write the SQL statements.
- First the user should create a database or use a database which he's already created using the SQL statement "CREATE DATABASE database_name" without double quotes.
- Then the user will be able to create or use already existed tables using the following SQL statements (all statements are case insensitive) :
    - To create a new table "CREATE TABLE table_name(col1 type, col2 type, …)", where type is int or varchar.
    - To select something from a table "SELECT col1, col2, … FROM table_name", and you can replace the column names with " * " to select all columns and you can add a condition simply by adding "WHERE col = value".
    - To insert a row into a table "INSERT INTO table_name (col1, col2, …) VALUES (value1, value2, …)", and you can remove the column names.
    - To delete a row from a table "DELETE FROM table_name WHERE col = value", you can delete all records from a table simply by removing the "WHERE" clause.
    - To update a table with new values "UPDATE table_name SET col1 = value1, col2 = value2, …", and you can add a condition simply by adding "WHERE col = value".
    - To drop a table "DROP TABLE table_name".
    - To drop a database "DROP DATABASE database_name".

- The area will show all the actions performed and any error messages will appear on the text field after the user click on "process" button, note: the user must clear the text field every time to write a new statement.

- All the changes of the tables are saved automatically when the user click the exit button. , and also all the databases are loaded when the program starts.

- If a user changes the database he is working with, the previous changes will be automatically saved.

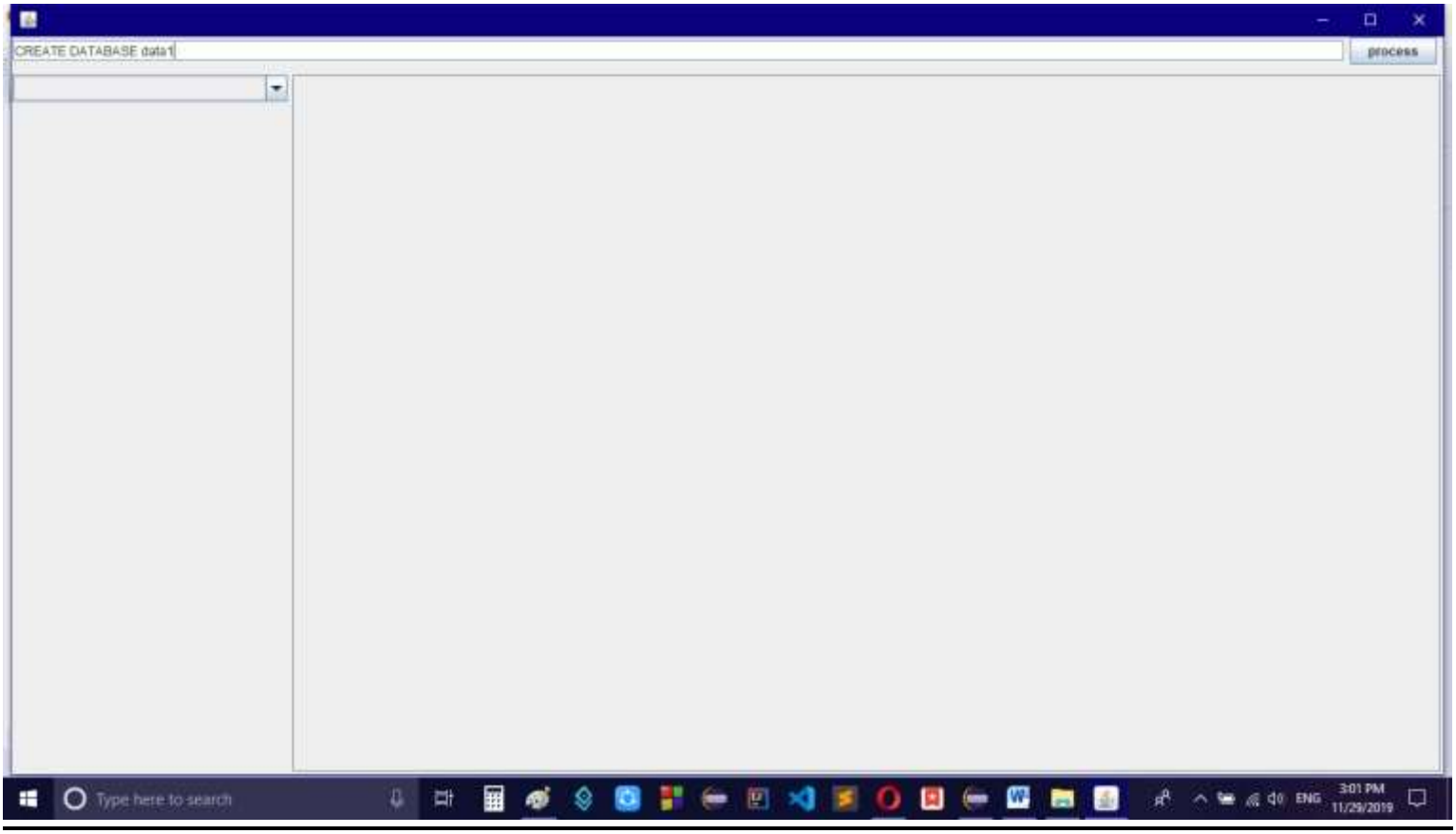
Design Patterns:

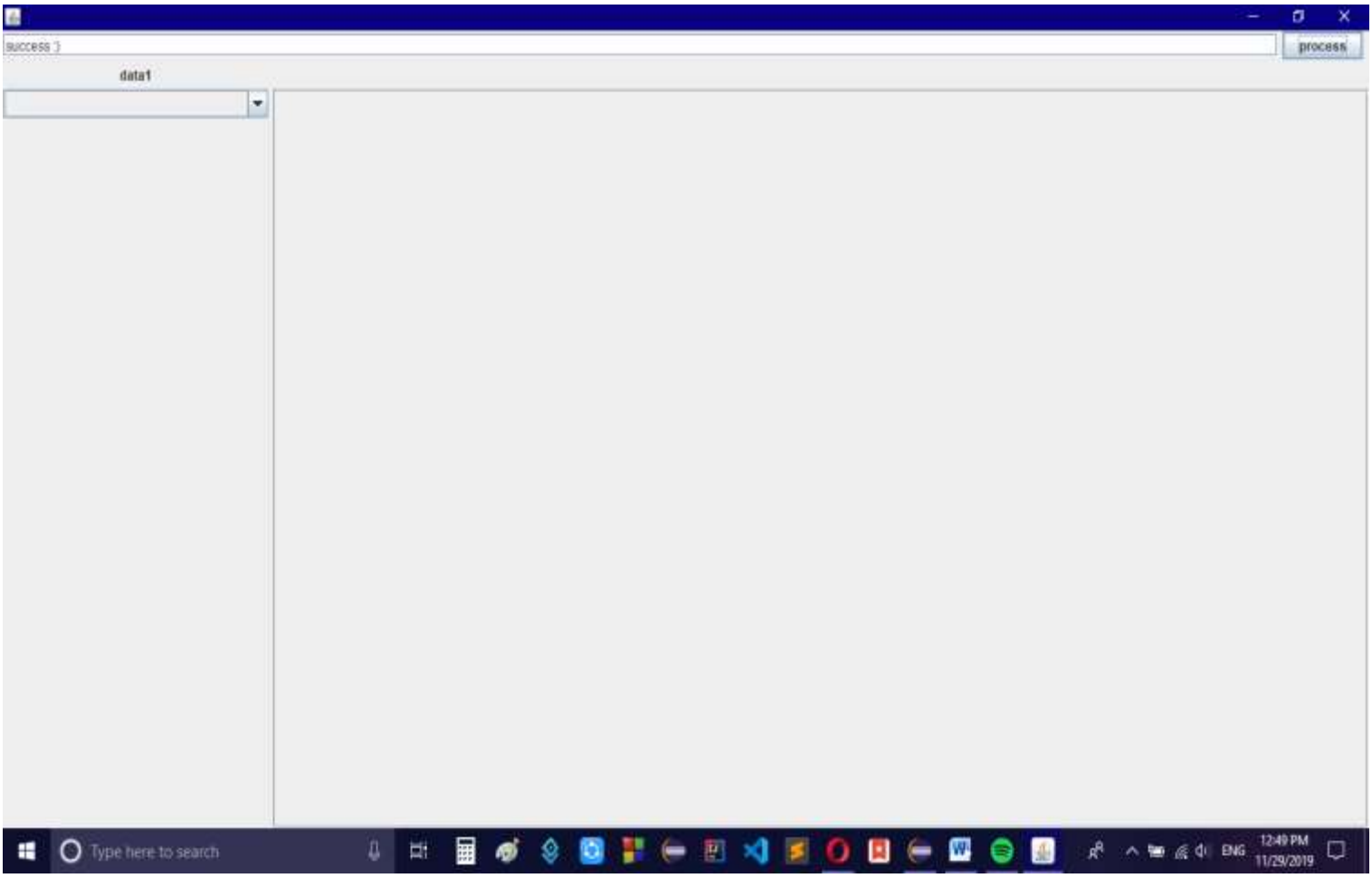
- **Façade:** The whole application is structured using the façade design pattern.

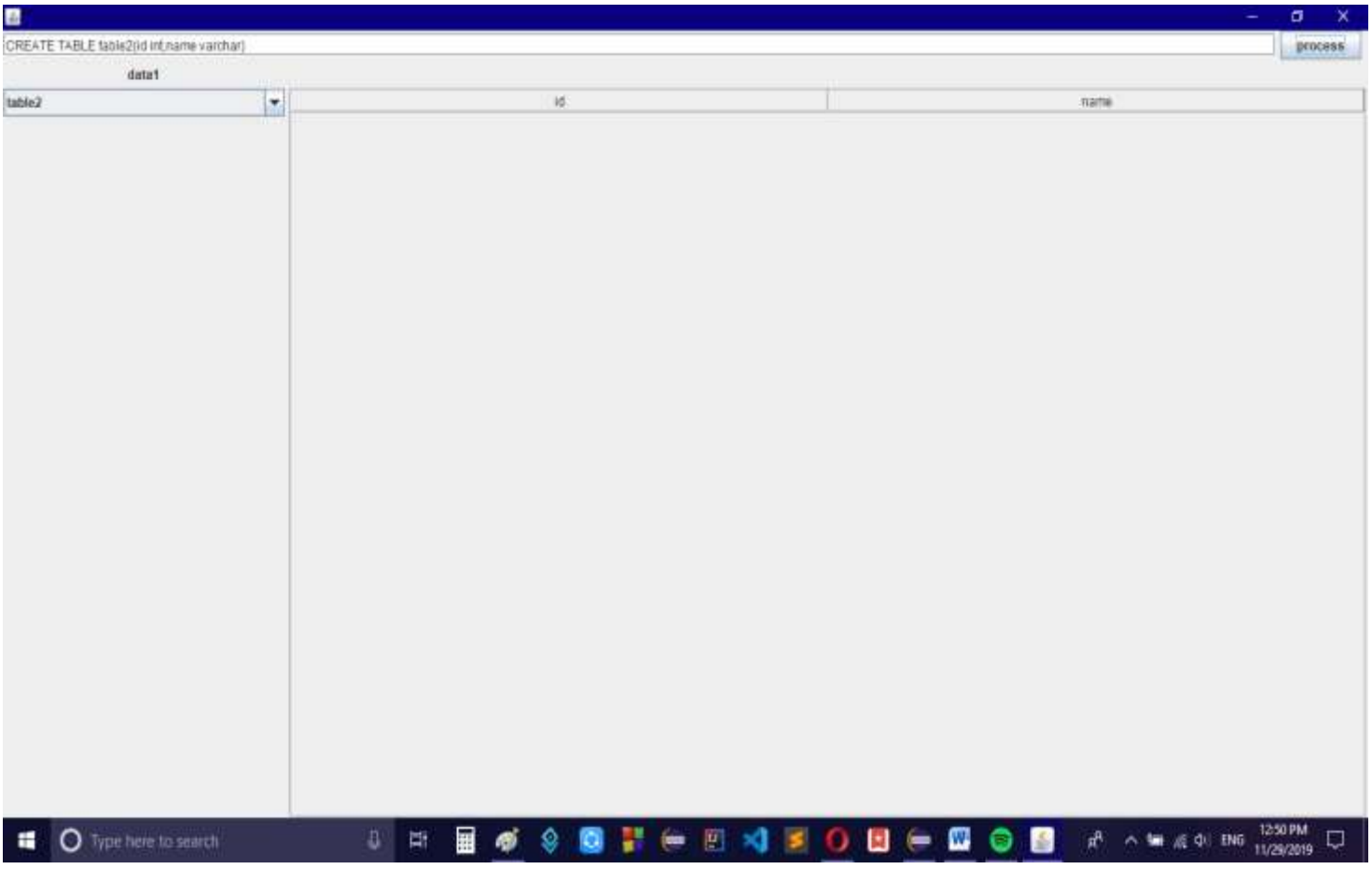
- **Singleton:** The façade class called "IDataBase" class is a singleton class.

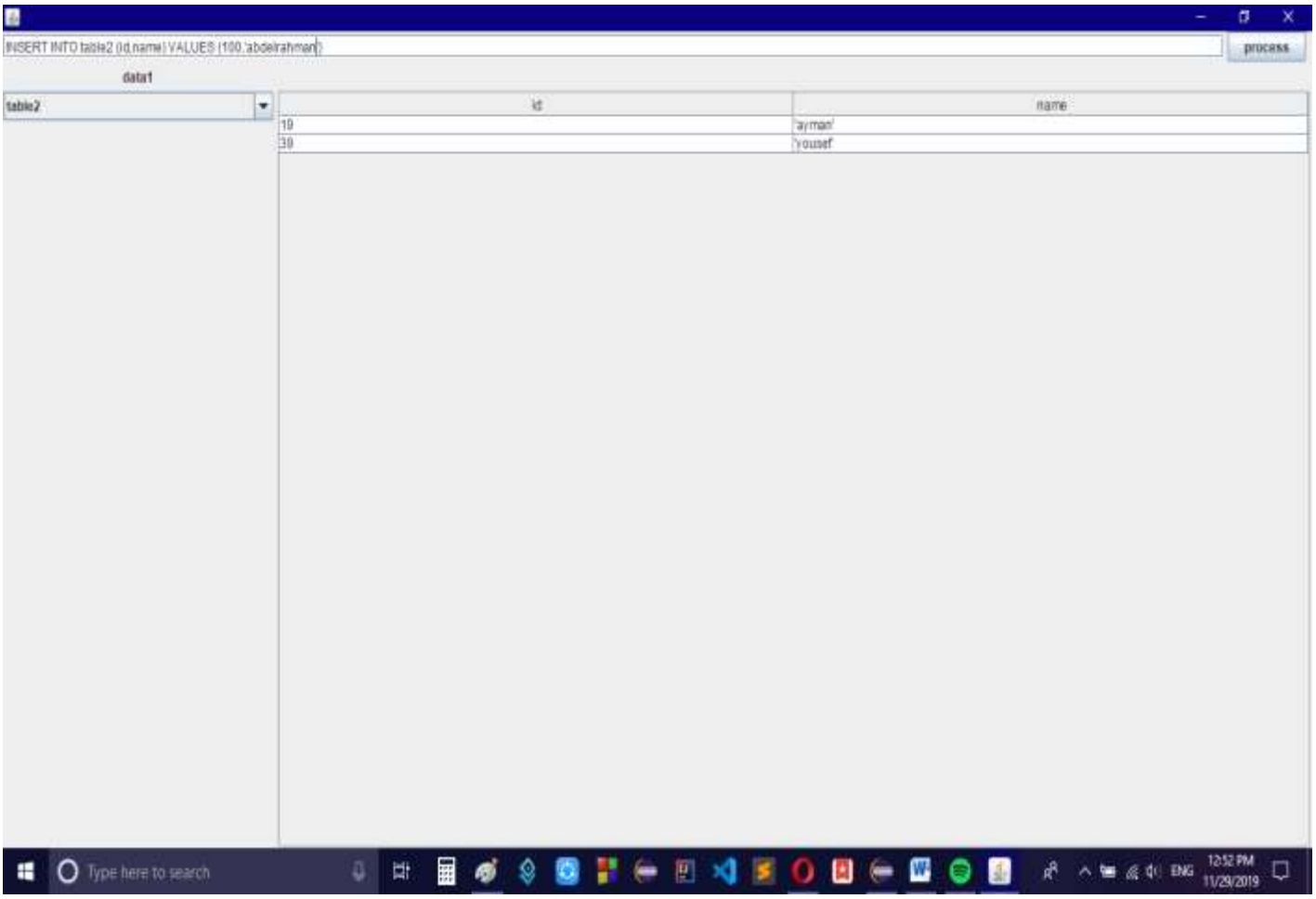
- **Command:** The command design pattern is used in executing all the commands interpreted from the queries.

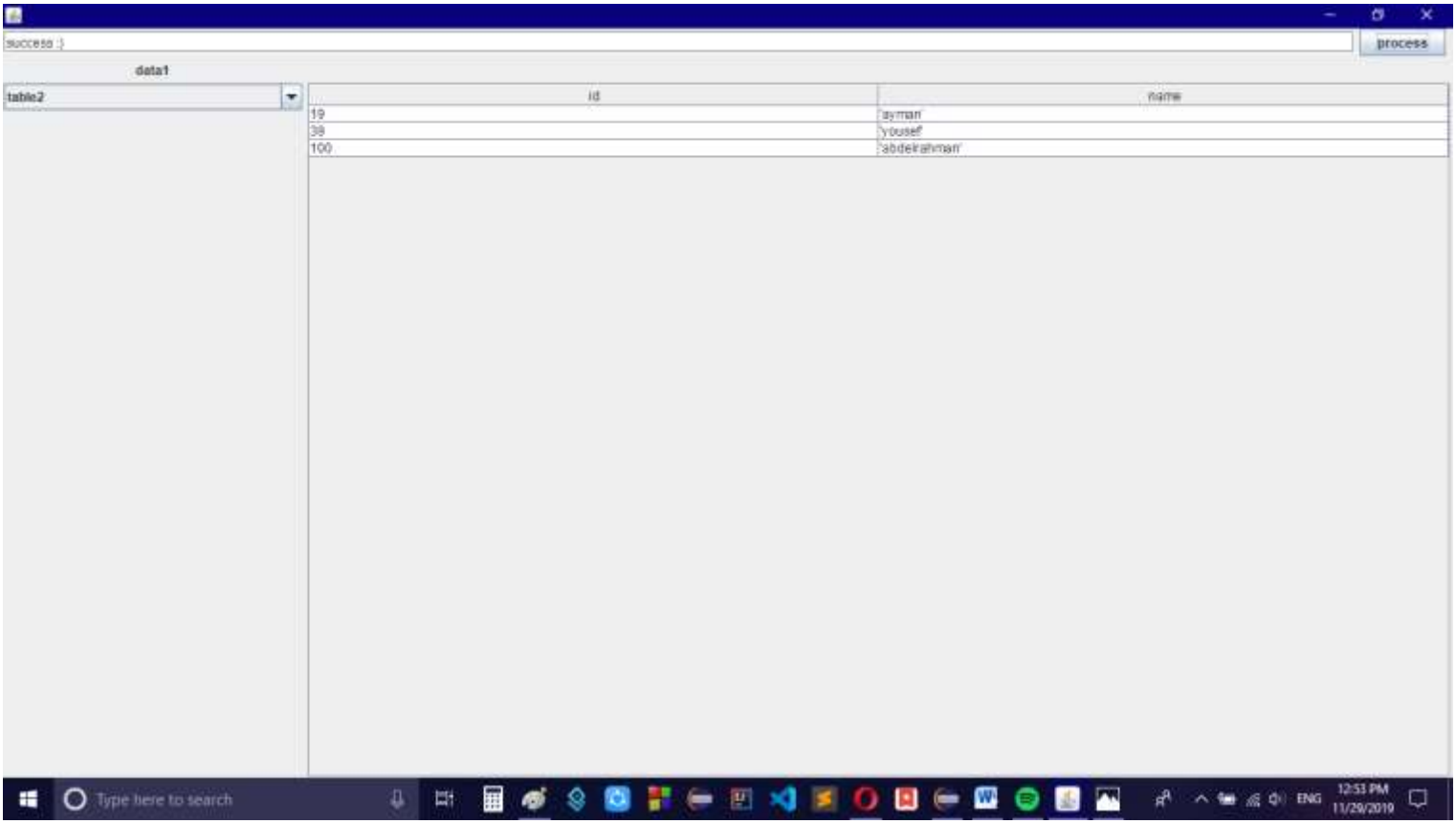
Some sample runs:

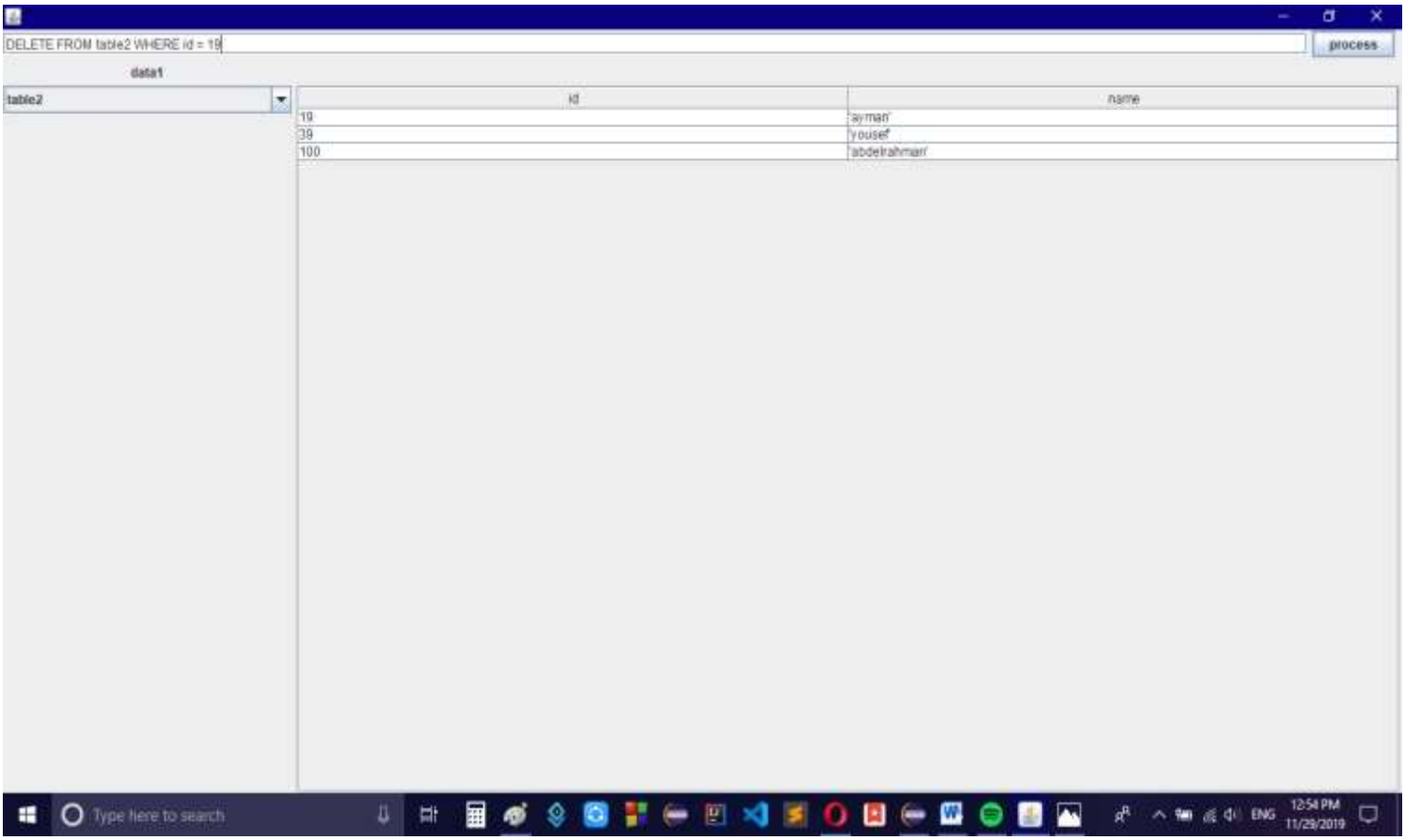


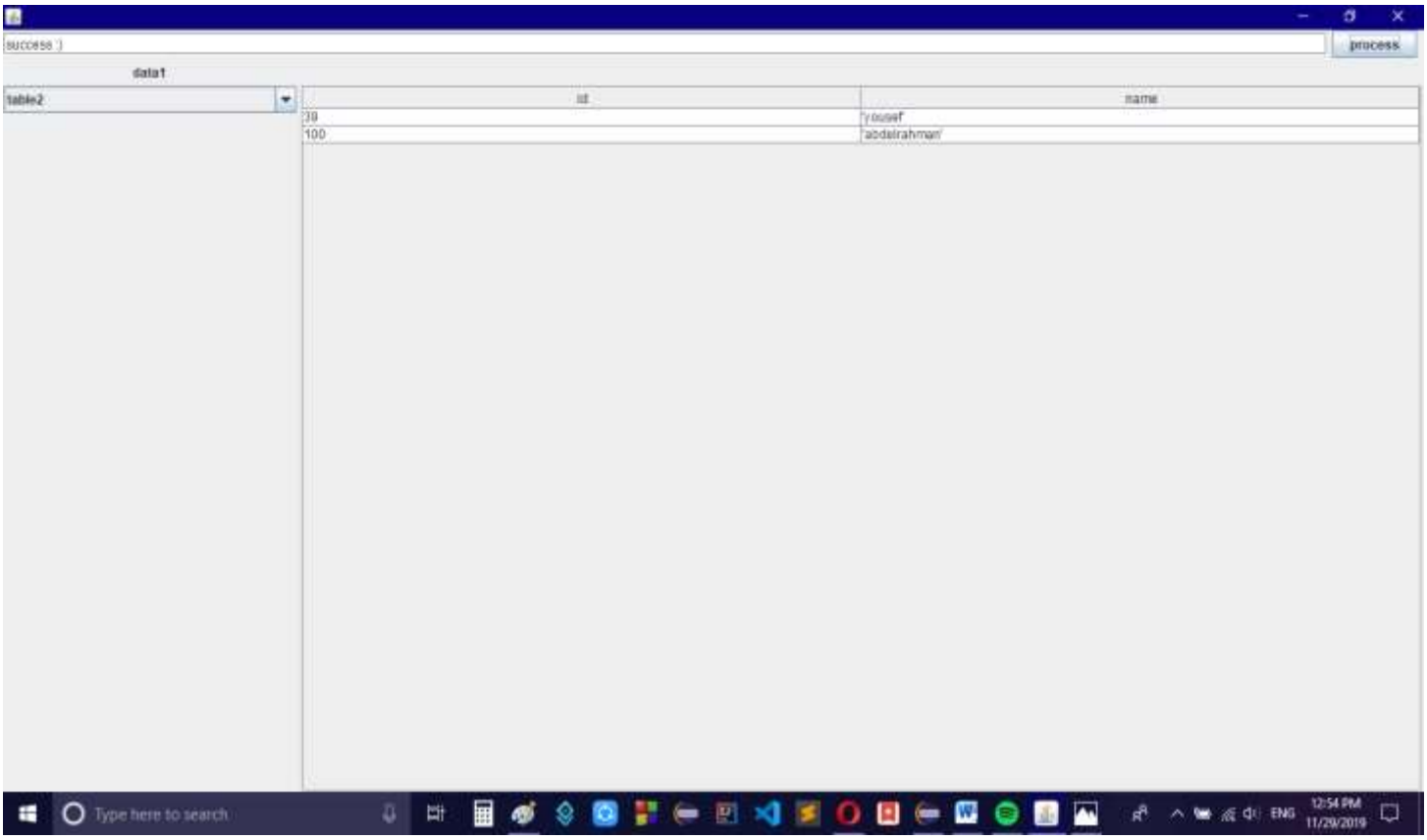

success :)
process
data1
Type here to search
ENG
12:49 PM
11/29/2019


CREATE TABLE table2(id int,name varchar)
process
data1
table2
id
name
Type here to search
ENG
12:50 PM
11/29/2019


INSERT INTO table2 (id,name) VALUES (100,'abdelrahman')
process
data1
table2
id
name
19
'ayman'
39
'yousef
Type here to search
ENG
12:52 PM
11/29/2019


success :)
process
data1
table2
id
name
19
'ayman'
38
'yousef'
100
'abdelrahman'
Type here to search
ENG
12:53 PM
11/29/2019


DELETE FROM table2 WHERE id = 19
process
data1
table2
id
name
19
ayman
39
yousef
100
abdelrahman
Type here to search
ENG
12:54 PM
11/29/2019


success :)
process
data1
table2
id
name
39
yousef
100
abdelrahman
Type here to search
ENG
12:54 PM
11/29/2019