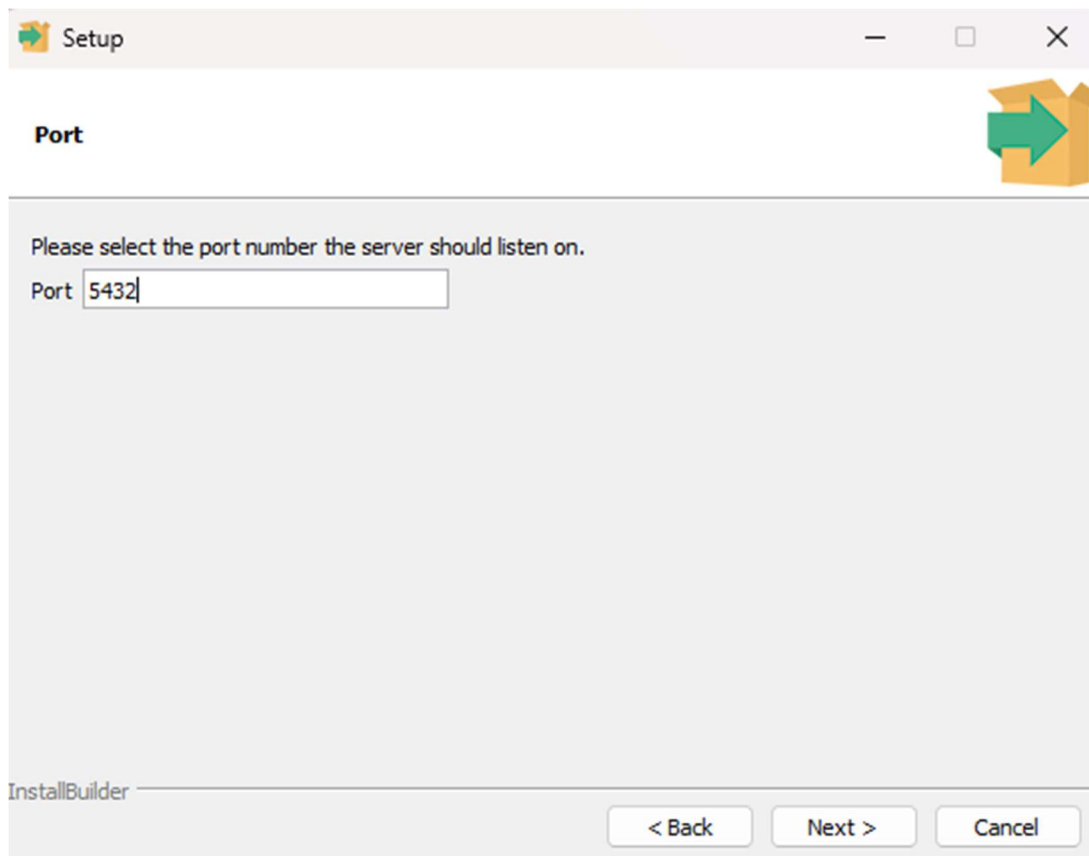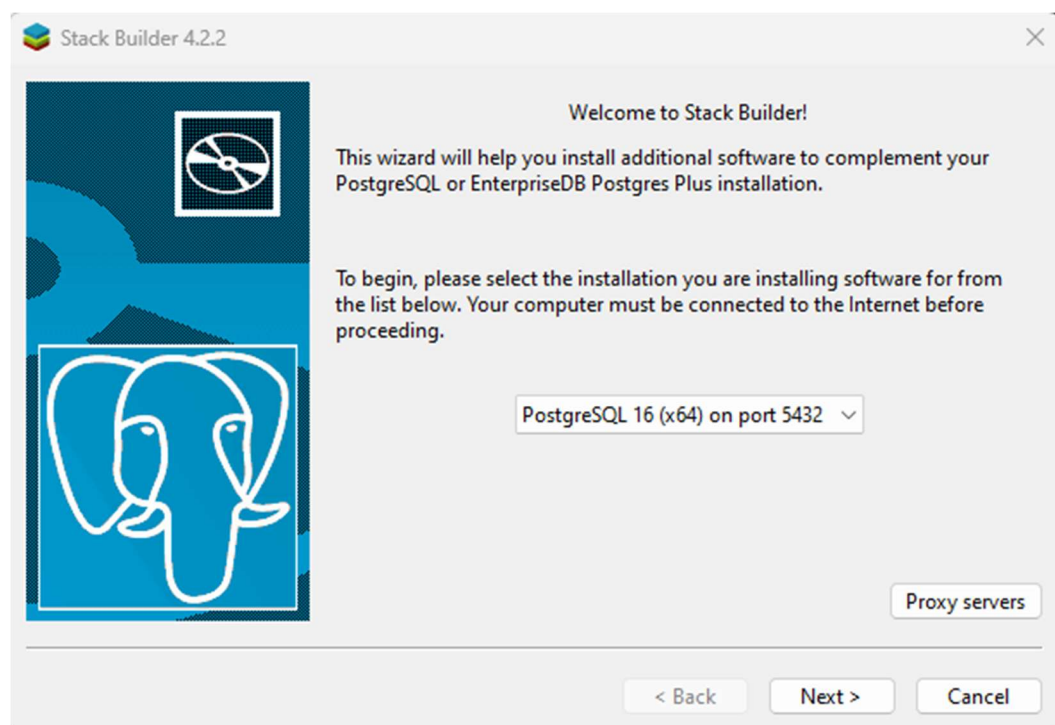# Implementation of JDBC
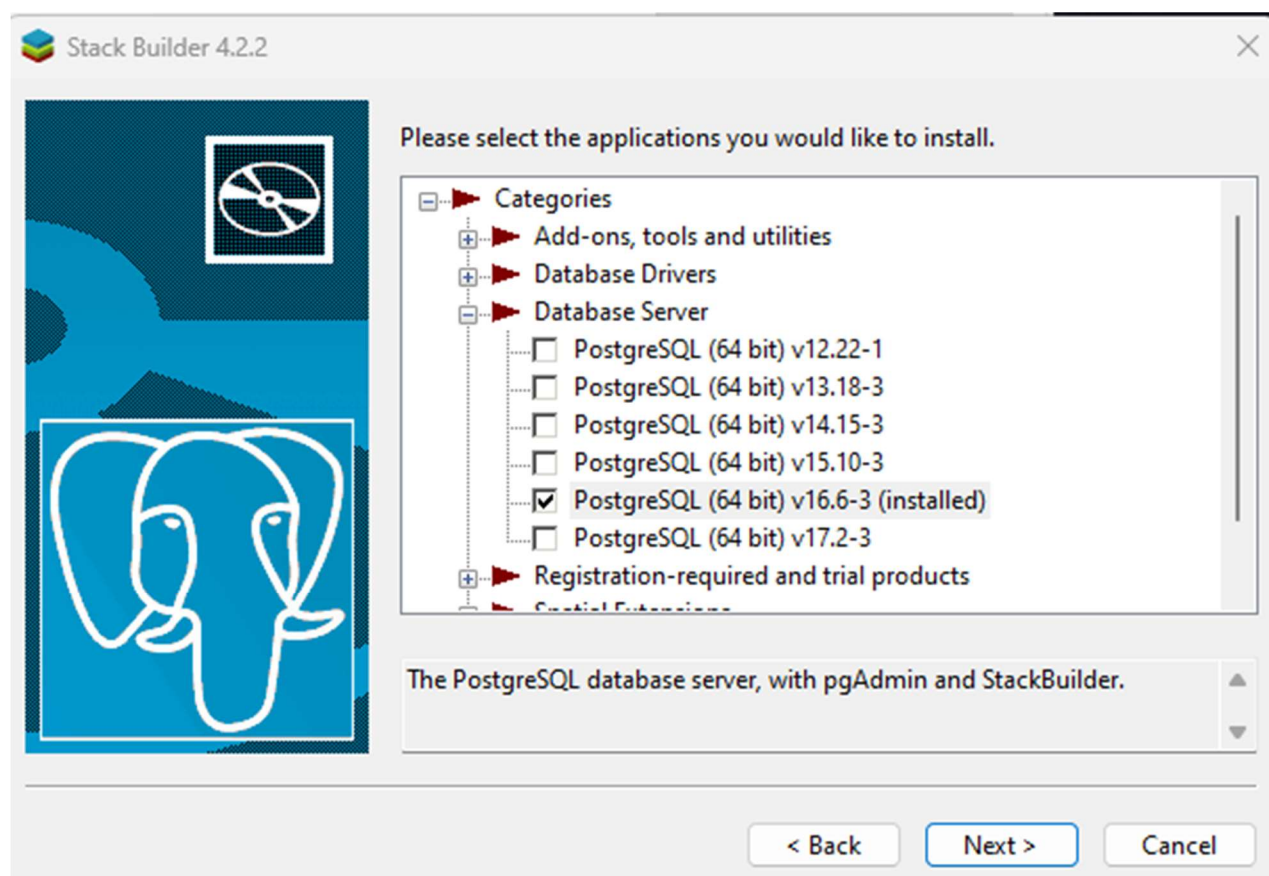
Name: Malih Assaad

Date : 2/1/2025

Environment and development:

- **Java version** : OpenJDK 17
- **Data Base :** PostgreSQL 16
- **Driver JDBC :** postgresql-42.7.5.jar
- **IDE :** VS code

Setup — □ ×

Port

Please select the port number the server should listen on.

Port `5432`

InstallBuilder

[< Back] [Next >] [Cancel]

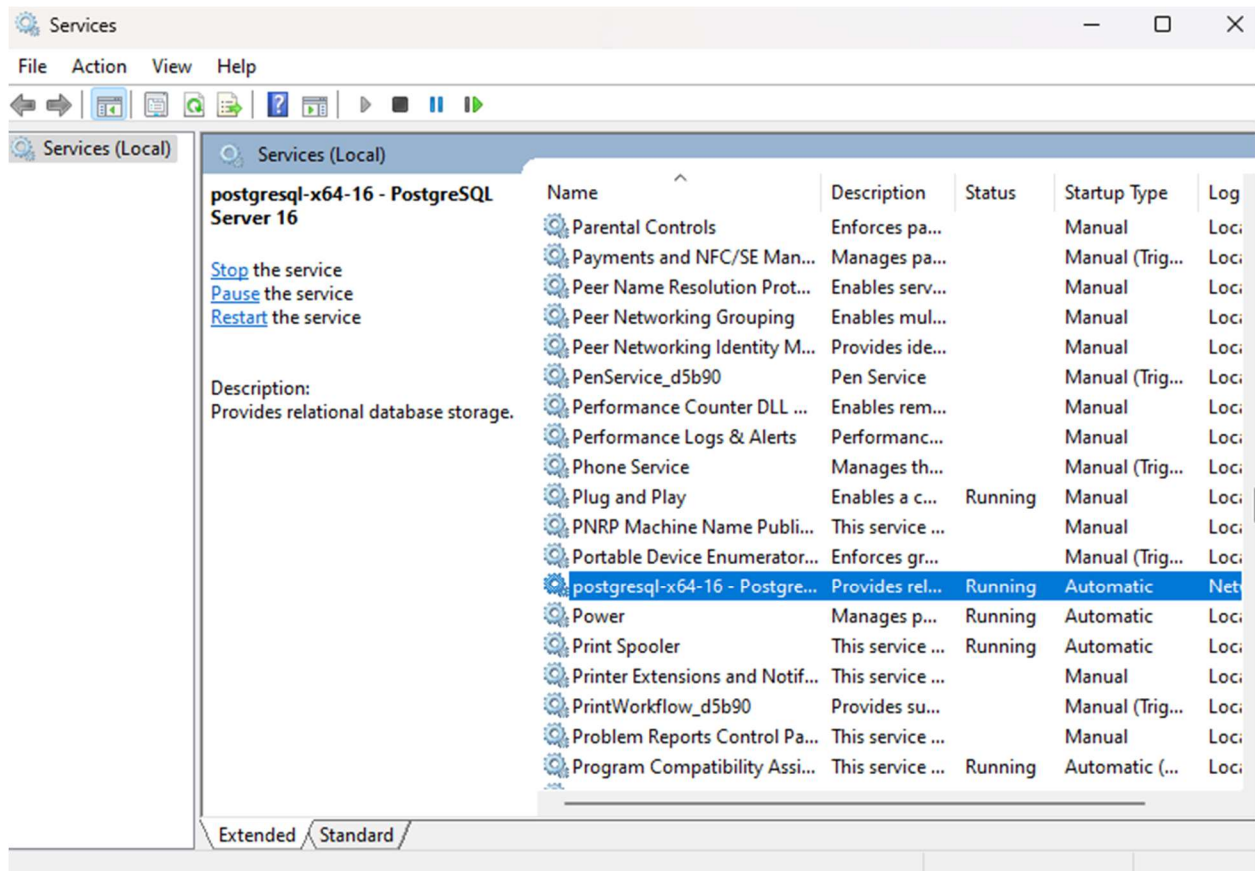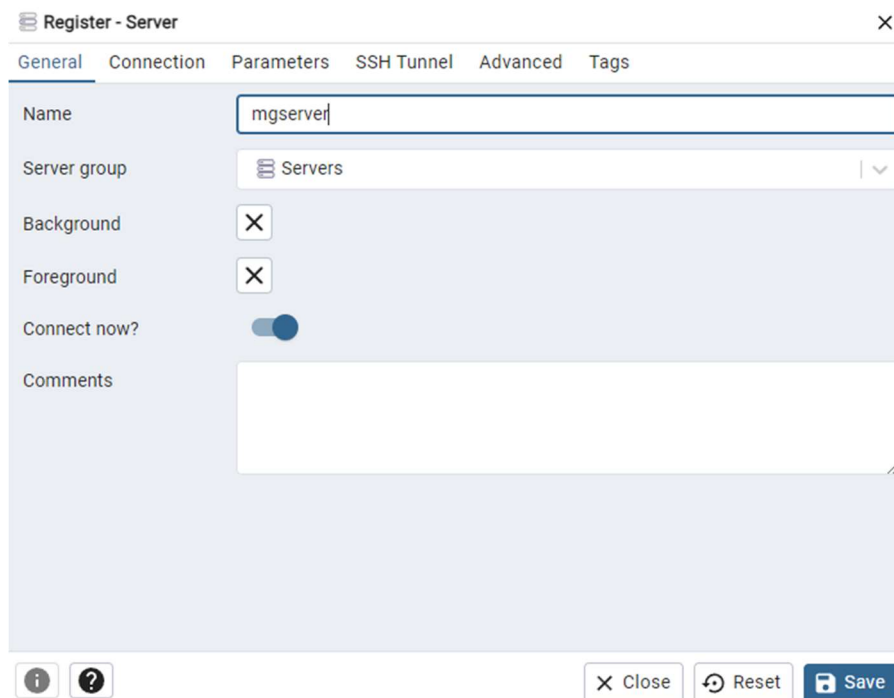
Use port 5432

install PostgreSQL on port 5432

check if the postgresql service is running

create a server

Register - Server   ✕

General   Connection   Parameters   SSH Tunnel   Advanced   Tags

Host name/address

localhost

Port

5432

Maintenance database

postgres

Username

postgres

Kerberos authentication?

Password

register the server using the **host name : localhost** and on port **5432**

Create - Database   ✕

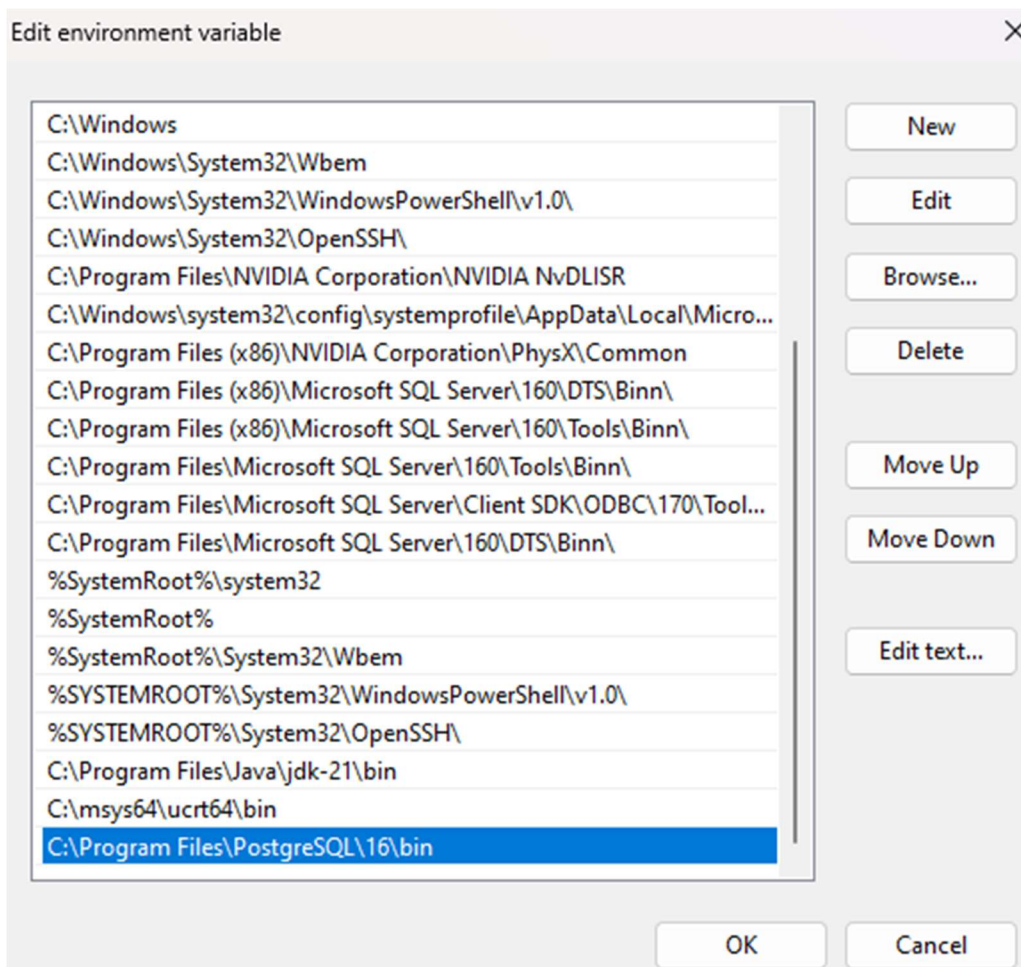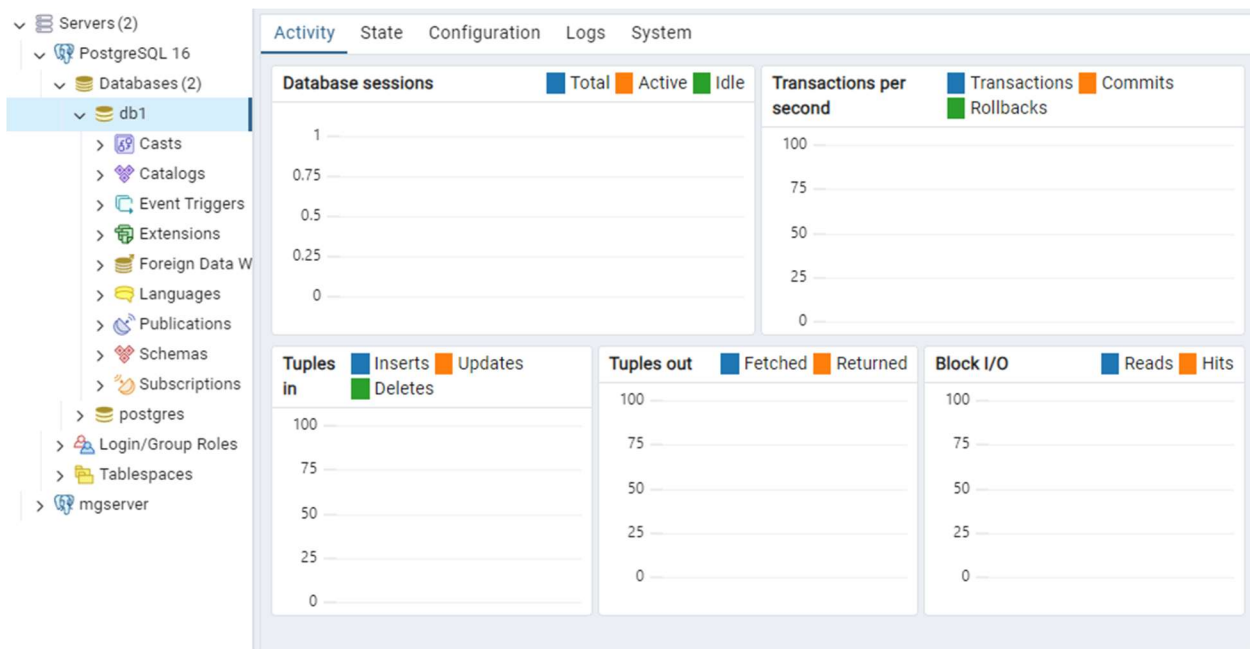General   Definition   Security   Parameters   Advanced   SQL

Database	db1
OID	
Owner	👤 postgres
Comment	

create a database called db1

add the environment variables

```
1 ∨  CREATE TABLE users (
2          id SERIAL PRIMARY KEY,
3          name VARCHAR(100) NOT NULL,
4          Phone_number CHAR(8) UNIQUE NOT NULL
5      );
6      INSERT INTO users (name, Phone_number) VALUES ('Alice', '70534635');
7      INSERT INTO users (name, Phone_number) VALUES ('Bob', '76857857');
8
```

in the pgadmin and in the database db1 create a table users

```
1      create user user1 with password 'passwd';
2      GRANT all PRIVILEGES on database db1 to user1;
```

create a user with a password and grant it access to the database db1

db1/postgres@PostgreSQL 16

No limit

Query Query History

```
1      create user user1 with password 'passwd';
2      GRANT all PRIVILEGES on database db1 to user1;
3      SELECT id, user1 FROM pg_tables WHERE tablename = 'users';
4      ALTER TABLE users OWNER TO user1;
5      SELECT user, tableowner FROM pg_tables WHERE tablename = 'users';
6
7
8
```

Data Output   Messages   Notifications

SQL

Showing rows: 1 to 1   Page No: 1   of 1

user name	tableowner name
1	postgres	user1

ensure the user has access to the database and is the owner

```java
J DatabaseConnection.java > ☘ DatabaseConnection > ⊙ connect()
  1    import java.sql.Connection;
  2    import java.sql.DriverManager;
  3    import java.sql.SQLException;
  4
  5    public class DatabaseConnection {
  6        private static final String URL = "jdbc:postgresql://localhost:5432/db1";
  7        private static final String USER = "user1";
  8        private static final String PASSWORD = "passwd";
  9
 10        public static Connection connect() {
 11            Connection conn = null;
 12            try {
 13                // Class.forName("org.postgresql.Driver");
 14                conn = DriverManager.getConnection(URL, USER, PASSWORD);
 15                System.out.println(x:"Connected to PostgreSQL successfully!");
 16            // } catch (ClassNotFoundException e) {
 17            //     System.out.printx:ln("PostgreSQL JDBC Driver not found!");
 18            //     e.printStackTrace();
 19            } catch (SQLException e) {
 20                System.out.println(x:"Connection failed!");
 21                e.printStackTrace();
 22            }
 23            return conn;
 24        }
 25
       Run | Debug
 26        public static void main(String[] args) {
 27            Connection conn = connect();
 28            if (conn != null) {
 29                try {
```

PROBLEMS 25   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   powershell + ⌄ ⯐ 🗑 ⋯ ∧ ✕

```
● PS C:\Users\MG\Desktop\uni4sem1\java\java exam gpt\final> java -cp ".;postgresql-42.7.5.jar" DatabaseConnection.java
Connected to PostgreSQL successfully!
Connection closed.
○ PS C:\Users\MG\Desktop\uni4sem1\java\java exam gpt\final> ▯
```

as we can see the connection was successful

```java
J DatabaseConnection.java ✕   J UserDAO.java                                    ▷ ⌄ ⯐ ⋯

J DatabaseConnection.java > ☘ DatabaseConnection > ⊙ connect()
  1    import java.sql.Connection;
  2    import java.sql.DriverManager;
  3    import java.sql.SQLException;
  4
  5    public class DatabaseConnection {
  6        private static final String URL = "jdbc:postgresql://localhost:5432/db1";
  7        private static final String USER = "user1";
  8        private static final String PASSWORD = "passwd";
  9
 10        public static Connection connect() {
 11            Connection conn = null;
 12            try {
 13                conn = DriverManager.getConnection(URL, USER, PASSWORD);
 14                System.out.println(x:"Connected to PostgreSQL successfully!");
 15            } catch (SQLException e) {
 16                System.out.println(x:"Connection failed!");
 17                e.printStackTrace();
 18            }
 19            return conn;
 20        }
 21
       Run | Debug
 22        public static void main(String[] args) {
 23            Connection conn = connect();
 24            if (conn != null) {
```

and manipulating the database was successful as user1 and with password passwd

```
PS C:\Users\MG\Desktop\uni4sem1\java\java exam gpt\final> java -cp ".;postgresql-42.7.5.jar" UserDAO.java
Connected to PostgreSQL successfully!
User added successfully!
Connected to PostgreSQL successfully!
1 - Alice - 70534635
2 - Bob - 76857857
4 - Charlie - 70989756
Connected to PostgreSQL successfully!
User updated successfully!
Connected to PostgreSQL successfully!
1 - Alice - 70534635
2 - Bob - 76857857
4 - Charlie - 70989756
Connected to PostgreSQL successfully!
User deleted successfully!
Connected to PostgreSQL successfully!
1 - Alice - 70534635
2 - Bob - 76857857
4 - Charlie - 70989756
PS C:\Users\MG\Desktop\uni4sem1\java\java exam gpt\final> []
```

Note: installed the JDBC driver and placed it in the same file as the .java file then compiled the file while specifying the path for the .jar file