College Dublin
Computing • IT • Business

Object Oriented Constructs, Databases & Linear Algebra

System of Linear Equations Calculator

Continuous Assessment

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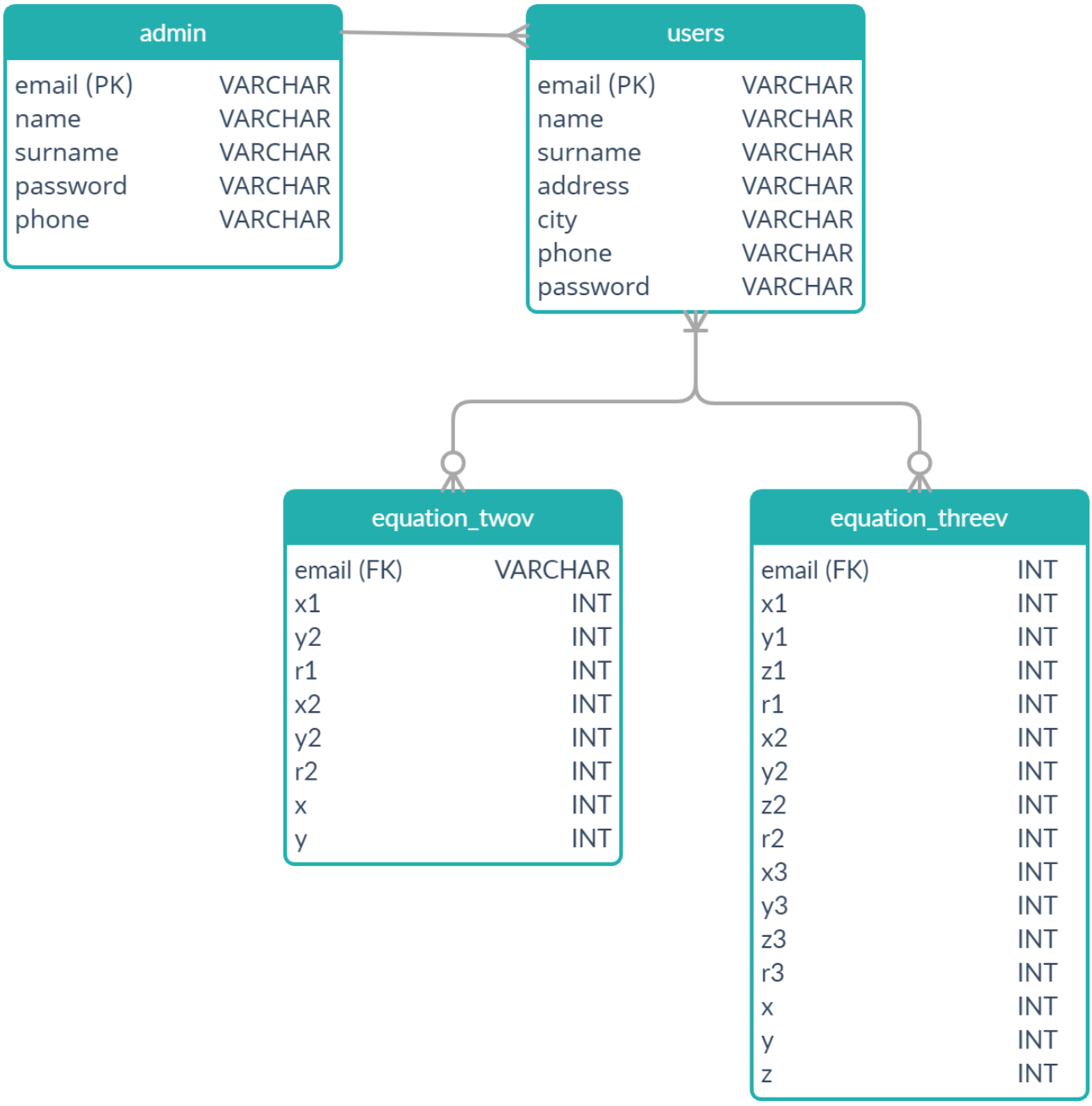
Conceptual design



Appropriate connection with DB

From the following code, the connection with the Database was successfully established, it is also available in the following repository: https://github.com/lepidu/SLEC_LeislyPino

```java
package mysql;

import com.mysql.jdbc.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;

/**
 * This is the method of connecting with the database where everything that the
 * user provides to the system will be saved.
 *
 * @author Leisly Pino
 */
public class ConnectorDB {

    public static String url = "jdbc:mysql://localhost/SLEC_LeislyPino";
    public static String user = "root";
    public static String password = "Dublin";
    public static String library = "com.mysql.jdbc.Driver";

    public static Connection connector() {
        Connection con = null;

        try {
            Class.forName(library);
            con = (Connection) DriverManager.getConnection(url, user, password);
            System.out.println("Successful Connection");
        } catch (ClassNotFoundException | SQLException e) {

            System.out.println("Error: " + e);
        }
        return con;
    }
}
```

Database in 3NF

It is the 3NF normalization applied in this case, since the table of users is related to the table of variables, this is because of the input that the user makes, he is saving the information of who entered it to solve it, this giving as the last table of relationship User-Variables, this table could not be completed with the code of this work, but nevertheless this is the last relation we have to confirm this normalization, since in it we would see that user with what type of linear equation of two or three variables performed.

CRUD methods to query the DB

The following were the statements that were used for the different types of methods:

- Saving the data of **new users**:

INSERT INTO users (name, surname, email, phone, address, city, password) VALUES (?,?,?,?,?,?,?)

- Save the information in a linear equation of **two variables**:

INSERT INTO equation_twov (x1, y1, r1, x2, y2, r2, x, y) VALUES (?,?,?,?,?,?,?,?)

- Save the information in a linear equation of **three variables**:

INSERT INTO equation_threev (x1, y1, z1, r1, x2, y2, z2, r2, x3, y3, z3, r3, x, y, z) VALUES (?,?,?,?,?,?,?,?,?,?,?,?,?,?,?)

- Find that the email was existing in the **users** table:

SELECT email FROM users WHERE email = ?

- Find that the email was existing in the **admin** table

SELECT email FROM admin WHERE email = ?

- Updating the data in the **users** table:

UPDATE users SET name = ?, surname = ?, address = ?, phone = ?, city = ?, password = ? WHERE email = ?

- Updating the data in the **admin** table:

UPDATE admin SET name = ?, surname = ?, phone = ?, password = ? WHERE email = ?

- Looking for the **user's** registration to be existing with email and password:

SELECT email, password FROM users WHERE email = ? && password = ?

- Looking for the **administrator** record to be existing with email and password:

SELECT email, password FROM admin WHERE email = ? && password = ?

- Deleting the **user** with the specific email:

DELETE FROM users WHERE email = ?