DEBER 1

```java
package Interfazformla1;

import javax.swing.*;
import javax.swing.table.DefaultTableCellRenderer;
import javax.swing.table.DefaultTableModel;
import java.awt.*;
import java.sql.*;
import java.util.Vector;

public class formula1 {
    private Connection conn;
    private JFrame frame;
    private JComboBox<String> comboBox;
    private JTable table;
    private DefaultTableModel tableModel;

    public InterfazGrafica() {
        // Establecer conexión a la base de datos PostgreSQL
        connectDB();

        // Crear la interfaz gráfica
        createGUI();
    }

    private void connectDB() {
        try {
            String url = "jdbc:postgresql://localhost:5432/demo";
            String user = "postgres";
            String password = "1234";
            conn = DriverManager.getConnection(url, user, password);
```
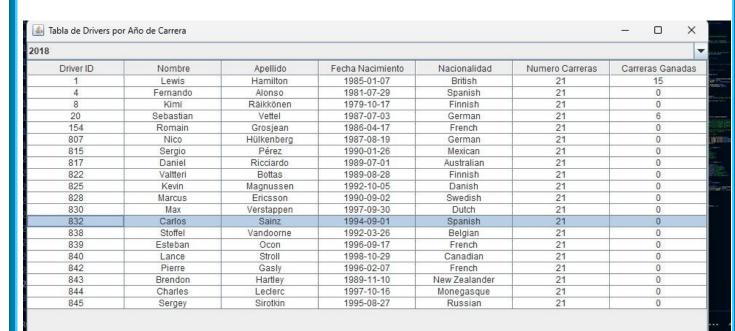
```java
        System.out.println("Conexión establecida con PostgreSQL.");
    } catch (SQLException e) {
        e.printStackTrace();
    }
}


private void createGUI() {
    frame = new JFrame("Tabla de Drivers por Año de Carrera");
    frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    frame.setSize(950, 450);


    // Combo box para seleccionar el año de carrera
    comboBox = new JComboBox<>();
    populateComboBox();
    comboBox.addActionListener(e -> {
        // Cuando se seleccione un año, actualizar la tabla de corredores
        updateTable();
    });


    // Tabla para mostrar los datos de corredores y carreras
    tableModel = new DefaultTableModel();
    table = new JTable(tableModel);
    JScrollPane scrollPane = new JScrollPane(table);


    // Centrar el contenido de las celdas
    DefaultTableCellRenderer centerRenderer = new DefaultTableCellRenderer();
    centerRenderer.setHorizontalAlignment(JLabel.CENTER);
    table.setDefaultRenderer(Object.class, centerRenderer);


    frame.getContentPane().add(comboBox, BorderLayout.NORTH);
    frame.getContentPane().add(scrollPane, BorderLayout.CENTER);
```

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        frame.setVisible(true);

    }


    private void populateComboBox() {

        try {

            Statement stmt = conn.createStatement();

            ResultSet rs = stmt.executeQuery("SELECT DISTINCT year FROM races ORDER BY year DESC");

            while (rs.next()) {

                comboBox.addItem(rs.getString("year"));

            }

            rs.close();

            stmt.close();

        } catch (SQLException e) {

            e.printStackTrace();

        }

    }


    private void updateTable() {

        try {

            String selectedYear = (String) comboBox.getSelectedItem();

            if (selectedYear != null) {

                // Consulta para obtener los corredores que participaron en las carreras del año seleccionado

                String query = "SELECT DISTINCT ON (d.driver_id) d.driver_id, d.forename, d.surname, d.dob, d.nationality, " +

                        "(SELECT COUNT(*) FROM driver_standings ds INNER JOIN races r ON ds.race_id = r.race_id " +

                        "WHERE ds.driver_id = d.driver_id AND r.year = ? AND ds.position = 1) AS carreras_ganadas, " +

                        "(SELECT COUNT(*) FROM driver_standings ds INNER JOIN races r ON ds.race_id = r.race_id " +
```

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      "WHERE ds.driver_id = d.driver_id AND r.year = ?) AS num_races " +

      "FROM drivers d " +

      "JOIN driver_standings ds ON d.driver_id = ds.driver_id " +

      "JOIN races r ON ds.race_id = r.race_id " +

      "WHERE r.year = ? " +

      "ORDER BY d.driver_id, r.date";


PreparedStatement pstmt = conn.prepareStatement(query);

pstmt.setInt(1, Integer.parseInt(selectedYear));

pstmt.setInt(2, Integer.parseInt(selectedYear));

pstmt.setInt(3, Integer.parseInt(selectedYear));

ResultSet rs = pstmt.executeQuery();


// Obtener columnas

Vector<String> columnNames = new Vector<>();

columnNames.add("Driver ID");

columnNames.add("Nombre");

columnNames.add("Apellido");

columnNames.add("Fecha Nacimiento");

columnNames.add("Nacionalidad");

columnNames.add("Numero Carreras");

columnNames.add("Carreras Ganadas");


// Obtener filas

Vector<Vector<Object>> data = new Vector<>();

while (rs.next()) {

  Vector<Object> row = new Vector<>();

  row.add(rs.getInt("driver_id"));

  row.add(rs.getString("forename"));

  row.add(rs.getString("surname"));

  row.add(rs.getDate("dob"));
```

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            row.add(rs.getString("nationality"));

            row.add(rs.getInt("num_races"));

            row.add(rs.getInt("carreras_ganadas"));

            data.add(row);

        }


        // Actualizar modelo de la tabla

        tableModel.setDataVector(data, columnNames);


        // Centrar el contenido de las celdas

        DefaultTableCellRenderer centerRenderer = new DefaultTableCellRenderer();

        centerRenderer.setHorizontalAlignment(JLabel.CENTER);

        table.setDefaultRenderer(Object.class, centerRenderer);


        rs.close();

        pstmt.close();

        }

    } catch (SQLException e) {

        e.printStackTrace();

    }

}


public static void main(String[] args) {

    SwingUtilities.invokeLater(formula1::new);

}

}
```

Tabla de Drivers por Año de Carrera

2018

Driver ID	Nombre	Apellido	Fecha Nacimiento	Nacionalidad	Numero Carreras	Carreras Ganadas
1	Lewis	Hamilton	1985-01-07	British	21	15
4	Fernando	Alonso	1981-07-29	Spanish	21	0
8	Kimi	Räikkönen	1979-10-17	Finnish	21	0
20	Sebastian	Vettel	1987-07-03	German	21	6
154	Romain	Grosjean	1986-04-17	French	21	0
807	Nico	Hülkenberg	1987-08-19	German	21	0
815	Sergio	Pérez	1990-01-26	Mexican	21	0
817	Daniel	Ricciardo	1989-07-01	Australian	21	0
822	Valtteri	Bottas	1989-08-28	Finnish	21	0
825	Kevin	Magnussen	1992-10-05	Danish	21	0
828	Marcus	Ericsson	1990-09-02	Swedish	21	0
832	Carlos	Sainz	1994-09-01	Spanish	21	0
838	Stoffel	Vandoorne	1992-03-26	Belgian	21	0
839	Esteban	Ocon	1996-09-17	French	21	0
840	Lance	Stroll	1998-10-29	Canadian	21	0
842	Pierre	Gasly	1996-02-07	French	21	0
843	Brendon	Hartley	1989-11-10	New Zealander	21	0
844	Charles	Leclerc	1997-10-16	Monegasque	21	0
845	Sergey	Sirotkin	1995-08-27	Russian	21	0

onexión establecida con PostgreSQL.

Tabla de Drivers por Año de Carrera

2018

| 2013 |
| 2012 |
| 2011 |
| 2010 |
| 2009 |
| 2008 |
| 2007 |
| 2006 |

822	Valtteri	Bottas	1989-08-28	Finnish	21	0
825	Kevin	Magnussen	1992-10-05	Danish	21	0
828	Marcus	Ericsson	1990-09-02	Swedish	21	0
830	Max	Verstappen	1997-09-30	Dutch	21	0
832	Carlos	Sainz	1994-09-01	Spanish	21	0
838	Stoffel	Vandoorne	1992-03-26	Belgian	21	0
839	Esteban	Ocon	1996-09-17	French	21	0
840	Lance	Stroll	1998-10-29	Canadian	21	0
842	Pierre	Gasly	1996-02-07	French	21	0
843	Brendon	Hartley	1989-11-10	New Zealander	21	0
844	Charles	Leclerc	1997-10-16	Monegasque	21	0
845	Sergey	Sirotkin	1995-08-27	Russian	21	0