Laboratorium Informatika

Junior Project (Teknik Basis Data, Pemrograman Berbasis Objek)

Worksheet Responsi

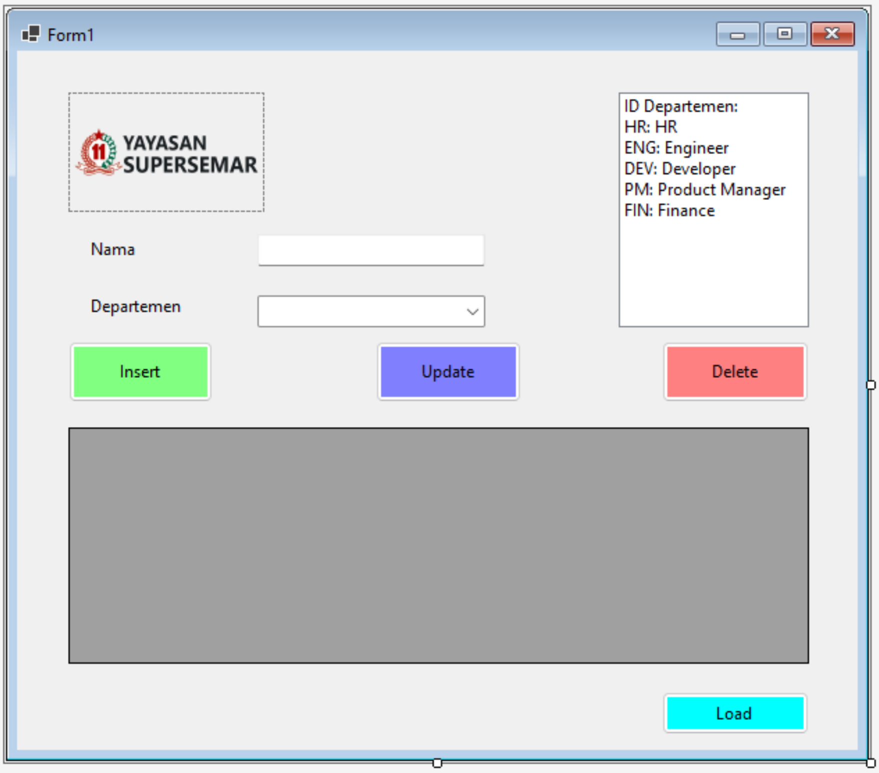
RESPONSI

TUGAS WAJIB

Link Github:

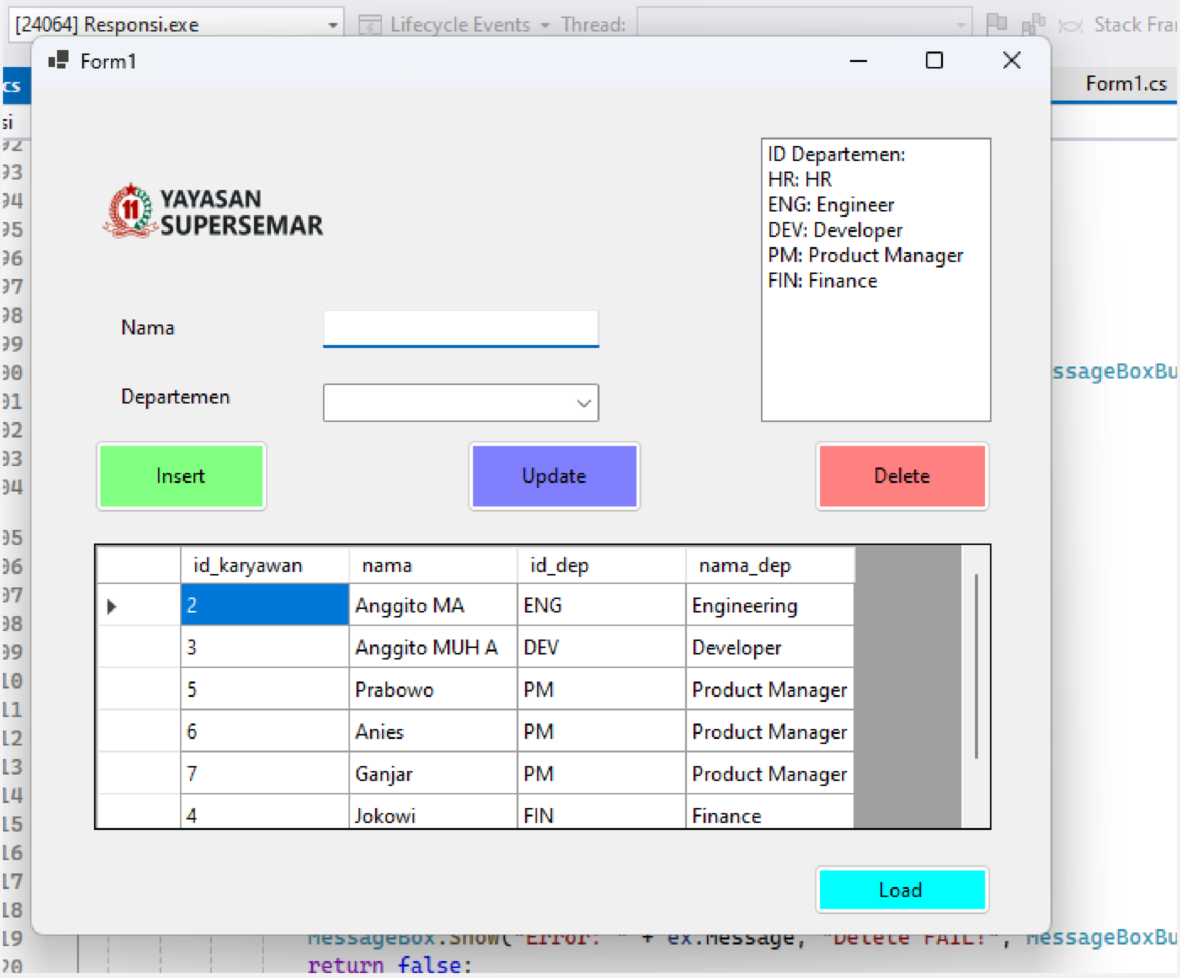
https://github.com/anggito-m/498140-Anggito-Muhammad-Amien-ResponsiJuniorProject

Screenshot file Tampilan:



ID Departemen:
HR: HR
ENG: Engineer
DEV: Developer
PM: Product Manager
FIN: Finance

Tampilan RUN



ID Departemen:
HR: HR
ENG: Engineer
DEV: Developer
PM: Product Manager
FIN: Finance

Nama

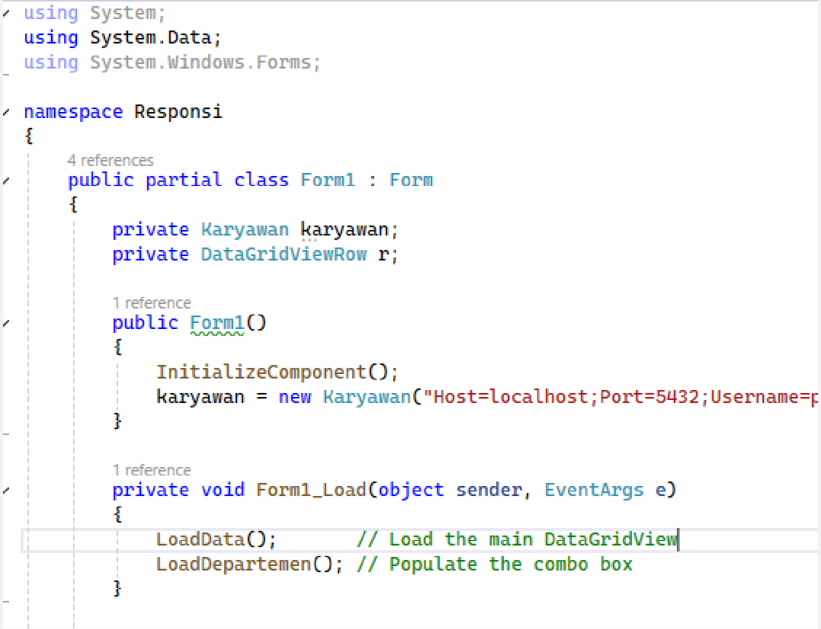
Departemen

	id_karyawan	nama	id_dep	nama_dep
▶	2	Anggito MA	ENG	Engineering
	3	Anggito MUH A	DEV	Developer
	5	Prabowo	PM	Product Manager
	6	Anies	PM	Product Manager
	7	Ganjar	PM	Product Manager
	4	Jokowi	FIN	Finance

```
MessageBox.Show("Error: " + ex.Message, "Delete FAIL!", MessageBoxBu
return false;
```

Screenshot Konsep OOP (Enkapsulasi dan *Inheritance*):

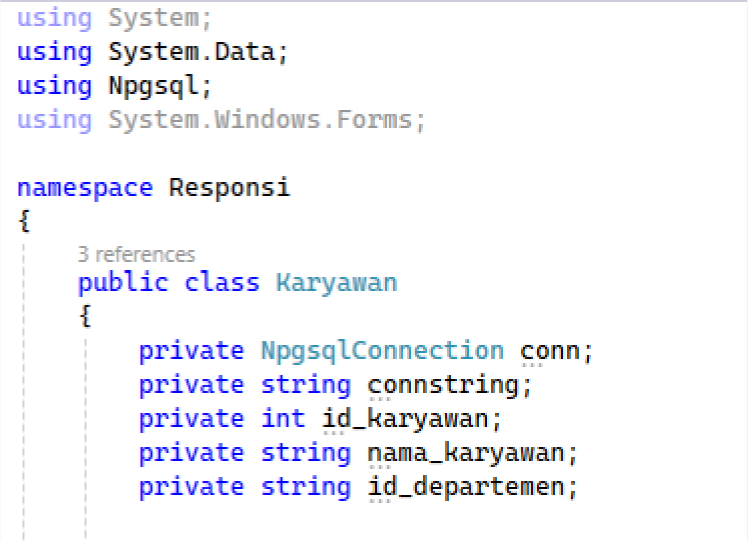
Inheritance:



```
using System;
using System.Data;
using System.Windows.Forms;

namespace Responsi
{
    4 references
    public partial class Form1 : Form
    {
        private Karyawan karyawan;
        private DataGridViewRow r;

        1 reference
        public Form1()
        {
            InitializeComponent();
            karyawan = new Karyawan("Host=localhost;Port=5432;Username=p
        }

        1 reference
        private void Form1_Load(object sender, EventArgs e)
        {
            LoadData();       // Load the main DataGridView
            LoadDepartemen(); // Populate the combo box
        }
```

Class Form1 merupakan turunan Class Form

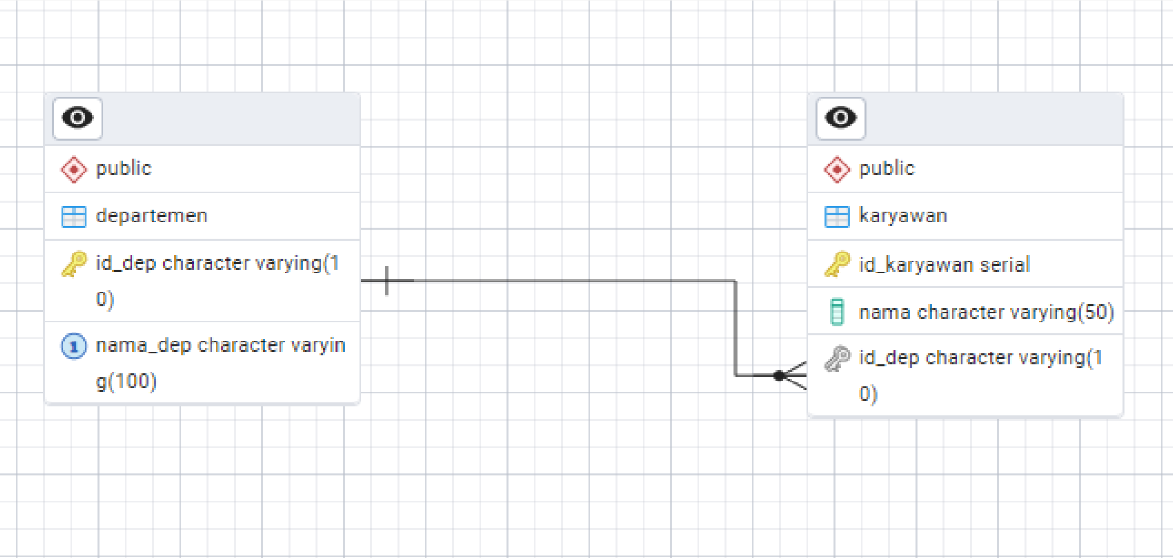
Enkapsulasi



```
using System;
using System.Data;
using Npgsql;
using System.Windows.Forms;

namespace Responsi
{
    3 references
    public class Karyawan
    {
        private NpgsqlConnection conn;
        private string connstring;
        private int id_karyawan;
        private string nama_karyawan;
        private string id_departemen;
```

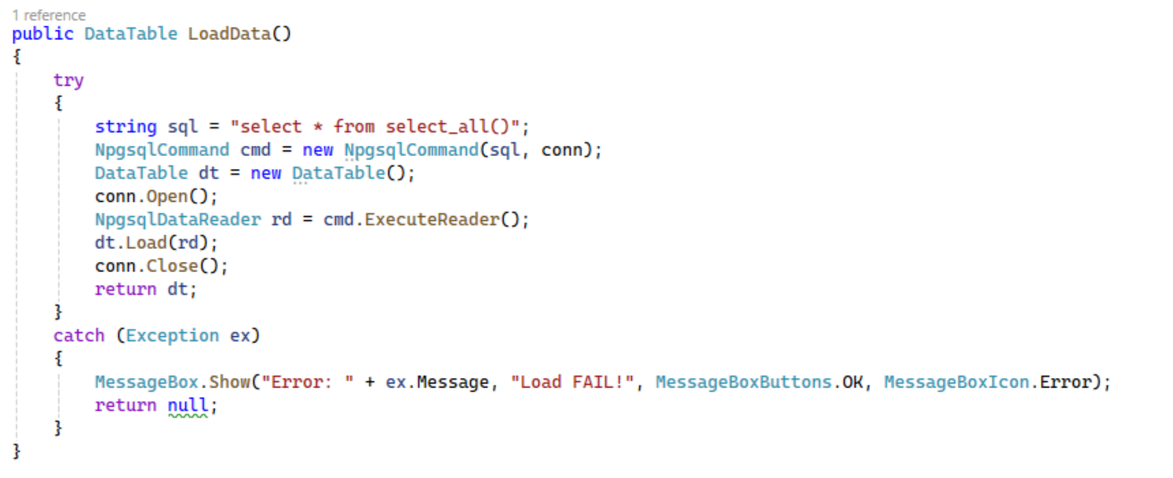
Deklarasi id_karyawan dll sebagai private

Screenshot ERD Databases pada PgAdmin (klik kanan databases -> ERD For Database):


public
departemen
id_dep character varying(10)
nama_dep character varying(100)
public
karyawan
id_karyawan serial
nama character varying(50)
id_dep character varying(10)

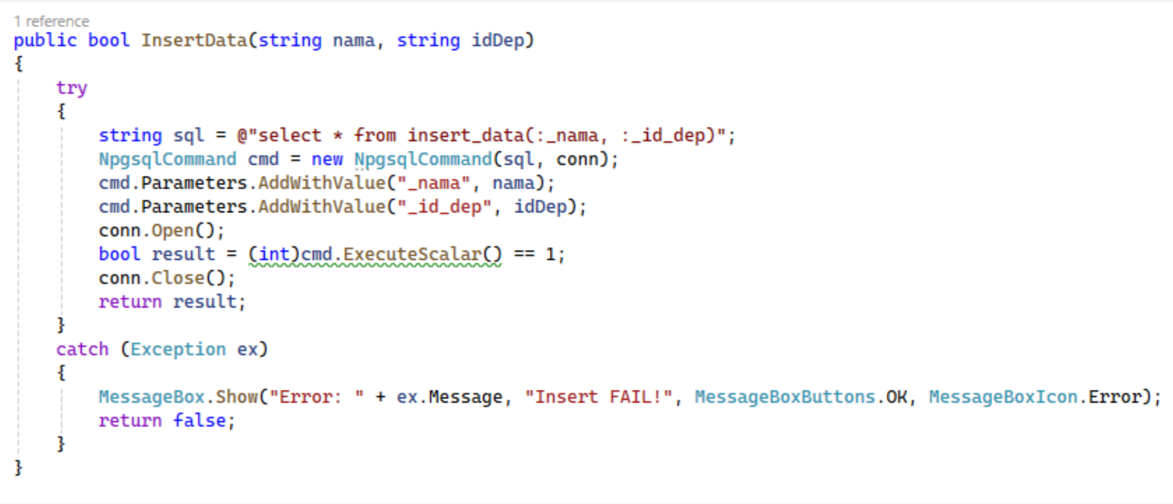
Implementasi Kode CRUD:

Read:



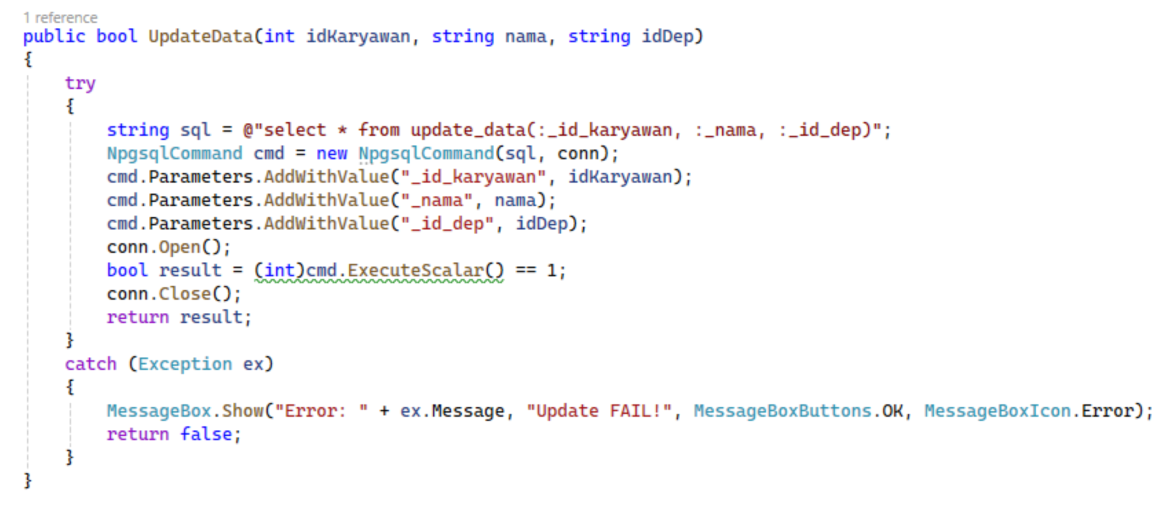
```
1 reference
public DataTable LoadData()
{
    try
    {
        string sql = "select * from select_all()";
        NpgsqlCommand cmd = new NpgsqlCommand(sql, conn);
        DataTable dt = new DataTable();
        conn.Open();
        NpgsqlDataReader rd = cmd.ExecuteReader();
        dt.Load(rd);
        conn.Close();
        return dt;
    }
    catch (Exception ex)
    {
        MessageBox.Show("Error: " + ex.Message, "Load FAIL!", MessageBoxButtons.OK, MessageBoxIcon.Error);
        return null;
    }
}
```

Create:



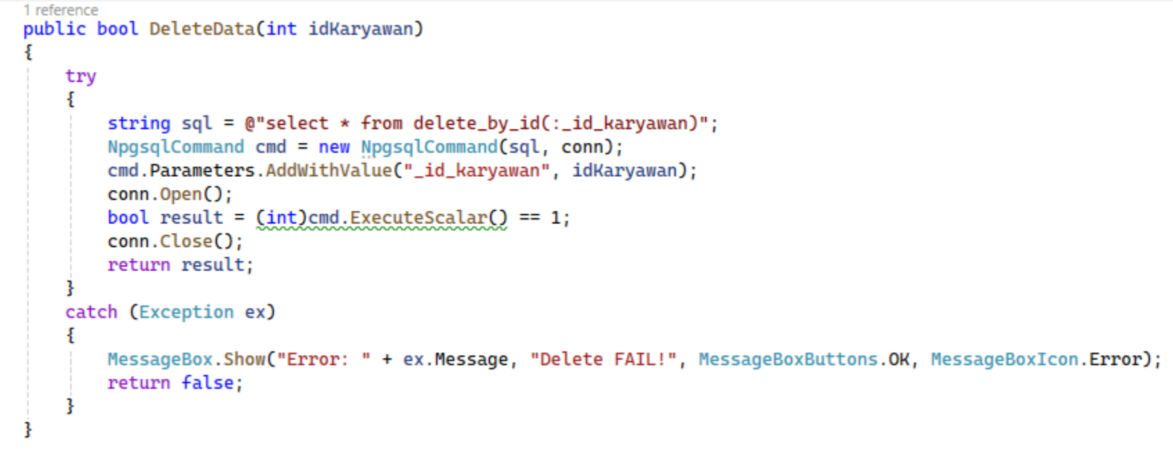
```
1 reference
public bool InsertData(string nama, string idDep)
{
    try
    {
        string sql = @"select * from insert_data(:_nama, :_id_dep)";
        NpgsqlCommand cmd = new NpgsqlCommand(sql, conn);
        cmd.Parameters.AddWithValue("_nama", nama);
        cmd.Parameters.AddWithValue("_id_dep", idDep);
        conn.Open();
        bool result = (int)cmd.ExecuteScalar() == 1;
        conn.Close();
        return result;
    }
    catch (Exception ex)
    {
        MessageBox.Show("Error: " + ex.Message, "Insert FAIL!", MessageBoxButtons.OK, MessageBoxIcon.Error);
        return false;
    }
}
```

Update:



```
1 reference
public bool UpdateData(int idKaryawan, string nama, string idDep)
{
    try
    {
        string sql = @"select * from update_data(:_id_karyawan, :_nama, :_id_dep)";
        NpgsqlCommand cmd = new NpgsqlCommand(sql, conn);
        cmd.Parameters.AddWithValue("_id_karyawan", idKaryawan);
        cmd.Parameters.AddWithValue("_nama", nama);
        cmd.Parameters.AddWithValue("_id_dep", idDep);
        conn.Open();
        bool result = (int)cmd.ExecuteScalar() == 1;
        conn.Close();
        return result;
    }
    catch (Exception ex)
    {
        MessageBox.Show("Error: " + ex.Message, "Update FAIL!", MessageBoxButtons.OK, MessageBoxIcon.Error);
        return false;
    }
}
```

Delete:

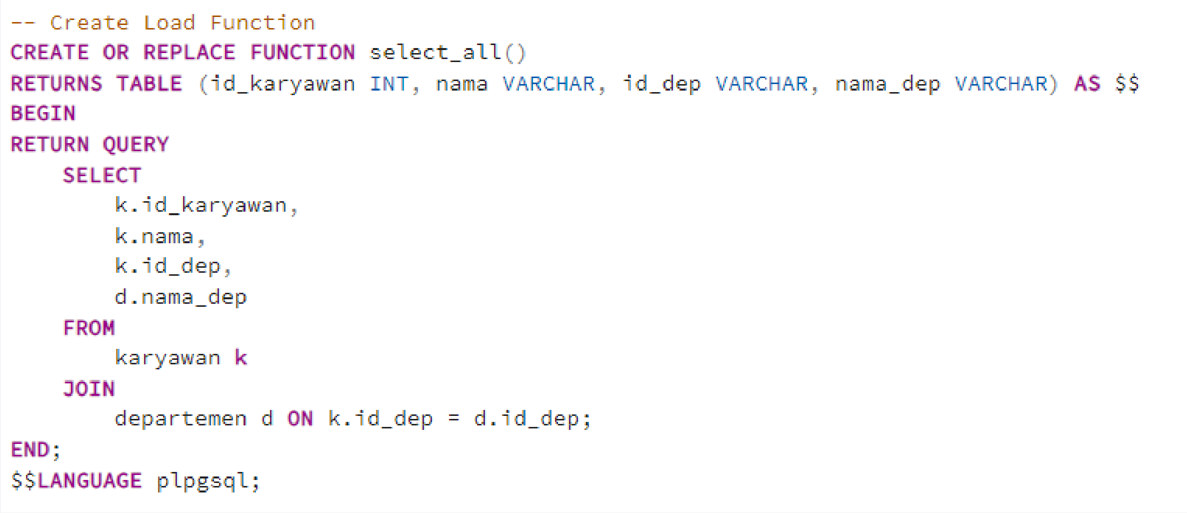


```
1 reference
public bool DeleteData(int idKaryawan)
{
    try
    {
        string sql = @"select * from delete_by_id(:_id_karyawan)";
        NpgsqlCommand cmd = new NpgsqlCommand(sql, conn);
        cmd.Parameters.AddWithValue("_id_karyawan", idKaryawan);
        conn.Open();
        bool result = (int)cmd.ExecuteScalar() == 1;
        conn.Close();
        return result;
    }
    catch (Exception ex)
    {
        MessageBox.Show("Error: " + ex.Message, "Delete FAIL!", MessageBoxButtons.OK, MessageBoxIcon.Error);
        return false;
    }
}
```

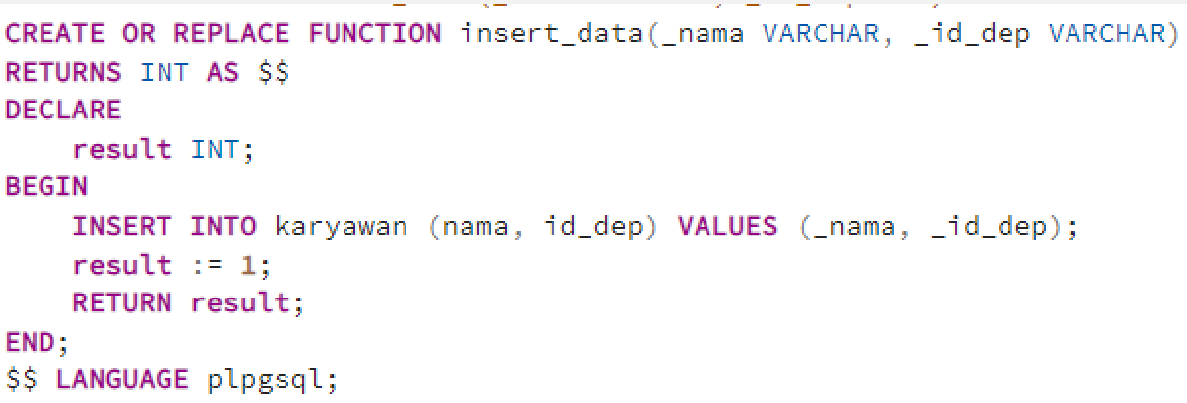
TUGAS OPSIONAL

Screenshot Konsep OOP (Polimorfisme dan Abstraksi):

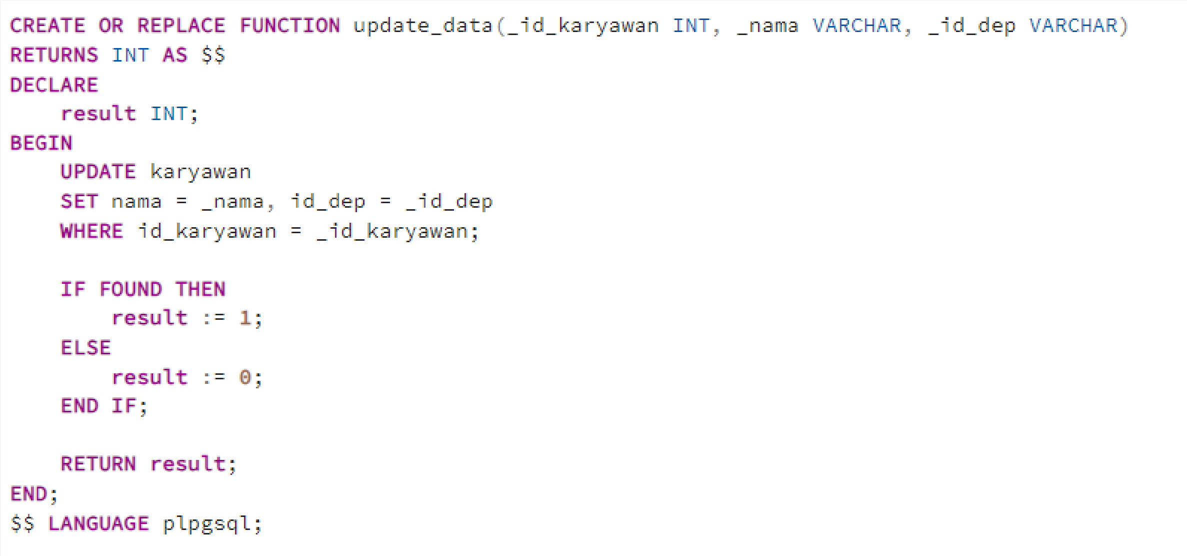
Screenshot Fungsi pada Postgres:



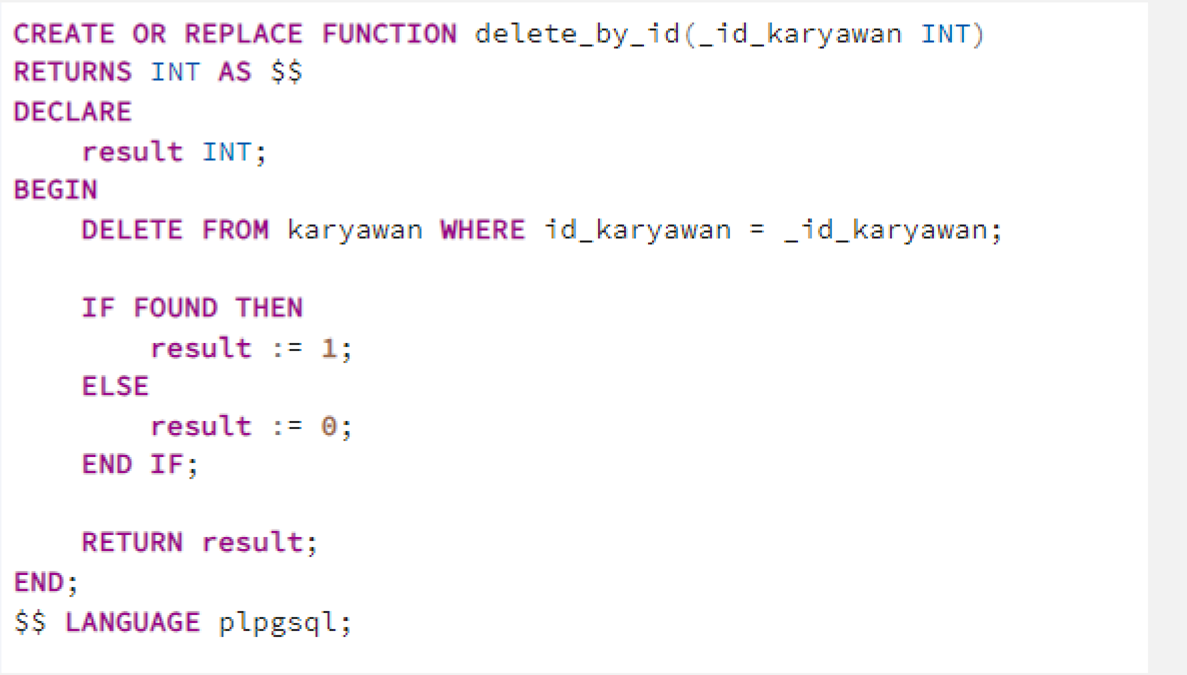
```sql
-- Create Load Function
CREATE OR REPLACE FUNCTION select_all()
RETURNS TABLE (id_karyawan INT, nama VARCHAR, id_dep VARCHAR, nama_dep VARCHAR) AS $$
BEGIN
RETURN QUERY
    SELECT
        k.id_karyawan,
        k.nama,
        k.id_dep,
        d.nama_dep
    FROM
        karyawan k
    JOIN
        departemen d ON k.id_dep = d.id_dep;
END;
$$LANGUAGE plpgsql;
```



```
CREATE OR REPLACE FUNCTION insert_data(_nama VARCHAR, _id_dep VARCHAR)
RETURNS INT AS $$
DECLARE
    result INT;
BEGIN
    INSERT INTO karyawan (nama, id_dep) VALUES (_nama, _id_dep);
    result := 1;
    RETURN result;
END;
$$ LANGUAGE plpgsql;
```



```
CREATE OR REPLACE FUNCTION update_data(_id_karyawan INT, _nama VARCHAR, _id_dep VARCHAR)
RETURNS INT AS $$
DECLARE
    result INT;
BEGIN
    UPDATE karyawan
    SET nama = _nama, id_dep = _id_dep
    WHERE id_karyawan = _id_karyawan;

    IF FOUND THEN
        result := 1;
    ELSE
        result := 0;
    END IF;

    RETURN result;
END;
$$ LANGUAGE plpgsql;
```



```
CREATE OR REPLACE FUNCTION delete_by_id(_id_karyawan INT)
RETURNS INT AS $$
DECLARE
    result INT;
BEGIN
    DELETE FROM karyawan WHERE id_karyawan = _id_karyawan;

    IF FOUND THEN
        result := 1;
    ELSE
        result := 0;
    END IF;

    RETURN result;
END;
$$ LANGUAGE plpgsql;
```