Visual Programming
Komponen Data Kontrol dan Implementasi Sintaks Query

(Case: Aplikasi Perpustakaan)

Indah Permatasari, M.Kom.

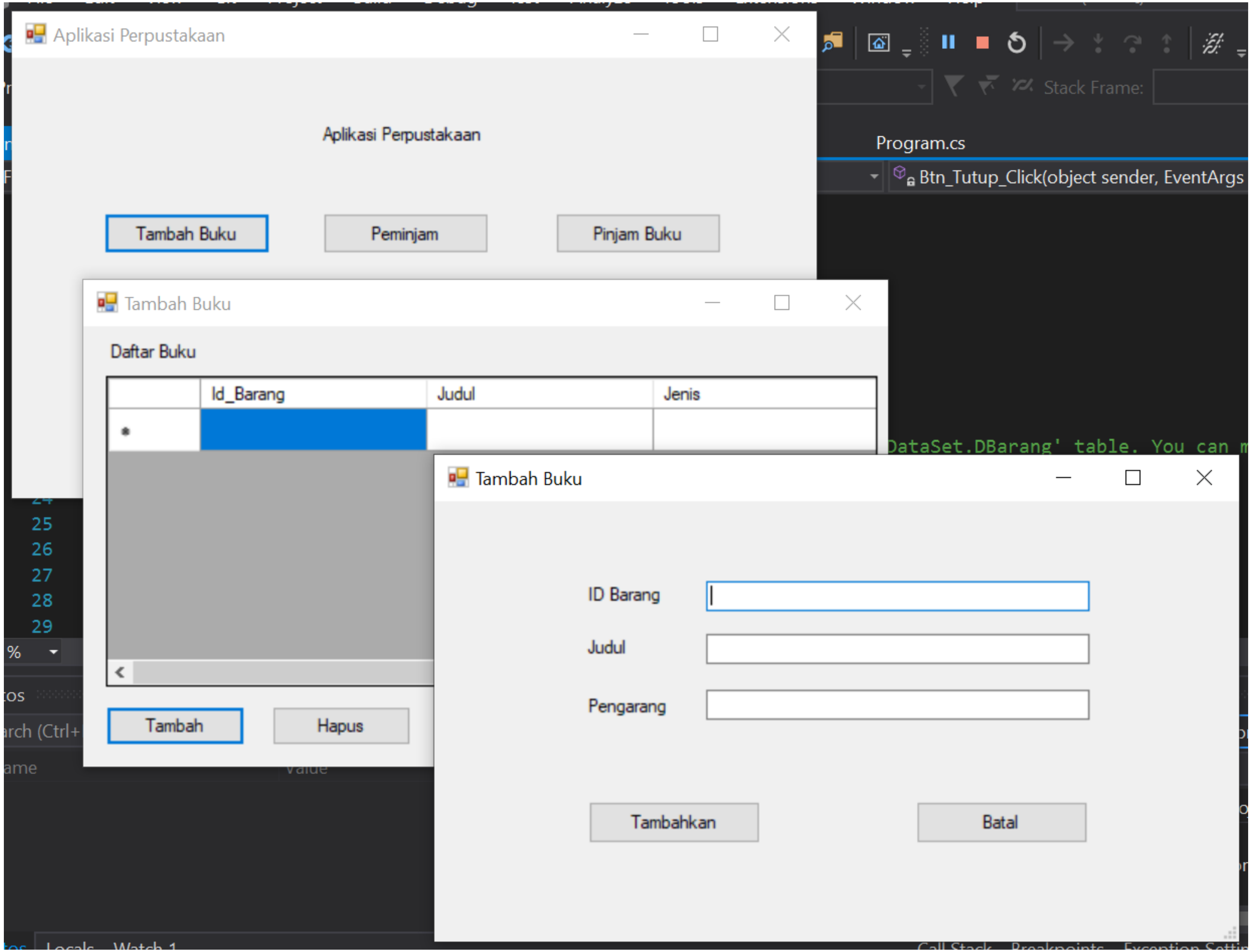
(14th meeting)

Outline

- PRAKTIKUM “Kode Program Untuk Database” Aplikasi Perpustakaan
- Implementasi (Data Kontrol) pada Windows form (Proyek: Aplikasi Perpustakaan) – Menghubungkan antar Form
  - Membuat Class Koneksi
  - Menulis kode FormUtama
  - Menulis kode (All-Form)
- Implementasi CRUD

Praktikum ini merupakan kelanjutan dari hasil praktikum sebelumnya!

Review



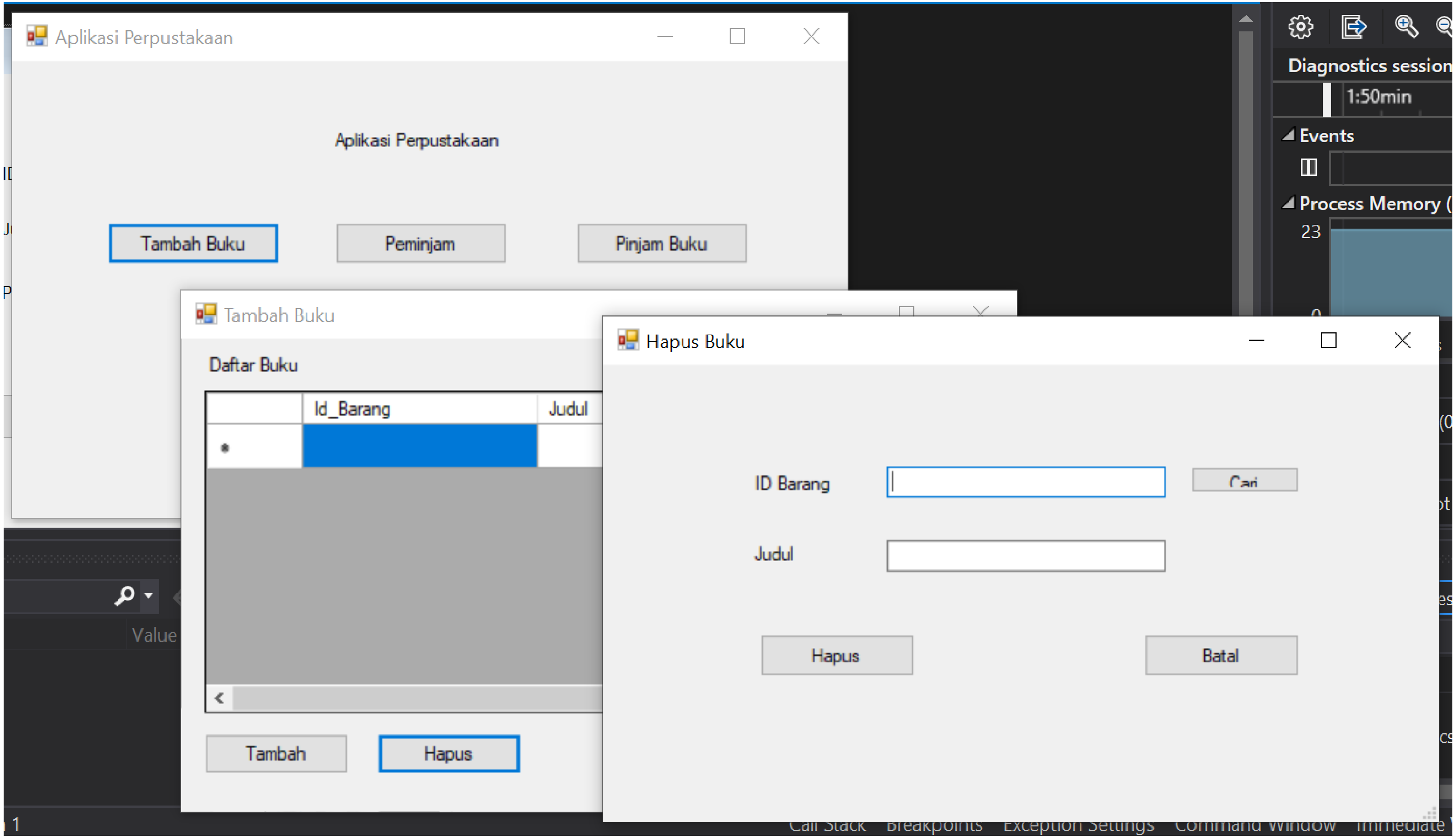
```
Btn_Tutup_Click(object sender, EventArgs
DataSet.DBarang' table. You can m
```

	Id_Barang	Judul	Jenis
*			

ID Barang:

Judul:

Pengarang: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Aplikasi Perpustakaan
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Exception Settings
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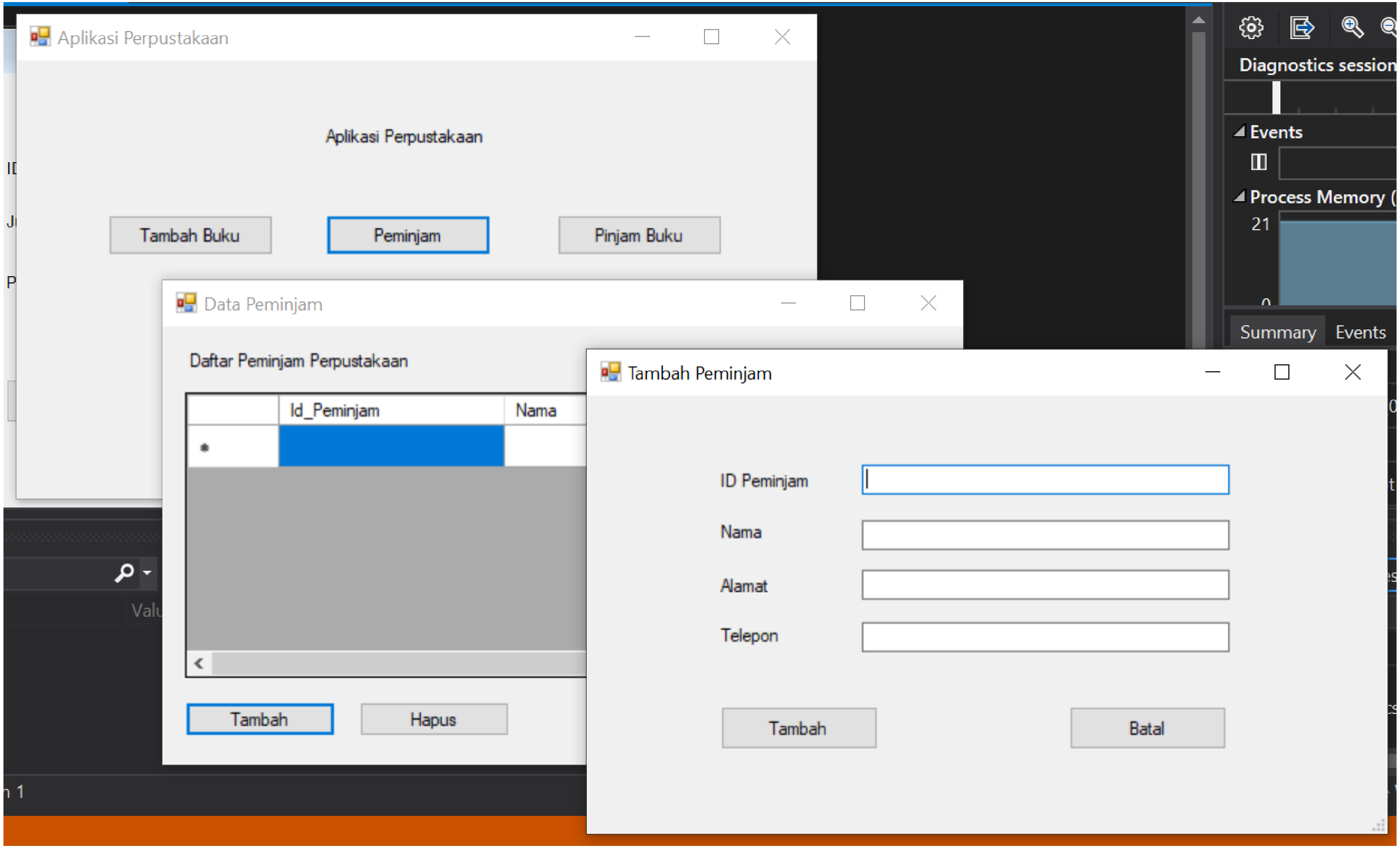
Aplikasi Perpustakaan
Aplikasi Perpustakaan
Tambah Buku
Peminjam
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Data Peminjam
Daftar Peminjam Perpustakaan
Id_Peminjam
Nama
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Hapus
Tambah Peminjam
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Nama
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Tambah
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Events
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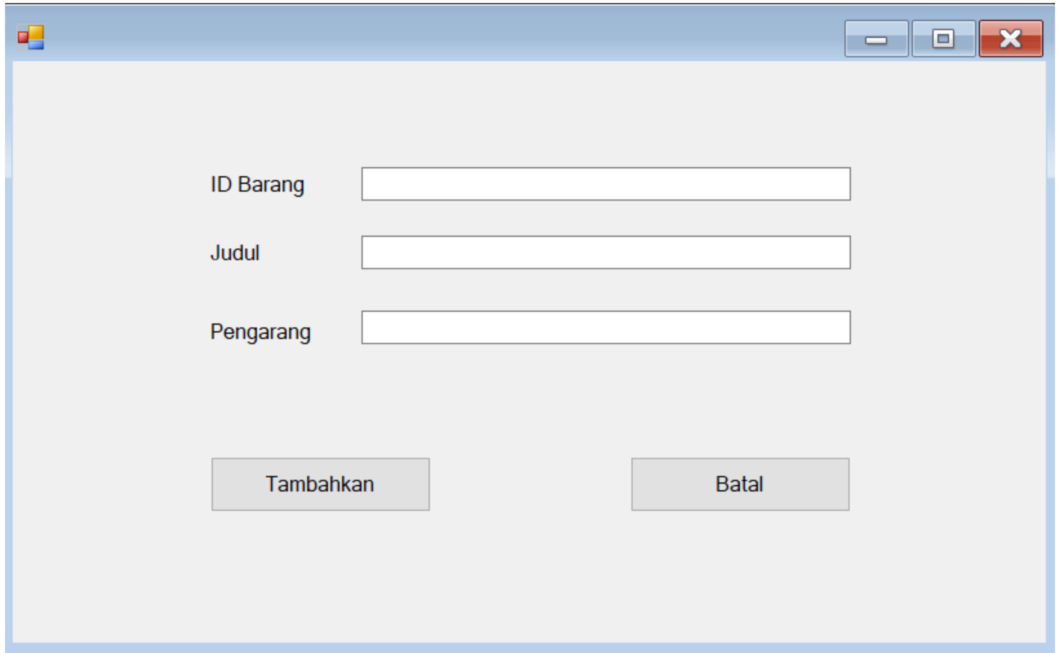
Summary
Events

Input Data

Menghubungkan Form “GetConnection()”

- Pada bagian ini berfungsi menghubungkan koneksi form yang memiliki keterlibatan dengan data control / database
- Langkah-Langkah:
  1. Buka Form Tambah Buku



ID Barang

Judul

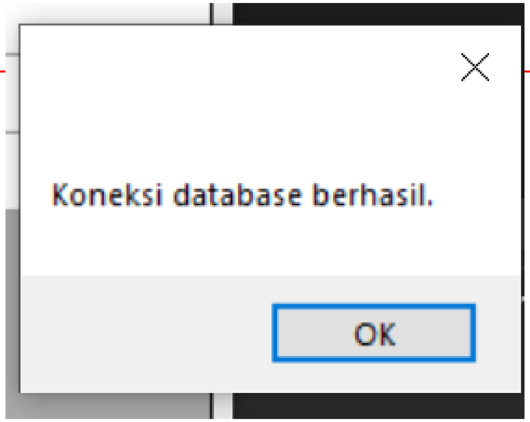
Pengarang

Cont.

2. Klik ganda pada form, dan masukkan kode berikut:

```
private void FormInputBuku_Load(object sender, EventArgs e)
 {
     Connection.GetConnection();
 }
```

Kode ini berfungsi untuk mengeluarkan popup window yang menginformasikan aktifasi database / koneksi database Anda sehingga setiapkali terdapat Event yang melibatkan database, maka akan terdapat pesan sebagai berikut:



Koneksi database berhasil.

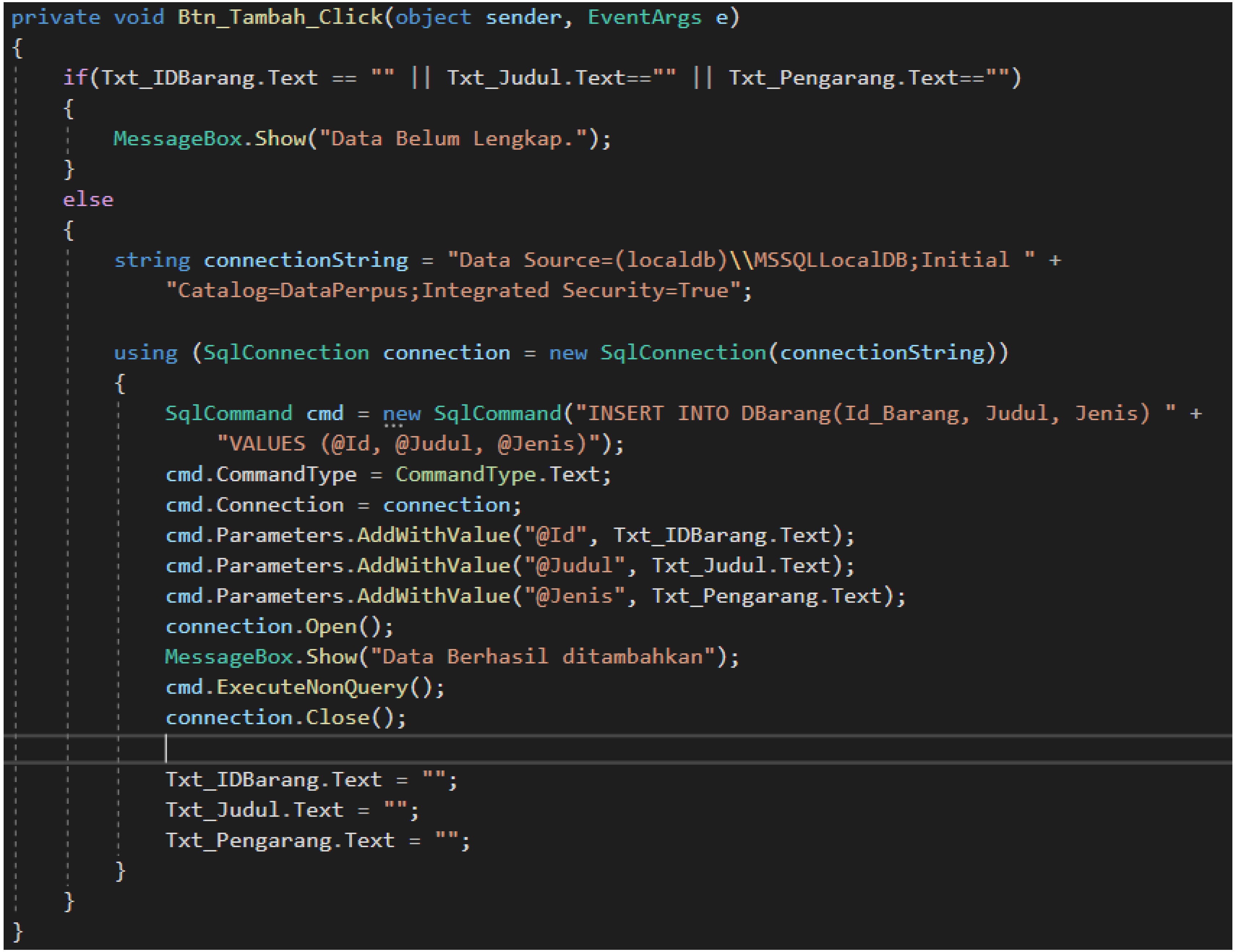
Kode Button Tambah / Insert Database

1. Klik ganda pada button Tambah pada Form Tambah Buku untuk menambahkan kode insert database berdasarkan Field (Text) yang user masukkan/isikan.
2. Masukkan kode berikut pada fungsi:

```
private void Btn_Tambah_Click(object sender, EventArgs e)
        {
            if(Txt_IDBarang.Text == "" || Txt_Judul.Text=="" || Txt_Pengarang.Text=="")
            {
                MessageBox.Show("Data Belum Lengkap.");
            }
```

```
else
{
    string connectionString = "Data
    Source=(localdb)\\MSSQLLocalDB;Initial
    Catalog=DataPerpus;Integrated
    Security=True";

    using (SqlConnection connection = new
    SqlConnection(connectionString))
    {
    SqlCommand cmd = new SqlCommand("INSERT
    INTO DBarang(Id_Barang, Judul, Jenis)
    VALUES (@Id, @Judul, @Jenis)");
    cmd.CommandType = CommandType.Text;
    cmd.Connection = connection;

    cmd.Parameters.AddWithValue("@Id",
    Txt_IDBarang.Text);

    cmd.Parameters.AddWithValue("@Judul",
    Txt_Judul.Text);

    cmd.Parameters.AddWithValue("@Jenis",
    Txt_Pengarang.Text);
```

```
    connection.Open();
    MessageBox.Show("Data Berhasil ditambahkan");
    cmd.ExecuteNonQuery();

    Txt_IDBarang.Text = "";
    Txt_Judul.Text = "";
    Txt_Pengarang.Text = "";
    }
  }
}
```



```
private void Btn_Tambah_Click(object sender, EventArgs e)
{
    if(Txt_IDBarang.Text == "" || Txt_Judul.Text=="" || Txt_Pengarang.Text=="")
    {
        MessageBox.Show("Data Belum Lengkap.");
    }
    else
    {
        string connectionString = "Data Source=(localdb)\\MSSQLLocalDB;Initial " +
            "Catalog=DataPerpus;Integrated Security=True";

        using (SqlConnection connection = new SqlConnection(connectionString))
        {
            SqlCommand cmd = new SqlCommand("INSERT INTO DBarang(Id_Barang, Judul, Jenis) " +
                "VALUES (@Id, @Judul, @Jenis)");
            cmd.CommandType = CommandType.Text;
            cmd.Connection = connection;
            cmd.Parameters.AddWithValue("@Id", Txt_IDBarang.Text);
            cmd.Parameters.AddWithValue("@Judul", Txt_Judul.Text);
            cmd.Parameters.AddWithValue("@Jenis", Txt_Pengarang.Text);
            connection.Open();
            MessageBox.Show("Data Berhasil ditambahkan");
            cmd.ExecuteNonQuery();
            connection.Close();

            Txt_IDBarang.Text = "";
            Txt_Judul.Text = "";
            Txt_Pengarang.Text = "";
        }
    }
}
```

SQL INSERT INTO Statement

- The INSERT INTO statement is used to insert new records in a table.

```
INSERT INTO DBarang(Id_Barang, Judul, Jenis) VALUES (@Id, @Judul, @Jenis)
```

- It is possible to write the INSERT INTO statement in two ways:
  - Specify both the column names and the values to be inserted:

```
INSERT INTO table_name (column1, column2, column3, ...)
VALUES (value1, value2, value3, ...);
```

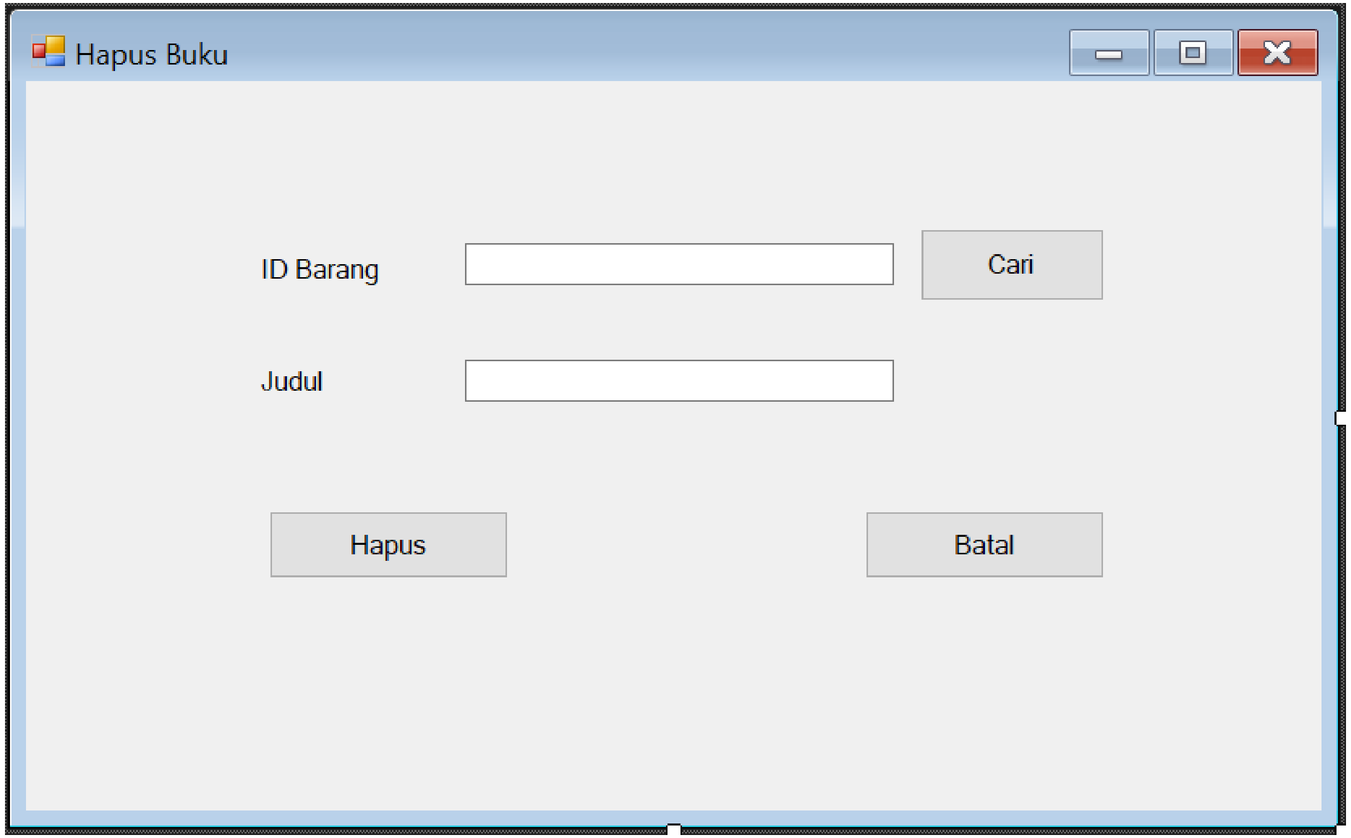
  - If you are adding values for all the columns of the table, you do not need to specify the column names in the SQL query. However, make sure the order of the values is in the same order as the columns in the table. Here, the INSERT INTO syntax would be as follows:

```
INSERT INTO table_name
VALUES (value1, value2, value3, ...);
```

Search & Delete Data

Form Hapus Buku

- Klik Ganda pada Form Hapus Buku

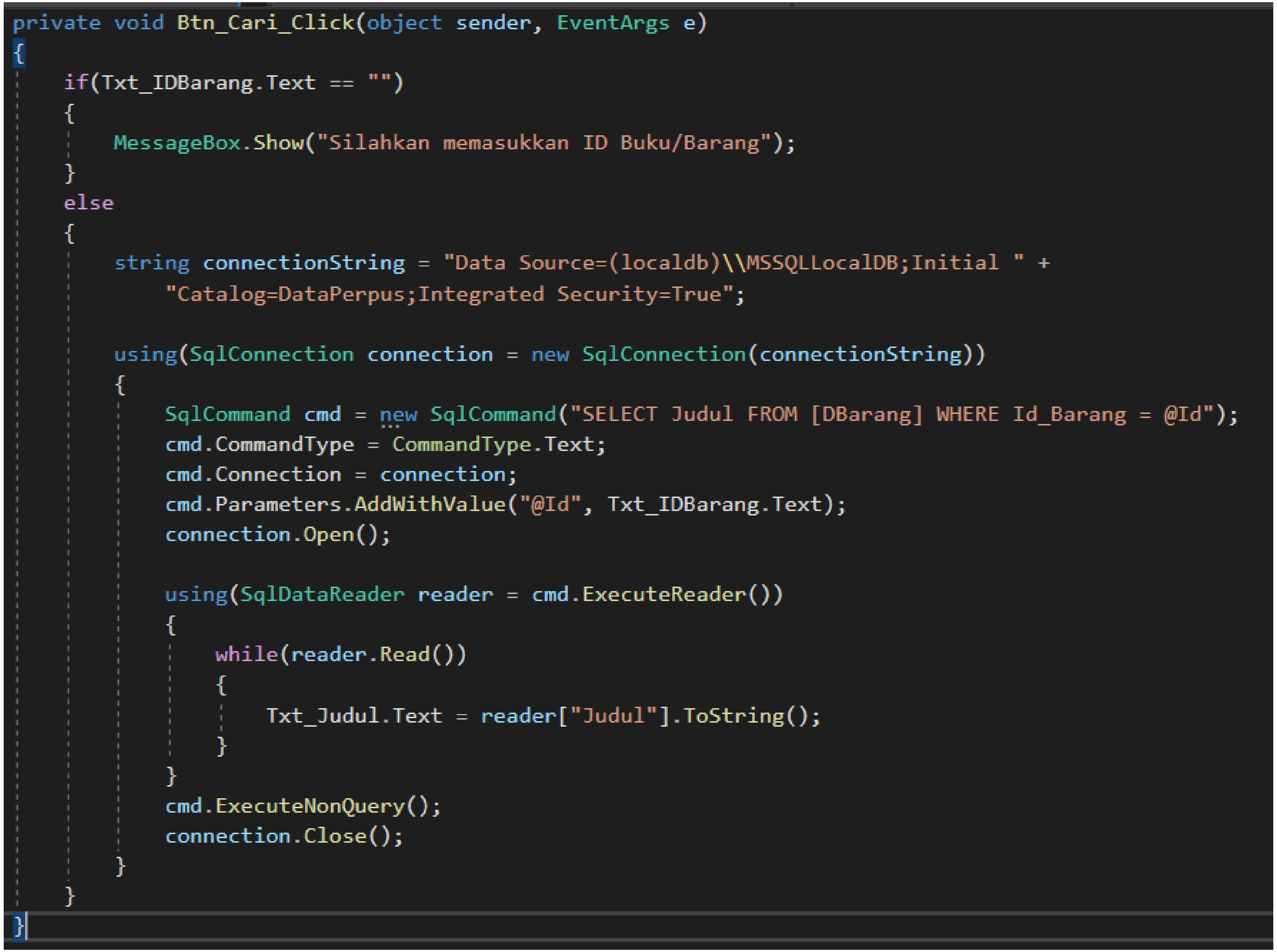


Kode Button "Cari"

1. Klik ganda pada button Cari, kemudian masukkan kode berikut:

```
private void Btn_Cari_Click(object sender, EventArgs
   e)
   {
   if(Txt_IDBarang.Text == "")
   {
      MessageBox.Show("Silahkan memasukkan ID
      Buku/Barang");
   }
   else
   {
       string connectionString = "Data
       Source=(localdb)\\MSSQLLocalDB;Initial
       Catalog=DataPerpus;Integrated Security=True";

       using(SqlConnection connection = new
       SqlConnection(connectionString))
       {
         SqlCommand cmd = new SqlCommand("SELECT
         Judul FROM [DBarang] WHERE Id_Barang =
         @Id");
```

```
         cmd.CommandType = CommandType.Text;
         cmd.Connection = connection;
         cmd.Parameters.AddWithValue("@Id",
         Txt_IDBarang.Text);
         connection.Open();

         using(SqlDataReader reader =
         cmd.ExecuteReader())
         {
            while(reader.Read())
            {
            Txt_Judul.Text =
            reader["Judul"].ToString();
            }
         }
         cmd.ExecuteNonQuery();
         connection.Close();
         }
     }
 }
```



```
private void Btn_Cari_Click(object sender, EventArgs e)
{
    if(Txt_IDBarang.Text == "")
    {
        MessageBox.Show("Silahkan memasukkan ID Buku/Barang");
    }
    else
    {
        string connectionString = "Data Source=(localdb)\\MSSQLLocalDB;Initial " +
            "Catalog=DataPerpus;Integrated Security=True";

        using(SqlConnection connection = new SqlConnection(connectionString))
        {
            SqlCommand cmd = new SqlCommand("SELECT Judul FROM [DBarang] WHERE Id_Barang = @Id");
            cmd.CommandType = CommandType.Text;
            cmd.Connection = connection;
            cmd.Parameters.AddWithValue("@Id", Txt_IDBarang.Text);
            connection.Open();

            using(SqlDataReader reader = cmd.ExecuteReader())
            {
                while(reader.Read())
                {
                    Txt_Judul.Text = reader["Judul"].ToString();
                }
            }
            cmd.ExecuteNonQuery();
            connection.Close();
        }
    }
}
```

SQL SELECT Statement

- The SELECT statement is used to select data from a database.

```
"SELECT Judul FROM [DBarang] WHERE Id_Barang = @Id"
```

- The data returned is stored in a result table, called the result-set.
- Syntax:

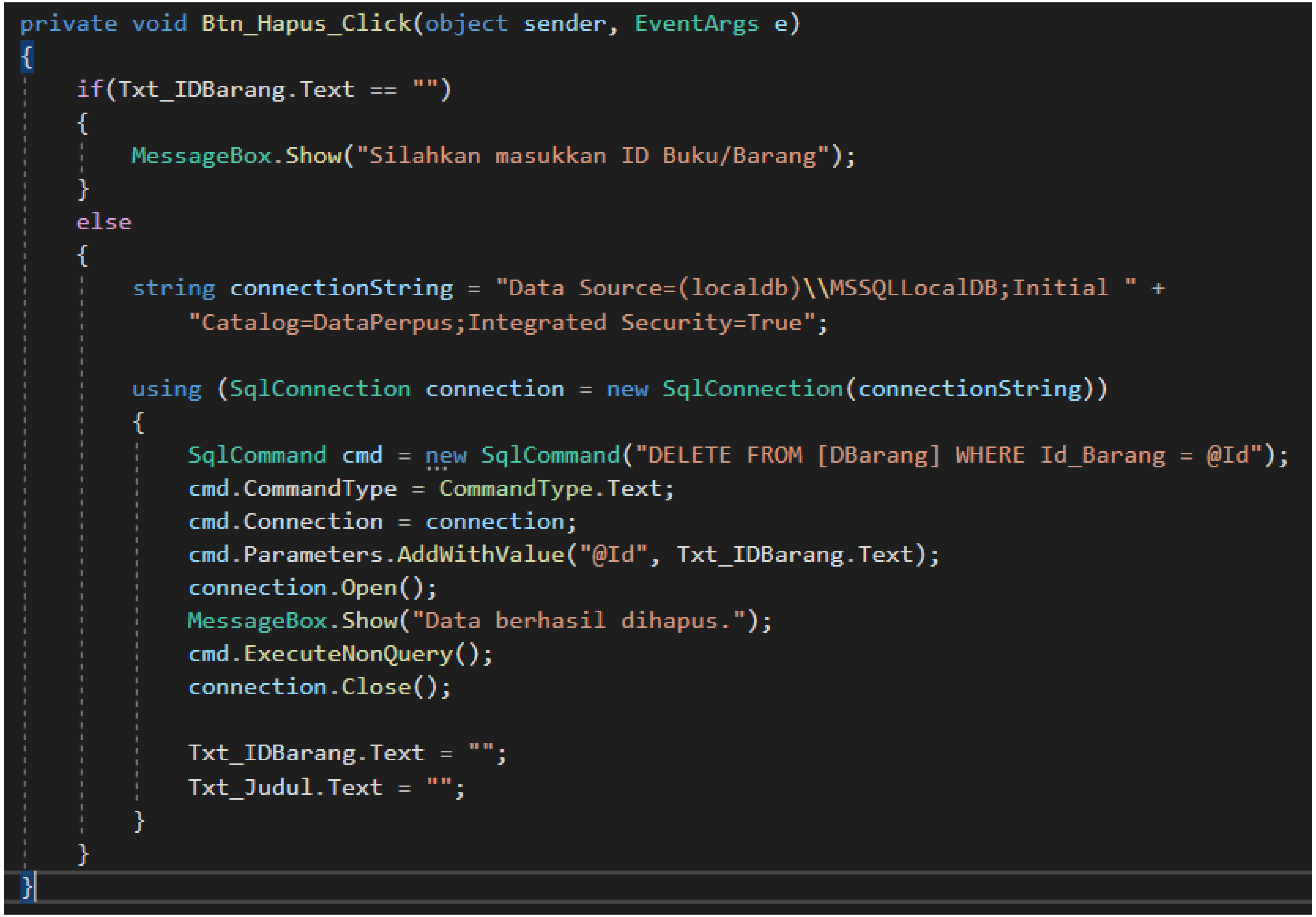
```
SELECT column1, column2, ...
FROM table_name;
```

Kode Button “Hapus”

1. Klik ganda pada button Hapus, kemudian masukkan kode berikut:

```
private void Btn_Hapus_Click(object sender, EventArgs e)
{
    if(Txt_IDBarang.Text == "")
    {
      MessageBox.Show("Silahkan masukkan ID
      Buku/Barang");
    }
    else
    {
      string connectionString = "Data
      Source=(localdb)\\MSSQLLocalDB;Initial
      Catalog=DataPerpus;Integrated Security=True";

      using (SqlConnection connection = new
      SqlConnection(connectionString))
      {
        SqlCommand cmd = new SqlCommand("DELETE FROM
        [DBarang] WHERE Id_Barang = @Id");
```

```
                cmd.CommandType = CommandType.Text;
                cmd.Connection = connection;

                cmd.Parameters.AddWithValue("@Id",
                Txt_IDBarang.Text);
                connection.Open();
                MessageBox.Show("Data berhasil dihapus.");
                cmd.ExecuteNonQuery();
                connection.Close();

                Txt_IDBarang.Text = "";
                Txt_Judul.Text = "";
              }
          }
      }
```



```
private void Btn_Hapus_Click(object sender, EventArgs e)
{
    if(Txt_IDBarang.Text == "")
    {
        MessageBox.Show("Silahkan masukkan ID Buku/Barang");
    }
    else
    {
        string connectionString = "Data Source=(localdb)\\MSSQLLocalDB;Initial " +
            "Catalog=DataPerpus;Integrated Security=True";

        using (SqlConnection connection = new SqlConnection(connectionString))
        {
            SqlCommand cmd = new SqlCommand("DELETE FROM [DBarang] WHERE Id_Barang = @Id");
            cmd.CommandType = CommandType.Text;
            cmd.Connection = connection;
            cmd.Parameters.AddWithValue("@Id", Txt_IDBarang.Text);
            connection.Open();
            MessageBox.Show("Data berhasil dihapus.");
            cmd.ExecuteNonQuery();
            connection.Close();

            Txt_IDBarang.Text = "";
            Txt_Judul.Text = "";
        }
    }
}
```

SQL DELETE Statement

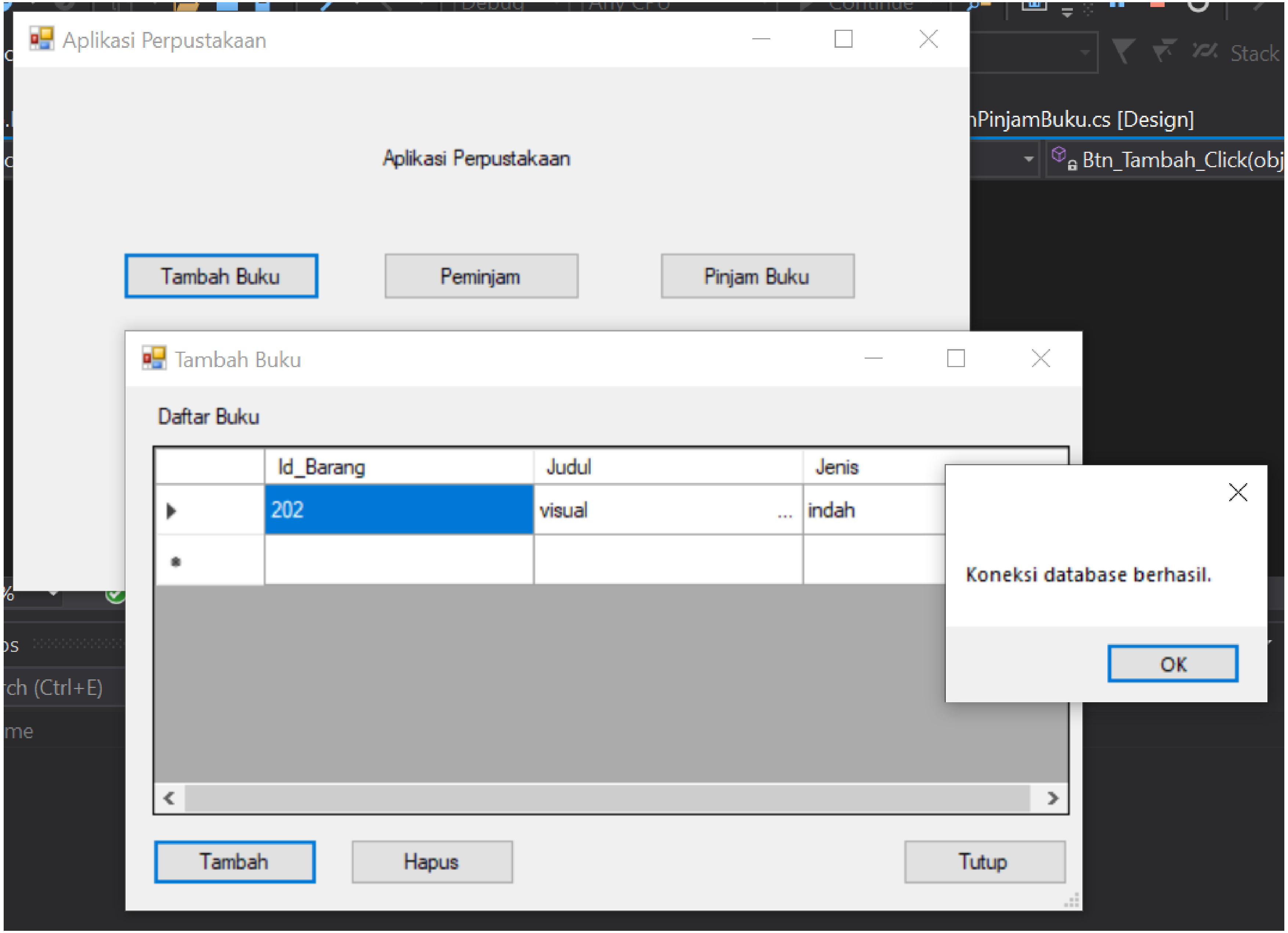
- The DELETE statement is used to delete existing records in a table.

```
"DELETE FROM [DBarang] WHERE Id_Barang = @Id"
```

- Syntax:

```
DELETE FROM table_name WHERE condition;
```

Hasil Program (Running)

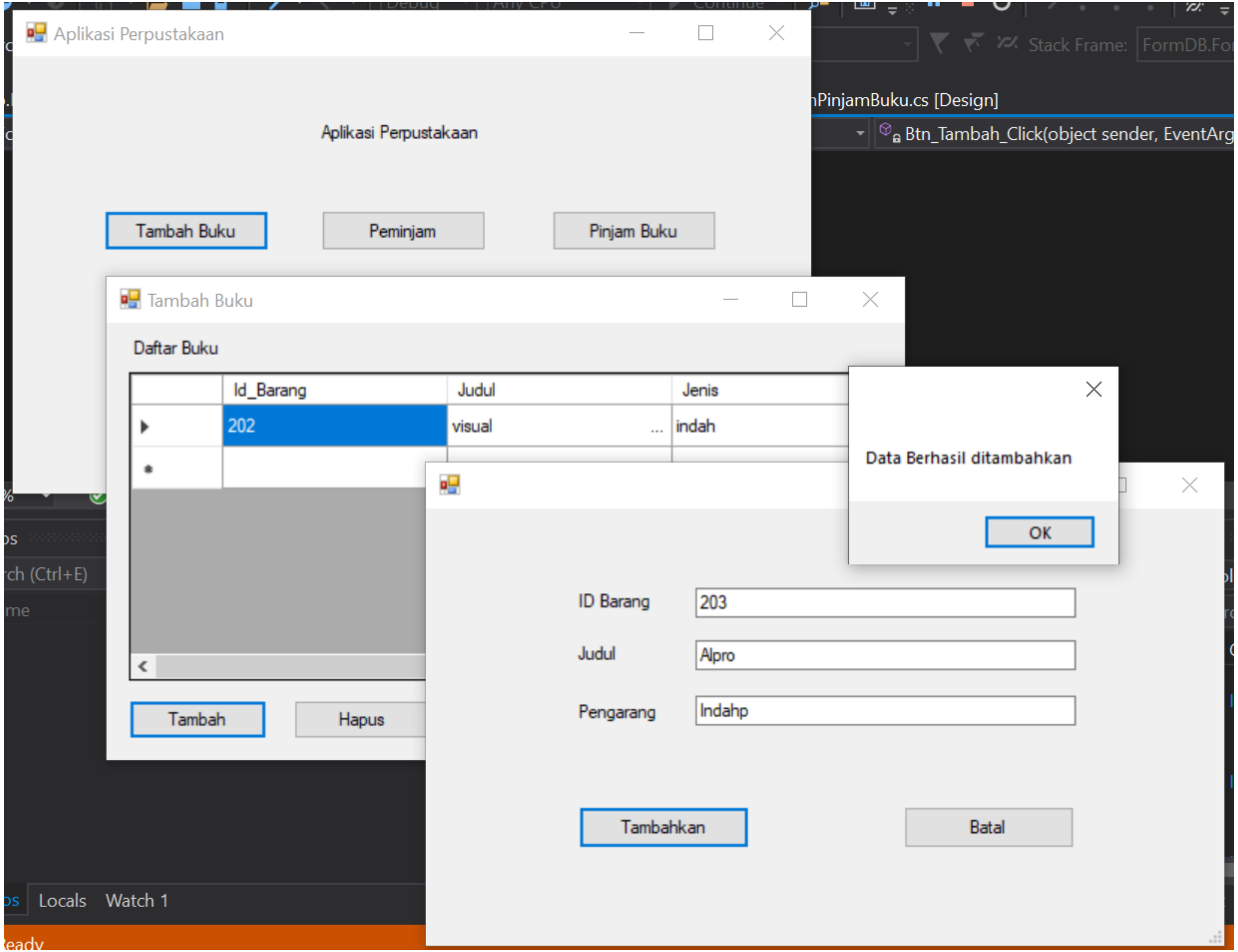


Aplikasi Perpustakaan

Daftar Buku

	Id_Barang	Judul	Jenis
▶	202	visual ...	indah
*			

Koneksi database berhasil.



Aplikasi Perpustakaan

Daftar Buku

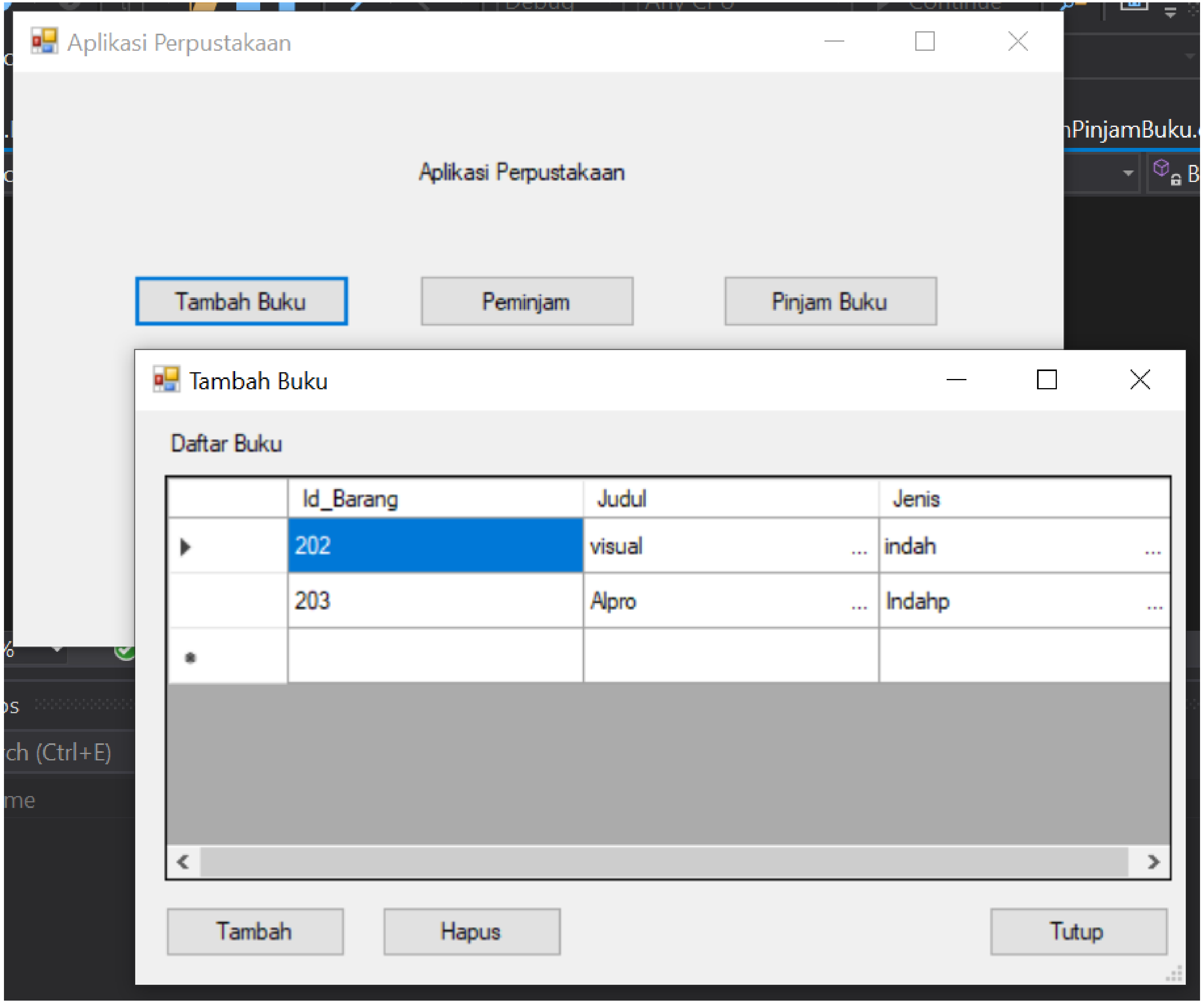
Id_Barang	Judul	Jenis
202	visual	indah

Data Berhasil ditambahkan

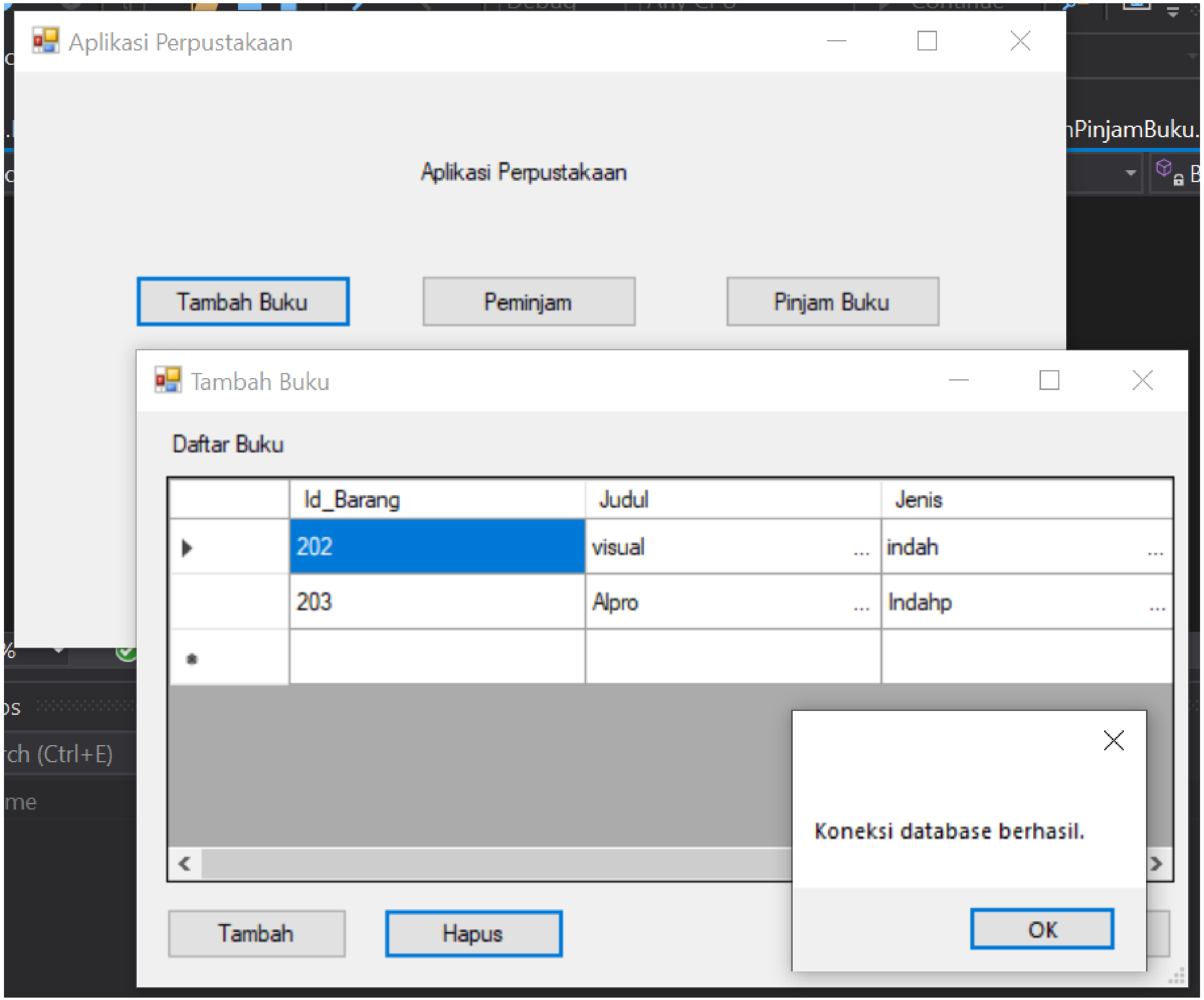
ID Barang: 203

Judul: Alpro

Pengarang: Indahp

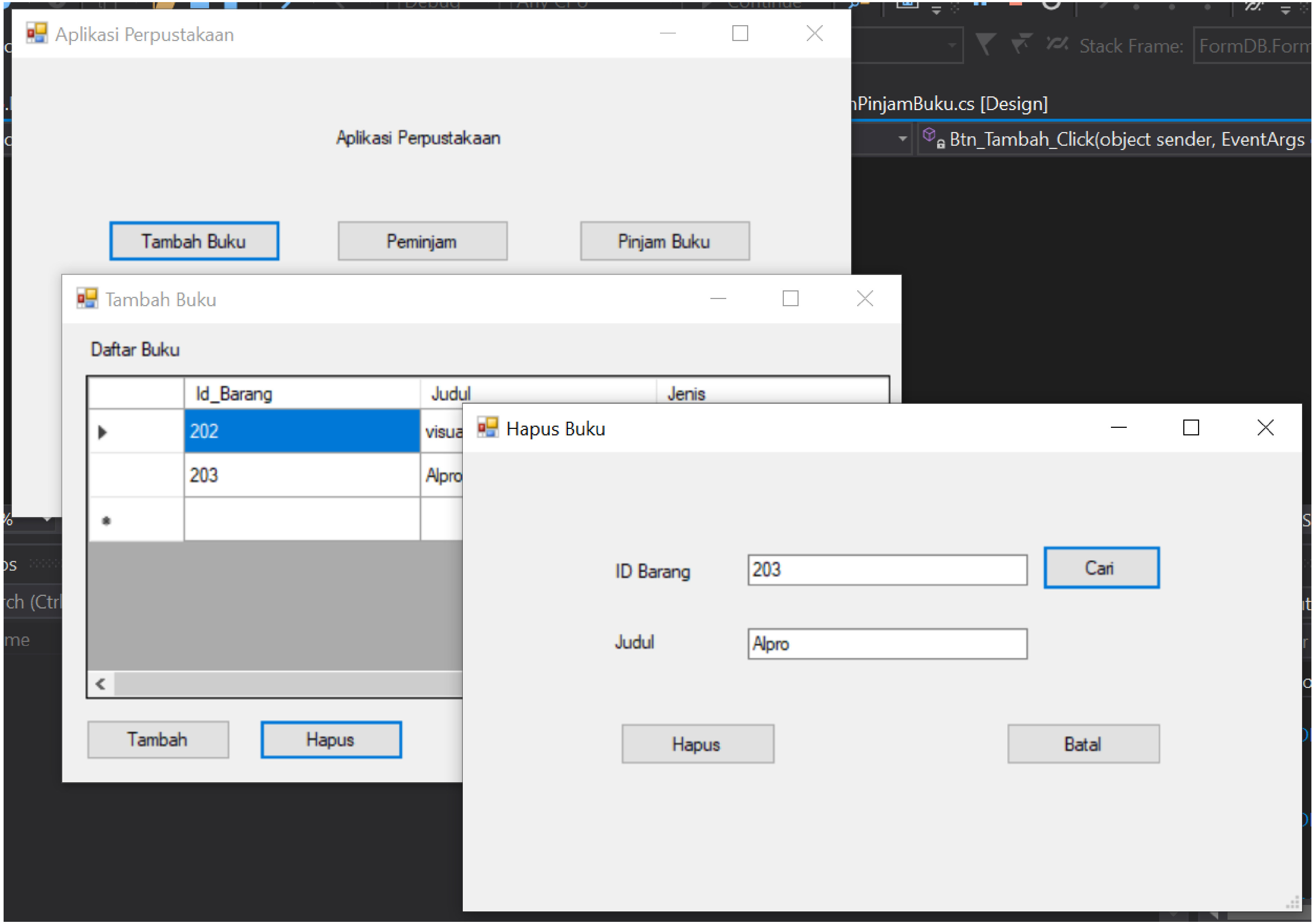


	Id_Barang	Judul	Jenis
▶	202	visual	indah
	203	Alpro	Indahp
*			



	Id_Barang	Judul	Jenis
▸	202	visual	indah
	203	Alpro	Indahp
*			

Koneksi database berhasil.

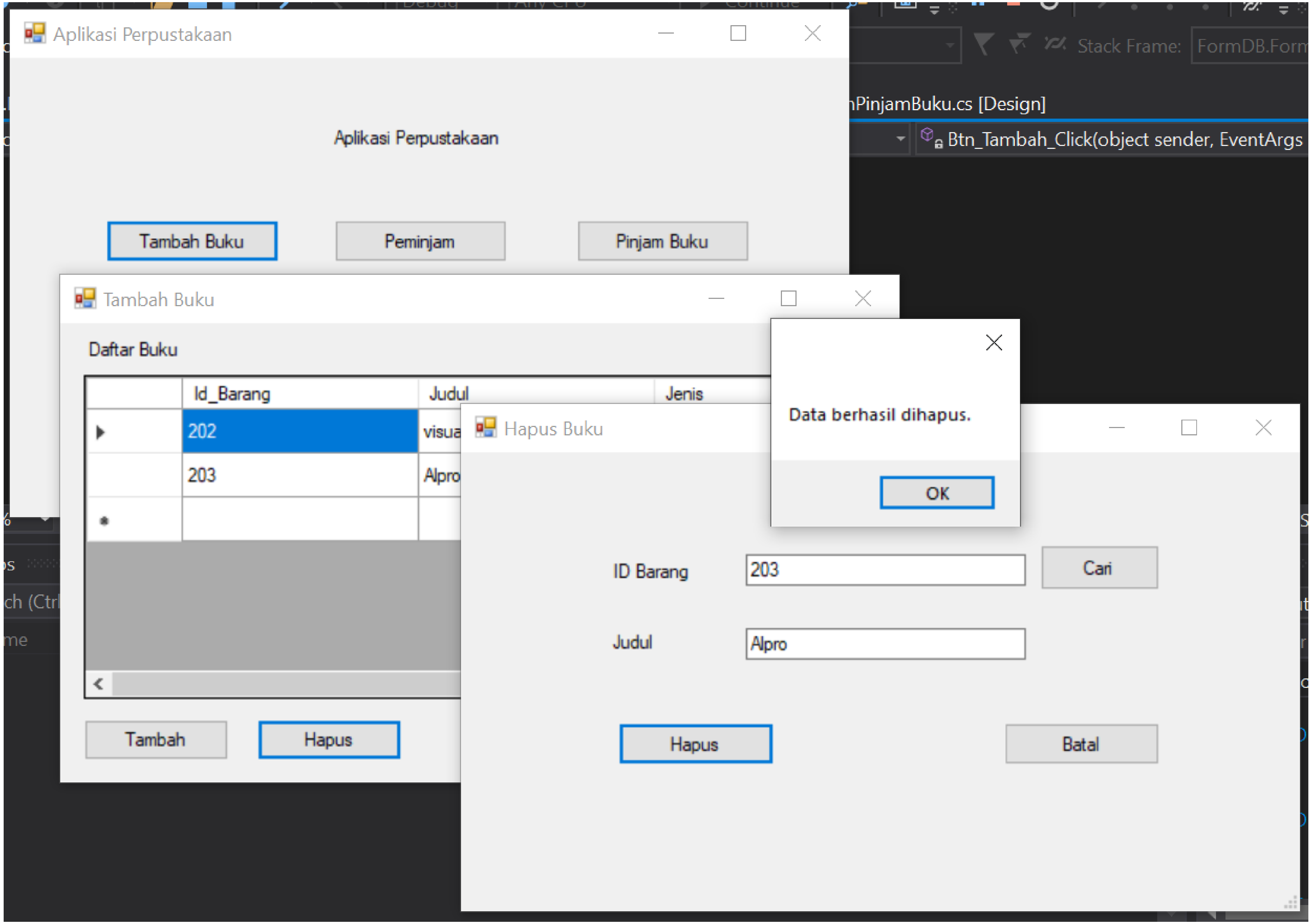


Aplikasi Perpustakaan

	Id_Barang	Judul	Jenis
▶	202	visua	
	203	Alpro	
*			

ID Barang: 203

Judul: Alpro

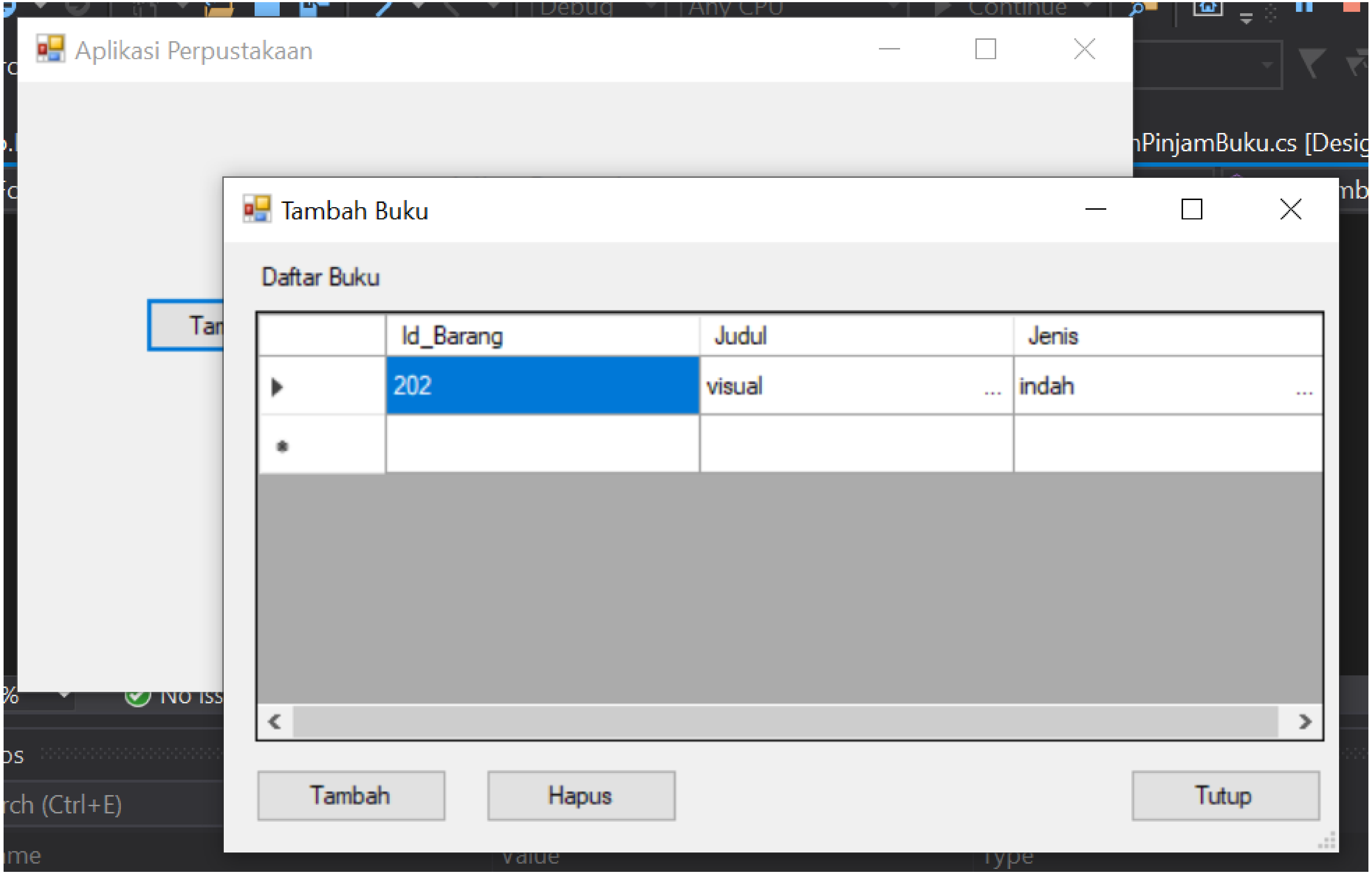


	Id_Barang	Judul	Jenis
▸	202	visua	
	203	Alpro	
*			

Data berhasil dihapus.

ID Barang: 203

Judul: Alpro



	Id_Barang	Judul	Jenis
▶	202	visual	indah
*			

IMPORTANT!

- Pahami kembali konsep ForeignKey untuk dapat memecahkan masalah kegagalan dalam input data Buku dimana sebelumnya dilakukan foreign key terhadap Id Buku terhadap Id Peminjam!

- Silahkan melengkapi form lain yang serupa dengan fungsi button!

Terima kasih.