

2022년 IoT기반 스마트 솔루션 개발자 양성과정



Embedded Application

12-mysql Access in C#

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010-9577-1696

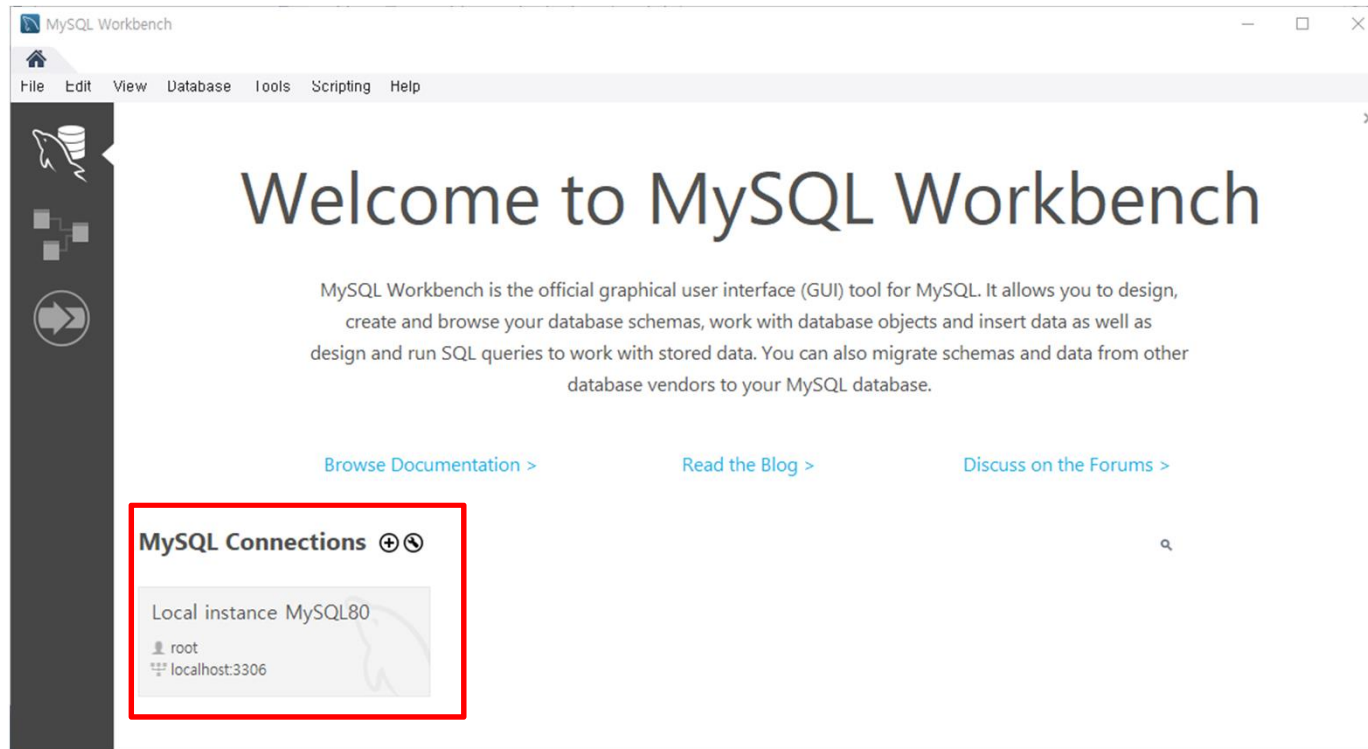
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<https://cafe.naver.com/yoons2022>



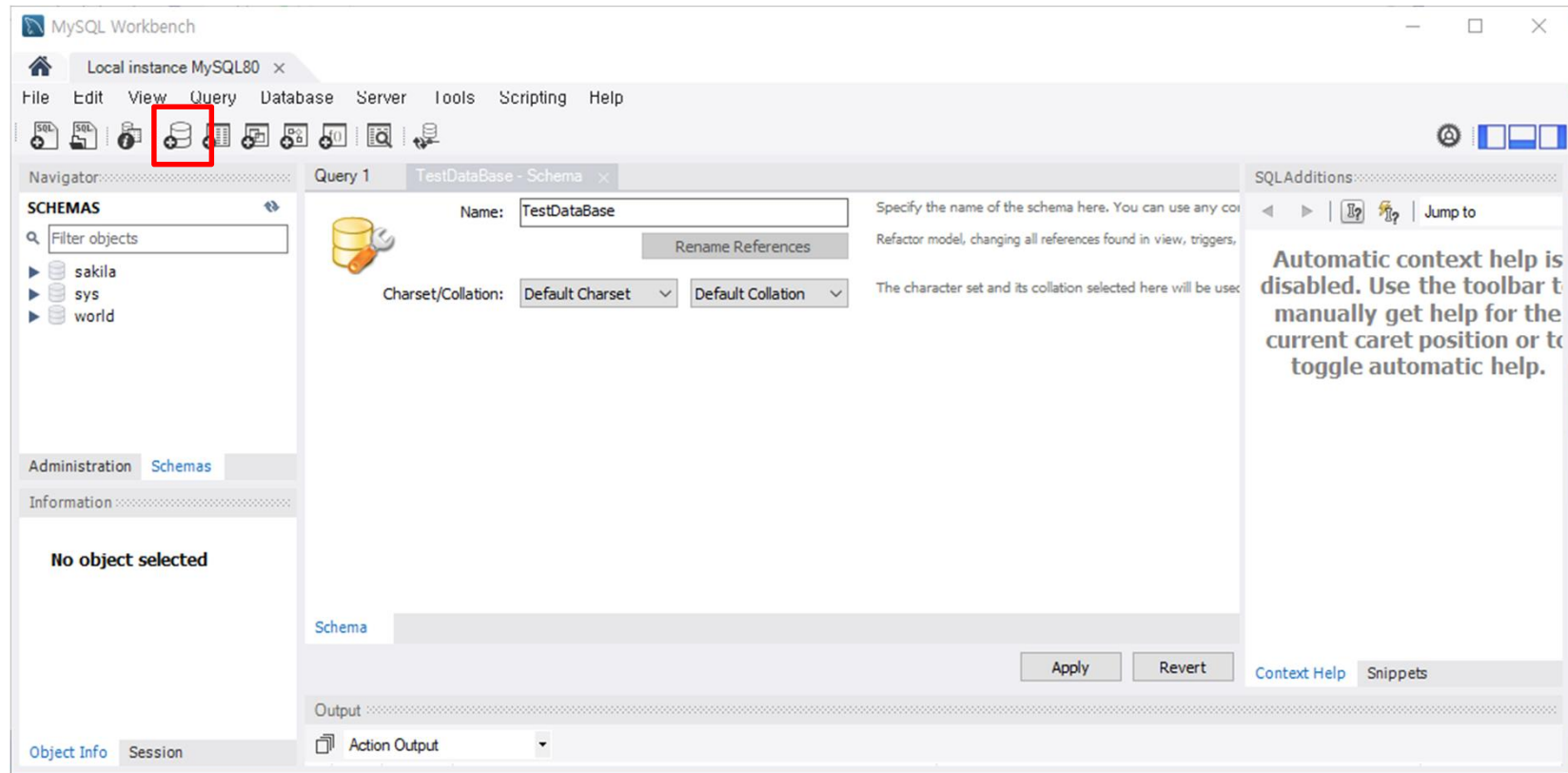
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MySQL Workbench



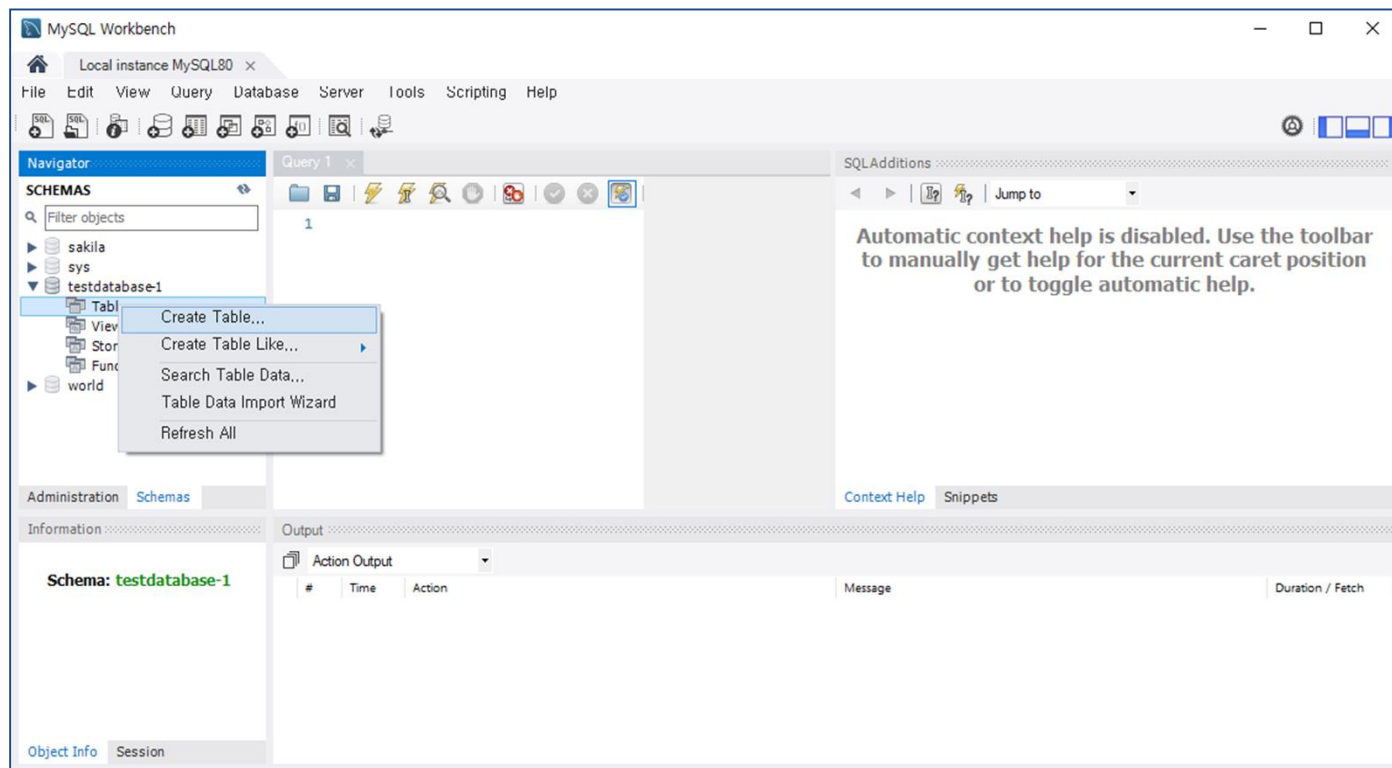
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Create a new Schema



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Create Table



Create Table / Column

Query 1 testtable - Table x

Table Name: testtable Schema: testdatabase

Charset/Collation: utf8mb4 utf8mb4_090i Engine: InnoDB

Comments:

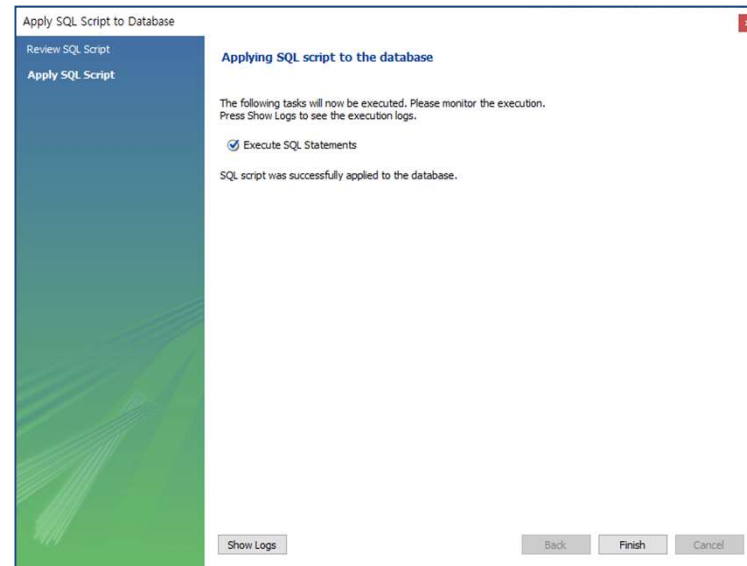
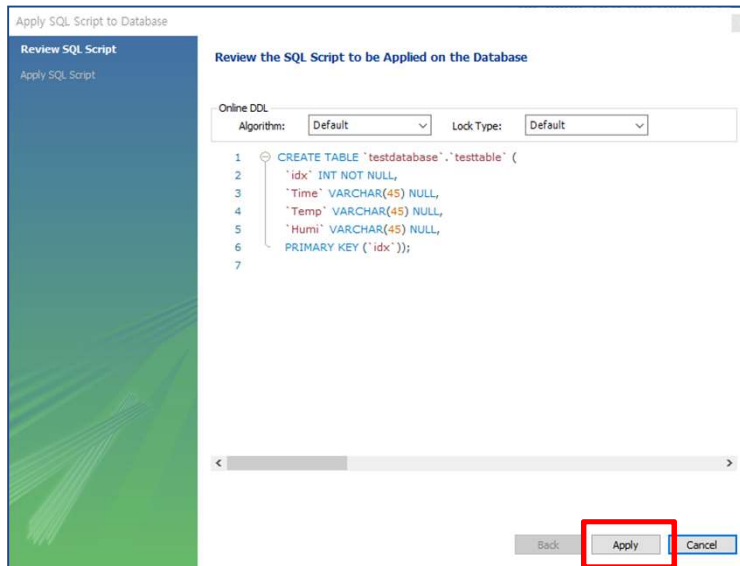
Column Name	Datatype	PK	NN	UIQ	B	UN	ZE	AT	G	Default/Expression
idx	INT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Time	VARCHAR(45)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
Temp	VARCHAR(45)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
Humi	VARCHAR(45)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL

new_table

idx	INT
Time	VATCHAR(45)
Temp	VATCHAR(45)
Humi	VATCHAR(45)

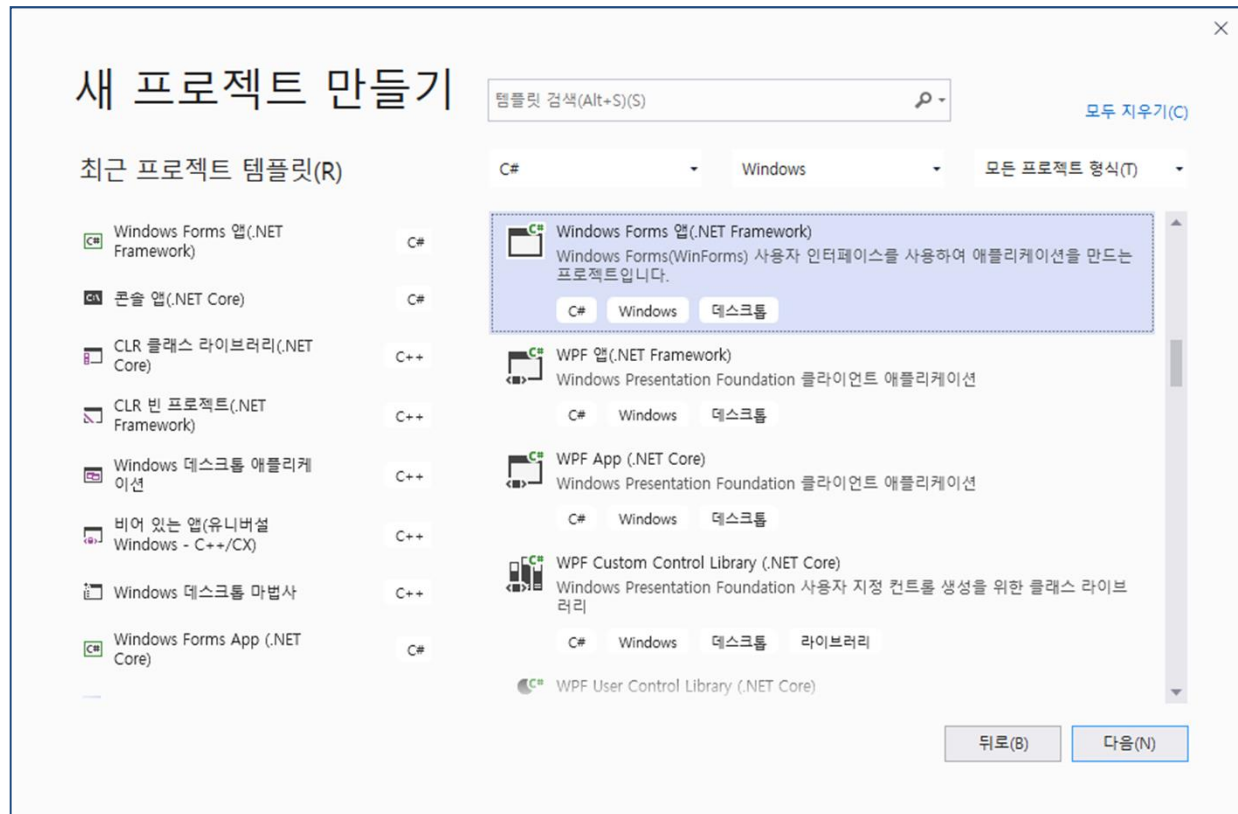


Apply



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Visual Studio C#



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New Project

새 프로젝트 구성

Windows Forms 앱(.NET Framework) C# Windows 데스크톱

프로젝트 이름(N)

mysql-1

위치(L)

D:\AworkCom\학사업무\2021학사\충북대학교\ArduinoMega\Program

솔루션 이름(M) ⓘ

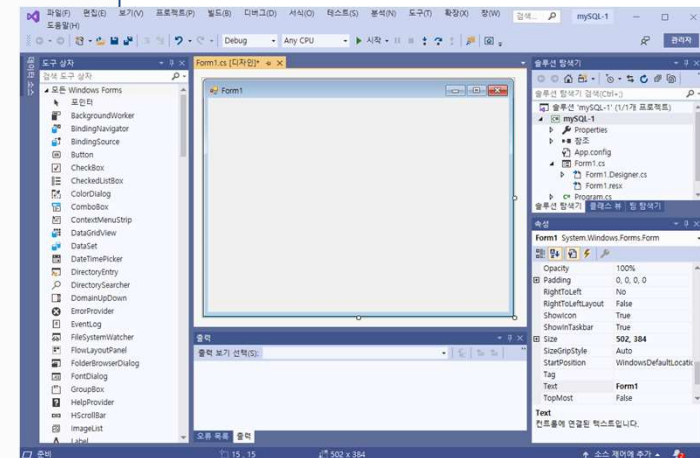
mysql-1

☒ 솔루션 및 프로젝트를 같은 디렉터리에 배치(D)

프레임워크(F)

.NET Framework 4.8

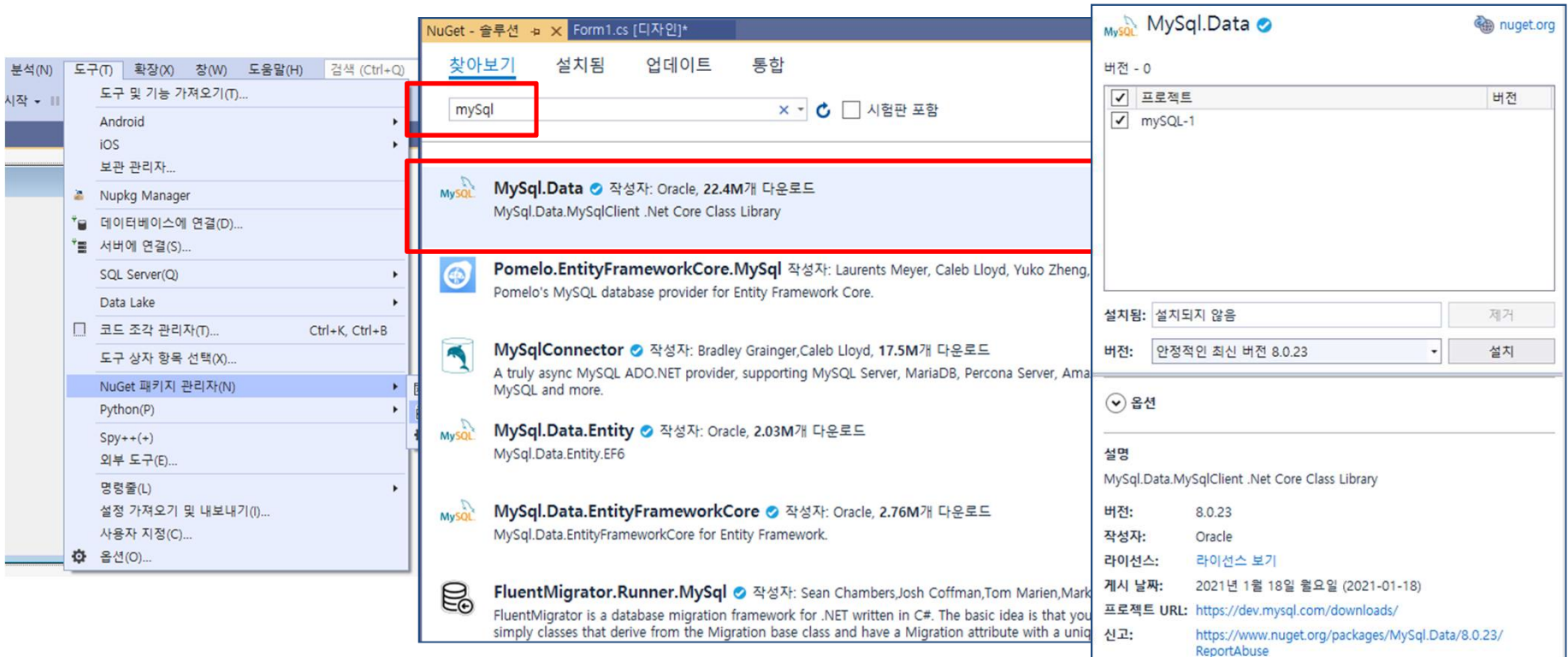
뒤로(B) 만들기(C)



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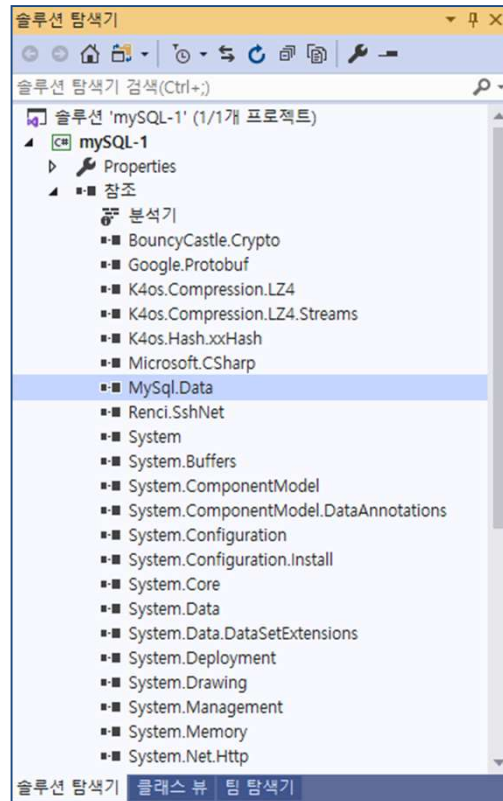
NuGet Package [MySQL.Data]

- {메뉴} [도구(T)] [NuGet 패키지 관리자(N)] [솔루션용 NuGet 패키지 관리]



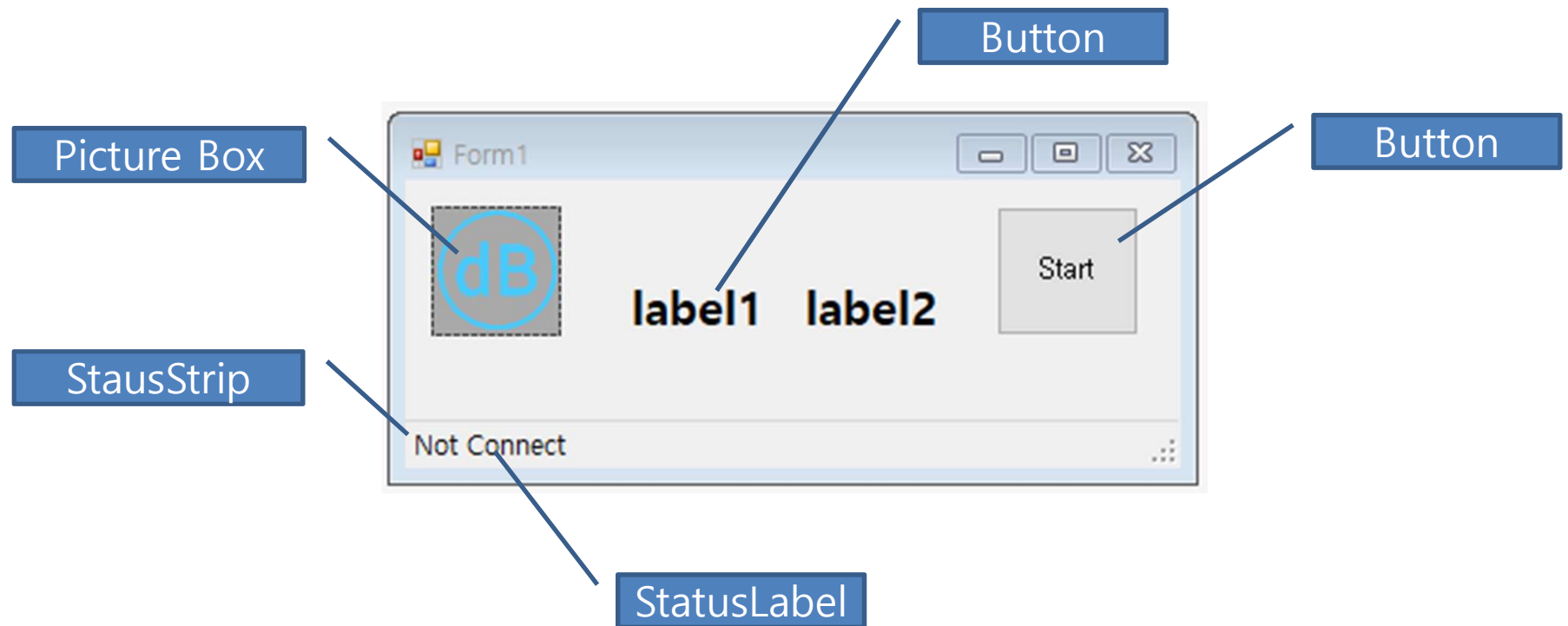
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참조-MySql.data



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Form Design



Property



Form1	
Text	mySQL Connector
MaximizeBox	False
MinimizeBox	False
Button1	
Text	Start
Label1	
Text	Temp
Label2	
Text	Humi
PictureBox1	
Name	picDB
BackgroundImage	DB png
BackgroundImageLayout	Stretch



Define

```
using System;  
using System.Drawing;  
using System.Windows.Forms;  
using MySql.Data.MySqlClient;
```

```
MySqlConnection connection = new MySqlConnection( "Server=localhost;Port=3306;Database=testdatabase;Uid=root;Pwd=****" );  
  
public int RndValue;  
public Random rnd = new Random( );
```



MySqlErrorCode Enumeration

- https://dev.mysql.com/doc/dev/connector-net/8.0/html/T_MySql_Data_MySqlClient_MySqlErrorCode.htm

MySQL Connector/NET 8.0 API Reference

MySQL ErrorCode Enumeration

Provides a reference to error codes returned by MySQL.

Namespace: `MySql.Data.MySqlClient`
Assembly: `MySql.Data` (in `MySql.Data.dll`) Version: 8.0.23

▲ Syntax

```
C# VB
public enum MySqlErrorCode
```

▲ Members

Member name	Value	Description
None	0	
HashCheck	1000	
ISAMCheck	1001	
No	1002	
Yes	1003	
CannotCreateFile	1004	The file couldn't be created.



mySQL Open Connection

```
public bool mySql_Open() {  
    try {  
        connection.Open();  
        return true;  
    } catch (MySqlException ex) {  
        switch (ex.Number) {  
            case 0:  
                MessageBox.Show("Cannot contact MySQL Server","mySQL",MessageBoxButtons.OK,MessageBoxIcon.Error);  
                break;  
            case 1045:  
                MessageBox.Show("Invalid username/password, please try again","mySQL",MessageBoxButtons.OK,MessageBoxIcon.Error);  
                break;  
            default:  
                MessageBox.Show(ex.ToString(),"mySQL",MessageBoxButtons.OK,MessageBoxIcon.Error);  
                break;  
        }  
        return false;  
    }  
}
```



mysql Close Connection

```
public bool mySql_Close( )  
{  
    try  
    {  
        connection.Close( );  
        return true;  
    }  
    catch  
    {  
        return false;  
    }  
}
```

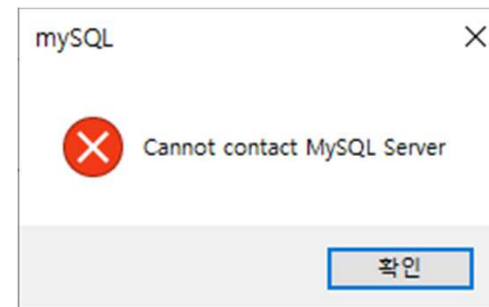
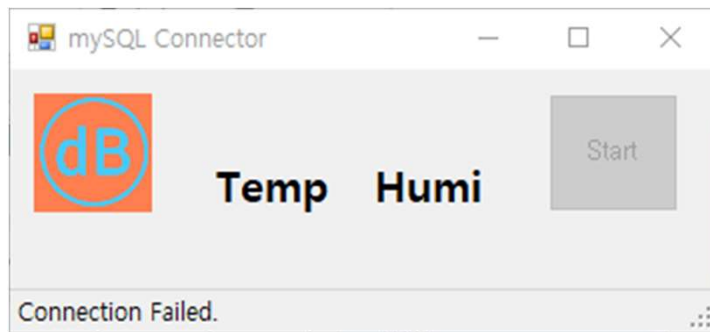
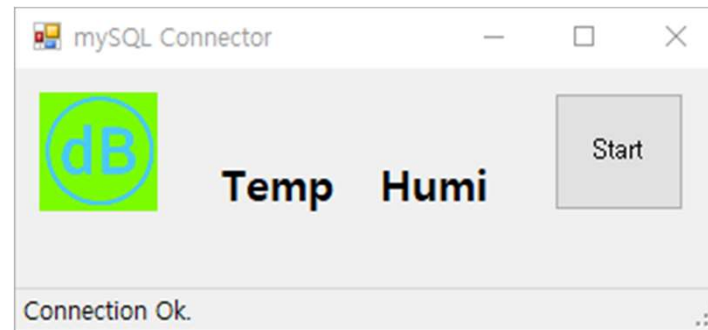
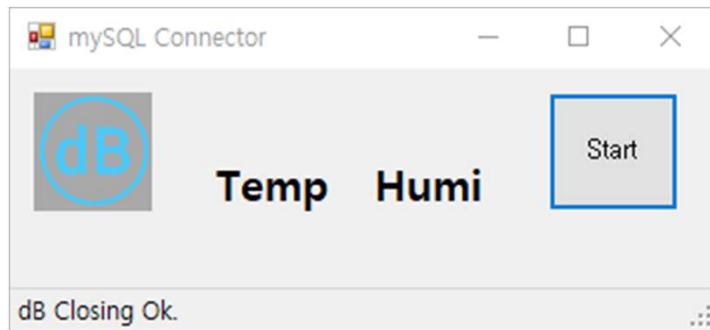


PictureBox1 Click ()

```
private void pictureBox1_Click(object sender, EventArgs e) {  
    if (picDB.BackColor == Color.DarkGray) {  
        if (mySql_Open( )) {  
            picDB.BackColor = Color.LawnGreen;  
            Status.Text = "Connection Ok.";  
            button1.Enabled = true;  
        } else {  
            picDB.BackColor = Color.Coral;  
            Status.Text = "Connection Failed.";  
            button1.Enabled = false;  
        }  
    } else {  
        if (mySql_Close( )) {  
            picDB.BackColor = Color.DarkGray;  
            Status.Text = "dB Closing Ok.";  
        } else {  
            picDB.BackColor = Color.Coral;  
            Status.Text = "dB Closing Failed.";  
        }  
    }  
}
```

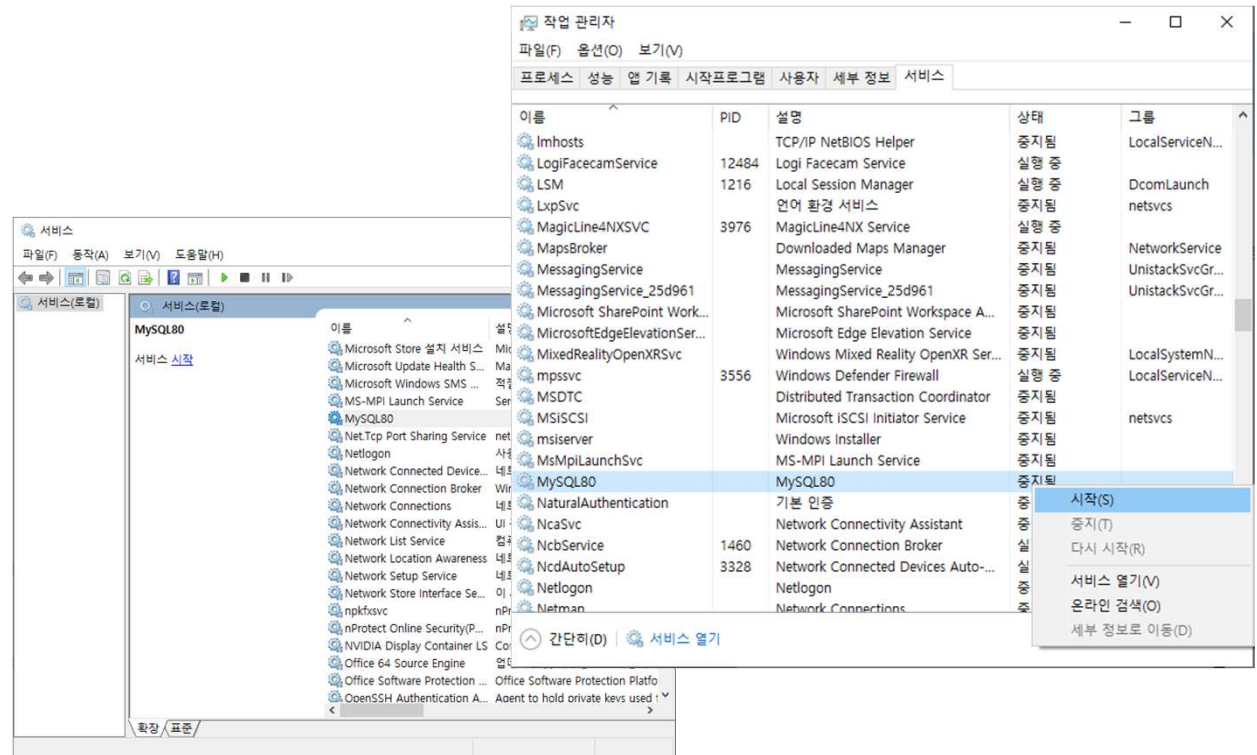
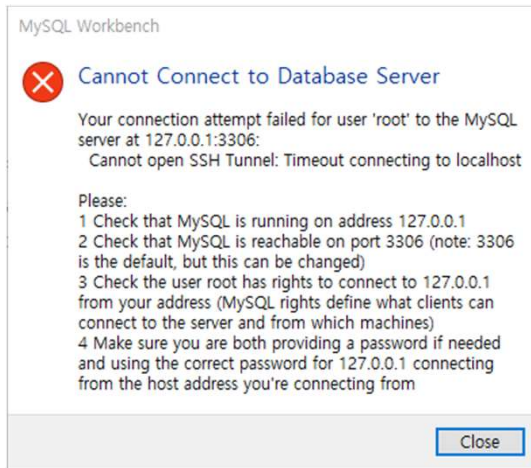


RUN / Error



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Cannot Connect to DataBase Server



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InsertData()

```
public void InsertData(int Data_1, int Data_2)
{
    MySqlCommand command = connection.CreateCommand( );

    command.CommandText = "INSERT INTO testTable(Time,Temp,Humi) VALUES(@time,@temp,@humi)";
    command.Parameters.Add("@time", MySqlDbType.VarChar).Value=DateTime.Now.ToString("HH:mm:ss");
    command.Parameters.Add("@temp", MySqlDbType.VarChar).Value = Data_1.ToString( );
    command.Parameters.Add("@humi", MySqlDbType.VarChar).Value = Data_2.ToString( );
    command.ExecuteNonQuery( );
}
```

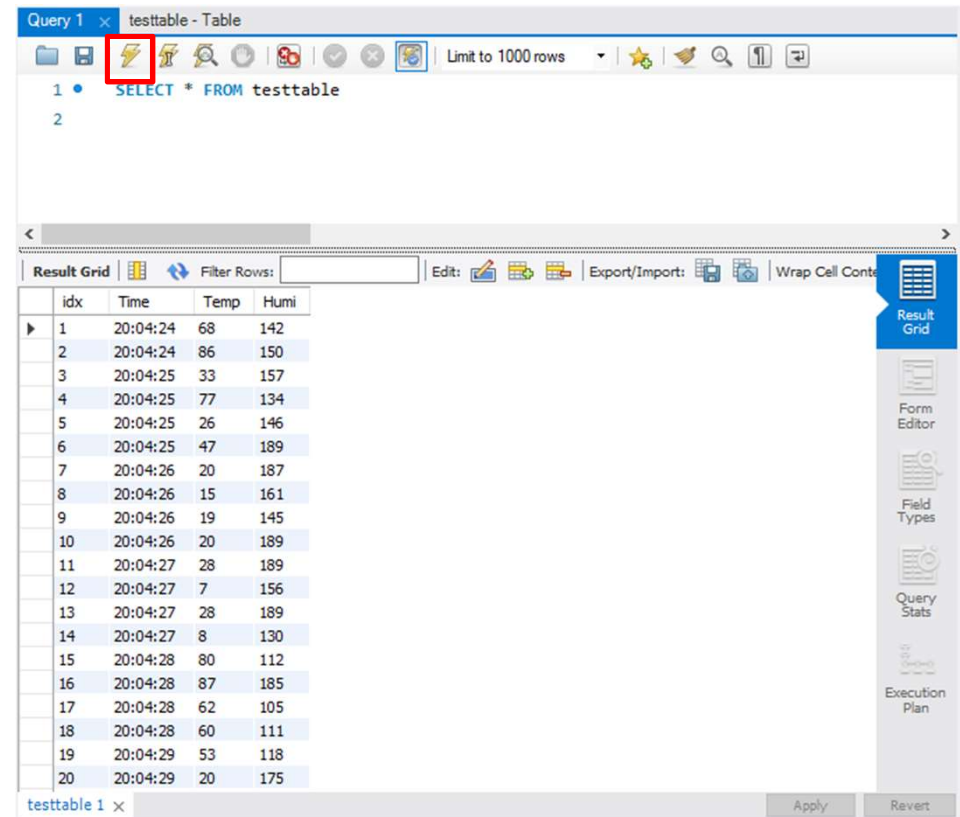
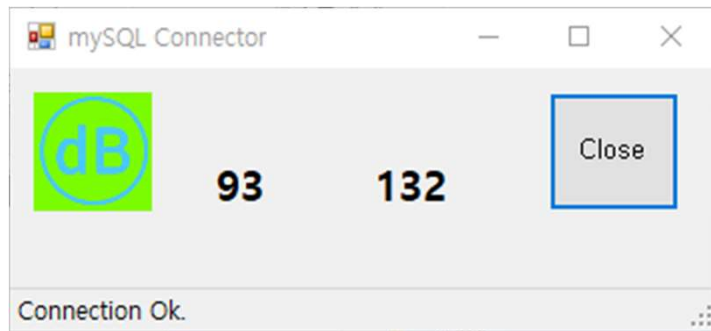


Button1_Click() / Timer1_Tick()

```
private void button1_Click(object sender, EventArgs e) {  
    if (button1.Text == "Start") {  
        button1.Text = "Stop";  
        timer1.Start( );  
    } else {  
        button1.Text = "Start";  
        timer1.Stop( );  
    }  
}  
  
private void timer1_Tick(object sender, EventArgs e) {  
    int rndData1 = rnd.Next(0,100);  
    int rndData2 = rnd.Next(100, 200);  
  
    label1.Text = rndData1.ToString( );  
    label2.Text = rndData2.ToString( );  
  
    InsertData(rndData1, rndData2);  
}
```

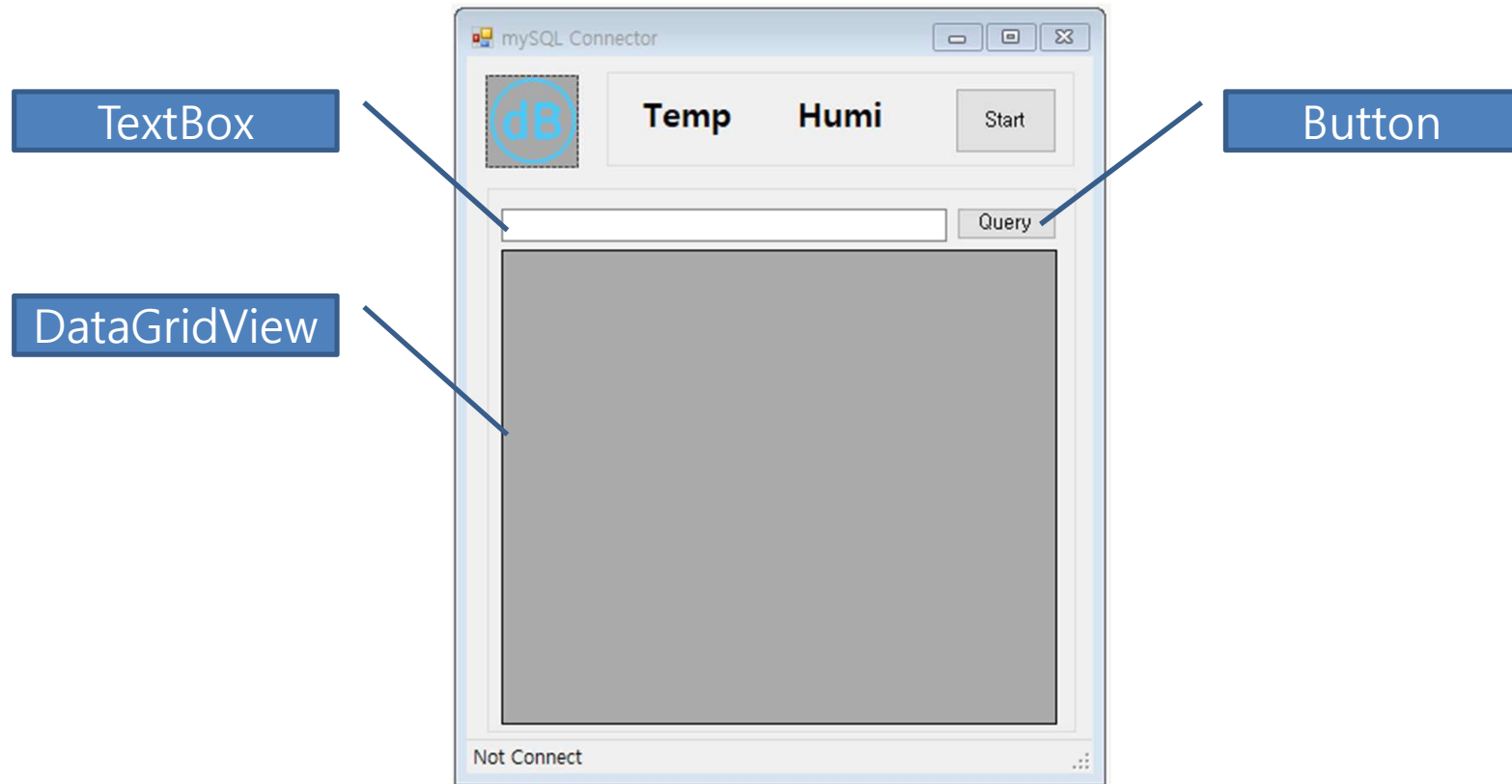


RUN / WorkBech Query



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Form Design

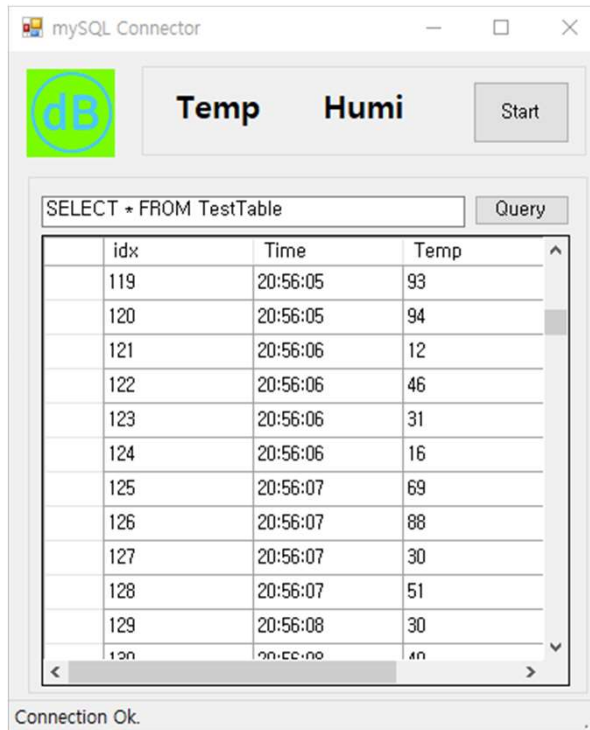


button2_Click()

```
private void button2_Click(object sender, EventArgs e) {  
    if (connection.State == ConnectionState.Open) {  
        try {  
            string sql = textBox1.Text;  
  
            MySqlCommand command = new MySqlCommand(sql, connection);  
            MySqlDataAdapter dataAdapter = new MySqlDataAdapter(command );  
            DataTable dataTable = new DataTable( );  
  
            dataAdapter.Fill(dataTable);  
            dataGridView1.DataSource = dataTable;  
  
            textBox1.Text = "";  
        } catch(MySqlException ex) {  
            Status.Text = ex.ToString( );  
        }  
    }  
}
```



Run



MySQL Connector

dB Temp Humi Start

SELECT * FROM TestTable Query

idx	Time	Temp
119	20:56:05	93
120	20:56:05	94
121	20:56:06	12
122	20:56:06	46
123	20:56:06	31
124	20:56:06	16
125	20:56:07	69
126	20:56:07	88
127	20:56:07	30
128	20:56:07	51
129	20:56:08	30
130	20:56:08	40

Connection Ok.



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