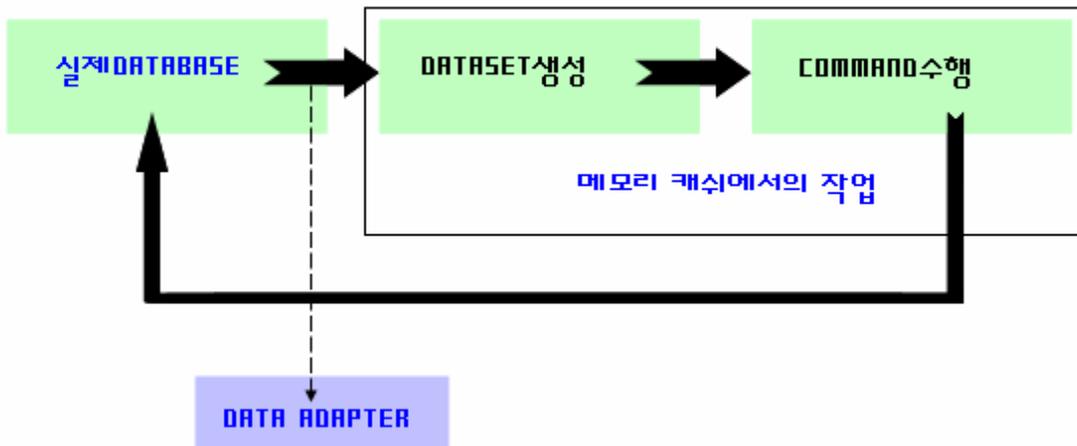


1.

1) ADO.NET

, ADO.NET
.NET
ADO.NET 가
MS ADO
, ADO ADO.NET
ADO ()
ADO
ADO.NET “ ”
가



, 가 DATASET , DATASET
DATABASE

가

, XML

4)

, ADO.NET

ADO.NET

MSSQL

System.Data.SqlClient

, MS - SQL

System.Data.OleDb

1>

.NET

uses

MS

System.Data.OleDb

```

5 uses
6 System.Drawing, System.Collections, System.ComponentModel,
7 System.Windows.Forms, System.Data, System.Data.OleDb;
8

```

SQL7.0

, System.Data.SqlClient

2>

```

private
    cPos: Integer;           // 데이터그리드의 현재행의 위치를 얻기 위해
    ds: DataSet;           // 데이터셋의 객체생성을 위해
    oleAdapter: OleDbDataAdapter; // 데이터어댑터의 객체생성을 위해

```

Form1()

가

3>

“ ”, 가

“ ”가

A.

```

var
    adoCon:OleDbConnection; //연결객체생성을 위해
    cb:OleDbCommandBuilder; //데이터셋 명령을 쉽게 하기 위해 → 추후 설명

```

adoCon

OleDbConnection

, MSSQL

SqlConnection

B.

가

```
oleAdapter:= OleDbDataAdapter.create();
oleAdapter.SelectCommand:=OleDbCommand.create('select * from Employee',adoCon);
cb:=OleDbCommandBuilder.Create(oleAdapter);
```

oleAdapter ,
 SelectCommand Employee oleAdapter
 , cb OleDbCommandBuilder , DataAdapter
 UpdateCommand, DeleteCommand, InsertCommand

C.

가

가 , 가 Employee

```
ds:= DataSet.Create('adoTest');
oleAdapter.Fill(ds, 'Employee');
```

ds 가
 adoTest , oleAdapter . adoTest
 가

D.

```
self.DataGrid1.DataSource:=nil;
self.DataGrid1.DataSource:=ds.Tables[0];
```

DataGrid1 ,
 ^; , DataSource null ,
 . Tables [0] , ['Employee']
 가

E.

, 가 가?

Id	Name	Dept	Office
1	홍길동	전산부	부산
2	임꺽정	영업부	대전
3	박찬호	기획부	서울
4	이영애	기술부	광주
*			

사원번호: txtId 검색

사원명: txtName 초기화 수정

부서명: txtDept

근무지: txtOffice 추가 제거

5)

가 , 가 .
(Click) 가 , .

```
self.TextBox1.Text="";
self.TextBox2.Text="";
self.TextBox3.Text="";
self.TextBox4.Text="";
```

6) 가

가 가 . 가 ,
가 , , 가 , .
가 , 가 .

1>

가 , () .
DataRow , .

```
var
  newRow: DataRow;
begin
  newRow:= ds.Tables['Employee'].NewRow();
```

2>

```
newRow['Id']:=textBox1.Text;
newRow['Name']:=textBox2.Text;
newRow['Dept']:=textBox3.Text;
newRow['Office']:=textBox4.Text;
```

3>

가

, 가 가 . 가 Add() .

```
ds.Tables['Employee'].Rows.Add(newRow);
```

4>

가 가 , 가

. ,
. ,
. , DataAdapter가 ,

```
oleAdapter.Update(ds, 'Employee');
```

가 .

--;;;

Update() , 가 InsertCommand ,

가?

^; OleDbCommandBuilder .

5>

, , 가

< :5 : : : >

3>

(Primary Key) No

```
cRow:=ds.Tables['Employee'].Rows[cPos];
```

```
cRow['Name']:=textBox2.Text;
```

```
cRow['Dept']:=textBox3.Text;
```

```
cRow['Office']:=textBox4.Text;
```

4>

```
oleAdapter.Update(ds,'Employee');
```

8)

→

```
ds.Tables['Employee'].Rows[cPos].Delete(); //데이터셋 삭제
```

```
oleAdapter.Update(ds, 'Employee'); //실제 데이터베이스 삭제
```

9)

!(_)~

- ;;;

- - ;;;

(_)~

10)

```
unit WinForm1;
```

```
interface
```

```
uses
```

```
System.Drawing, System.Collections, System.ComponentModel,  
System.Windows.Forms, System.Data, System.Data.OleDb;
```

```
type
```

```
TWinForm1 = class(System.Windows.Forms.Form)
```

```
{ $REGION 'Designer Managed Code' }
```

```
strict private
```

```
/// <summary>
```

```
/// Required designer variable.
```

```
/// </summary>
```

```
Components: System.ComponentModel.Container;
```

```

DataGrid1: System.Windows.Forms.DataGrid;
Label1: System.Windows.Forms.Label;
Label2: System.Windows.Forms.Label;
Label3: System.Windows.Forms.Label;
Button1: System.Windows.Forms.Button;
Button2: System.Windows.Forms.Button;
Button3: System.Windows.Forms.Button;
Button4: System.Windows.Forms.Button;
Button5: System.Windows.Forms.Button;
TextBox1: System.Windows.Forms.TextBox;
TextBox2: System.Windows.Forms.TextBox;
TextBox3: System.Windows.Forms.TextBox;
Label4: System.Windows.Forms.Label;
TextBox4: System.Windows.Forms.TextBox;
/// <summary>
/// Required method for Designer support - do not modify
/// the contents of this method with the code editor.
/// </summary>
procedure InitializeComponent;
procedure Button5_Click(sender: System.Object; e: System.EventArgs);
procedure Button1_Click(sender: System.Object; e: System.EventArgs);
procedure Button3_Click(sender: System.Object; e: System.EventArgs);
procedure Button2_Click(sender: System.Object; e: System.EventArgs);
procedure DataGrid1_CurrentCellChanged(sender: System.Object; e: System.EventArgs);
procedure Button4_Click(sender: System.Object; e: System.EventArgs);
{$ENDREGION}
strict protected
  /// <summary>
  /// Clean up any resources being used.
  /// </summary>
procedure Dispose(Disposing: Boolean); override;

private
  //
  cPos: Integer;
  ds: DataSet;
  oleAdapter: OleDbDataAdapter;

public
  constructor Create;
end;

[assembly: RuntimeRequiredAttribute(typeof(TWinForm1))]

implementation

{$REGION 'Windows Form Designer generated code'}
/// <summary>
/// Required method for Designer support -- do not modify
/// the contents of this method with the code editor.

```

```

/// </summary>
procedure TWinForm1.InitializeComponent;
begin
    Self.DataGrid1 := System.Windows.Forms.DataGrid.Create;
    Self.Label1 := System.Windows.Forms.Label.Create;
    Self.Label2 := System.Windows.Forms.Label.Create;
    Self.Label3 := System.Windows.Forms.Label.Create;
    Self.Button1 := System.Windows.Forms.Button.Create;
    Self.Button2 := System.Windows.Forms.Button.Create;
    Self.Button3 := System.Windows.Forms.Button.Create;
    Self.Button4 := System.Windows.Forms.Button.Create;
    Self.Button5 := System.Windows.Forms.Button.Create;
    Self.TextBox1 := System.Windows.Forms.TextBox.Create;
    Self.TextBox2 := System.Windows.Forms.TextBox.Create;
    Self.TextBox3 := System.Windows.Forms.TextBox.Create;
    Self.Label4 := System.Windows.Forms.Label.Create;
    Self.TextBox4 := System.Windows.Forms.TextBox.Create;
    (System.ComponentModel.ISupportInitialize)(Self.DataGrid1).BeginInit;
    Self.SuspendLayout;
    //
    // DataGrid1
    //
    Self.DataGrid1.DataMember := '';
    Self.DataGrid1.HeaderForeColor := System.Drawing.SystemColors.ControlText;
    Self.DataGrid1.Location := System.Drawing.Point.Create(16, 8);
    Self.DataGrid1.Name := 'DataGrid1';
    Self.DataGrid1.Size := System.Drawing.Size.Create(472, 160);
    Self.DataGrid1.TabIndex := 0;
    Include(Self.DataGrid1.CurrentCellChanged, Self.DataGrid1_CurrentCellChanged);
    //
    // Label1
    //
    Self.Label1.AutoSize := True;
    Self.Label1.Location := System.Drawing.Point.Create(32, 184);
    Self.Label1.Name := 'Label1';
    Self.Label1.Size := System.Drawing.Size.Create(54, 17);
    Self.Label1.TabIndex := 1;
    Self.Label1.Text := '          ';
    //
    // Label2
    //
    Self.Label2.AutoSize := True;
    Self.Label2.Location := System.Drawing.Point.Create(32, 216);
    Self.Label2.Name := 'Label2';
    Self.Label2.Size := System.Drawing.Size.Create(42, 17);
    Self.Label2.TabIndex := 2;
    Self.Label2.Text := '          ';
    //
    // Label3
    //

```

```
Self.Label3.AutoSize := True;
Self.Label3.Location := System.Drawing.Point.Create(32, 248);
Self.Label3.Name := 'Label3';
Self.Label3.Size := System.Drawing.Size.Create(42, 17);
Self.Label3.TabIndex := 3;
Self.Label3.Text := '      ';
//
// Button1
//
Self.Button1.Location := System.Drawing.Point.Create(320, 232);
Self.Button1.Name := 'Button1';
Self.Button1.Size := System.Drawing.Size.Create(72, 24);
Self.Button1.TabIndex := 4;
Self.Button1.Text := '      ';
Include(Self.Button1.Click, Self.Button1_Click);
//
// Button2
//
Self.Button2.Location := System.Drawing.Point.Create(416, 232);
Self.Button2.Name := 'Button2';
Self.Button2.Size := System.Drawing.Size.Create(72, 24);
Self.Button2.TabIndex := 5;
Self.Button2.Text := '      ';
Include(Self.Button2.Click, Self.Button2_Click);
//
// Button3
//
Self.Button3.Location := System.Drawing.Point.Create(320, 280);
Self.Button3.Name := 'Button3';
Self.Button3.Size := System.Drawing.Size.Create(72, 24);
Self.Button3.TabIndex := 6;
Self.Button3.Text := '가';
Include(Self.Button3.Click, Self.Button3_Click);
//
// Button4
//
Self.Button4.Location := System.Drawing.Point.Create(416, 280);
Self.Button4.Name := 'Button4';
Self.Button4.Size := System.Drawing.Size.Create(72, 24);
Self.Button4.TabIndex := 7;
Self.Button4.Text := '      ';
Include(Self.Button4.Click, Self.Button4_Click);
//
// Button5
//
Self.Button5.Location := System.Drawing.Point.Create(320, 184);
Self.Button5.Name := 'Button5';
Self.Button5.Size := System.Drawing.Size.Create(168, 24);
Self.Button5.TabIndex := 8;
Self.Button5.Text := '      ';
```

```

Include(Self.Button5.Click, Self.Button5_Click);
//
// TextBox1
//
Self.TextBox1.Location := System.Drawing.Point.Create(120, 184);
Self.TextBox1.Name := 'TextBox1';
Self.TextBox1.Size := System.Drawing.Size.Create(168, 21);
Self.TextBox1.TabIndex := 9;
Self.TextBox1.Text := 'txtId';
//
// TextBox2
//
Self.TextBox2.Location := System.Drawing.Point.Create(120, 216);
Self.TextBox2.Name := 'TextBox2';
Self.TextBox2.Size := System.Drawing.Size.Create(168, 21);
Self.TextBox2.TabIndex := 10;
Self.TextBox2.Text := 'txtName';
//
// TextBox3
//
Self.TextBox3.Location := System.Drawing.Point.Create(120, 248);
Self.TextBox3.Name := 'TextBox3';
Self.TextBox3.Size := System.Drawing.Size.Create(168, 21);
Self.TextBox3.TabIndex := 11;
Self.TextBox3.Text := 'txtDept';
//
// Label4
//
Self.Label4.AutoSize := True;
Self.Label4.Location := System.Drawing.Point.Create(32, 280);
Self.Label4.Name := 'Label4';
Self.Label4.Size := System.Drawing.Size.Create(42, 17);
Self.Label4.TabIndex := 12;
Self.Label4.Text := '      ';
//
// TextBox4
//
Self.TextBox4.Location := System.Drawing.Point.Create(120, 280);
Self.TextBox4.Name := 'TextBox4';
Self.TextBox4.Size := System.Drawing.Size.Create(168, 21);
Self.TextBox4.TabIndex := 13;
Self.TextBox4.Text := 'txtOffice';
//
// TWinForm1
//
Self.AutoScaleBaseSize := System.Drawing.Size.Create(6, 14);
Self.ClientSize := System.Drawing.Size.Create(504, 317);
Self.Controls.Add(Self.TextBox4);
Self.Controls.Add(Self.Label4);
Self.Controls.Add(Self.TextBox3);

```

```

Self.Controls.Add(Self.TextBox2);
Self.Controls.Add(Self.TextBox1);
Self.Controls.Add(Self.Label3);
Self.Controls.Add(Self.Label2);
Self.Controls.Add(Self.Label1);
Self.Controls.Add(Self.Button5);
Self.Controls.Add(Self.Button4);
Self.Controls.Add(Self.Button3);
Self.Controls.Add(Self.Button2);
Self.Controls.Add(Self.Button1);
Self.Controls.Add(Self.DataGrid1);
Self.Name := 'TWinForm1';
Self.Text := 'WinForm1';
(System.ComponentModel.ISupportInitialize.SupportInitialize(Self.DataGrid1)).EndInit;
Self.ResumeLayout(False);
end;
{$ENDREGION}

procedure TWinForm1.Dispose(Disposing: Boolean);
begin
  if Disposing then
  begin
    if Components <> nil then
      Components.Dispose();
    end;
    inherited Dispose(Disposing);
  end;
end;

constructor TWinForm1.Create;
begin
  inherited Create;
  //
  // Required for Windows Form Designer support
  //
  InitializeComponent;
  //
  // TODO: Add any constructor code after InitializeComponent call
  //
end;

procedure TWinForm1.Button4_Click(sender: System.Object; e: System.EventArgs);
begin
  //
  ds.Tables['Employee'].Rows[cPos].Delete();
  //
  oleAdapter.Update(ds, 'Employee');
end;

procedure TWinForm1.DataGrid1_CurrentCellChanged(sender: System.Object; e: System.EventArgs);
begin

```

```

cPos:=self.DataGrid1.CurrentCell.RowNumber;

textBox1.Text:=self.DataGrid1[cPos,0].ToString();
textBox2.Text:=self.DataGrid1[cPos,1].ToString();
textBox3.Text:=self.DataGrid1[cPos,2].ToString();
textBox4.Text:=self.DataGrid1[cPos,3].ToString();
end;

procedure TWinForm1.Button2_Click(sender: System.Object; e: System.EventArgs);
var
  cRow: DataRow;
begin
  cRow:=ds.Tables['Employee'].Rows[cPos];
  //
  cRow['Name']:=textBox2.Text;
  cRow['Dept']:=textBox3.Text;
  cRow['Office']:=textBox4.Text;

  //
  oleAdapter.Update(ds,'Employee');
end;

procedure TWinForm1.Button3_Click(sender: System.Object; e: System.EventArgs);
var
  newRow: DataRow;

begin

  newRow:= ds.Tables['Employee'].NewRow();
  //
  newRow['Id']:=textBox1.Text;
  newRow['Name']:=textBox2.Text;
  newRow['Dept']:=textBox3.Text;
  newRow['Office']:=textBox4.Text;

  //          가
  ds.Tables['Employee'].Rows.Add(newRow);

  try
    oleAdapter.Update(ds, 'Employee');

  except
    on ex:Exception do
      MessageBox.Show(ex.Message);
    end;

end;

procedure TWinForm1.Button1_Click(sender: System.Object; e: System.EventArgs);

```

```
begin
  //
  self.TextBox1.Text:='';
  self.TextBox2.Text:='';
  self.TextBox3.Text:='';
  self.TextBox4.Text:='';
end;

procedure TWinForm1.Button5_Click(sender: System.Object; e: System.EventArgs);
var
  adoCon:OleDbConnection;
  cb:OleDbCommandBuilder;

begin
  try
    adoCon:= OleDbConnection.Create();
    adoCon.ConnectionString:='Provider=Microsoft.Jet.OLEDB.4.0; Data Source=D:\adoTest.mdb';

    oleAdapter:= OleDbDataAdapter.create();
    oleAdapter.SelectCommand:=OleDbCommand.create('select * from Employee',adoCon);
    cb:=OleDbCommandBuilder.Create(oleAdapter);

    //
    ds:= DataSet.Create('ADO');
    oleAdapter.Fill(ds, 'Employee');

    //
    self.DataGrid1.DataSource:=nil;
    self.DataGrid1.DataSource:=ds.Tables[0];

  except
    on ex:Exception do
      MessageBox.Show(ex.Message);
    end;
  end;
end.

end.
```