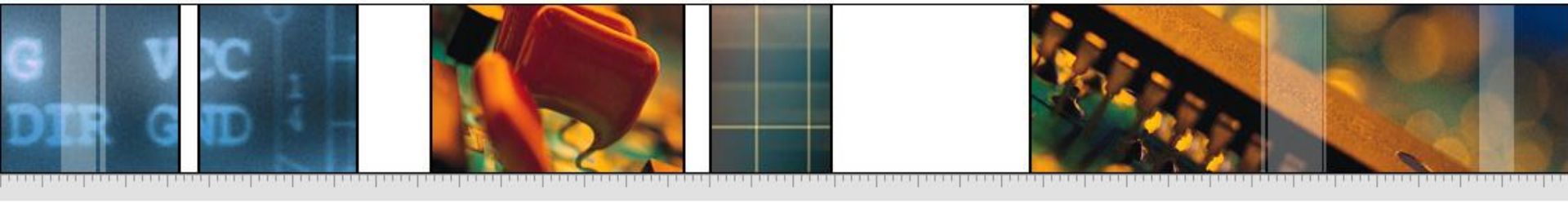
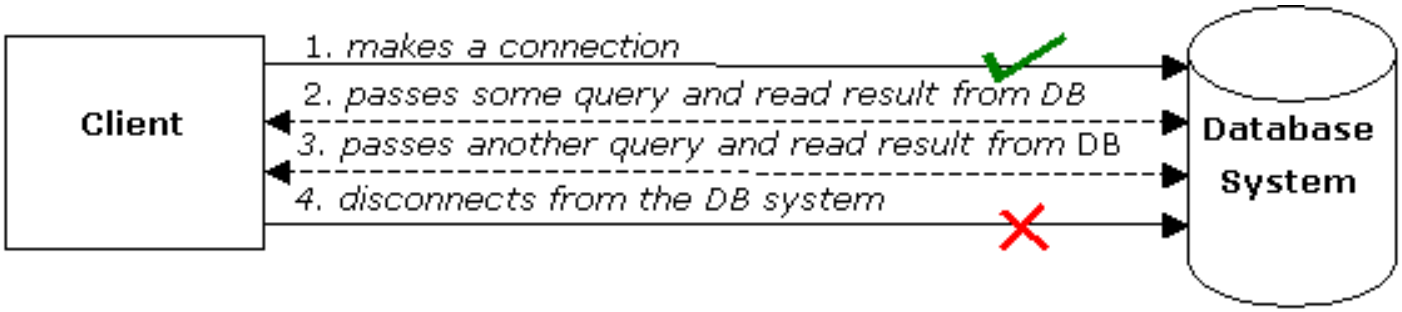


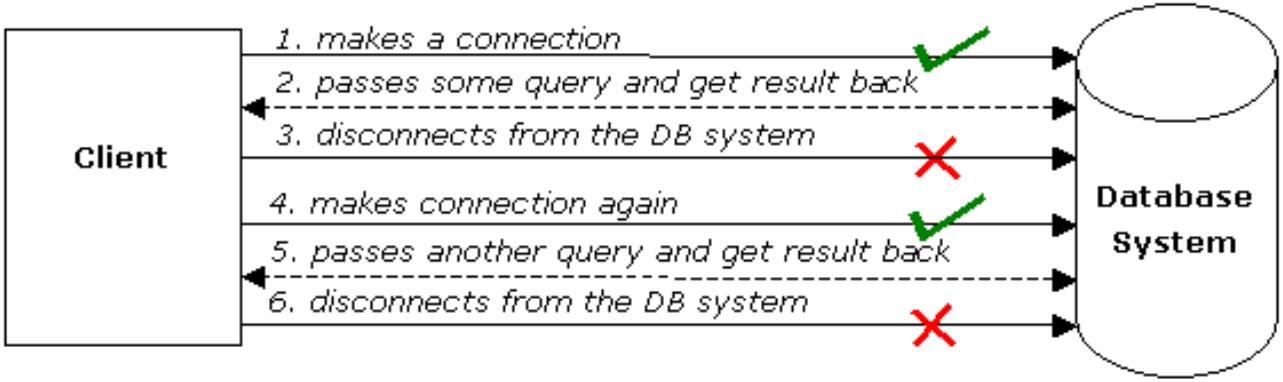
Disconnected Application

Data Access Architecture

Traditional Data Access Architecture



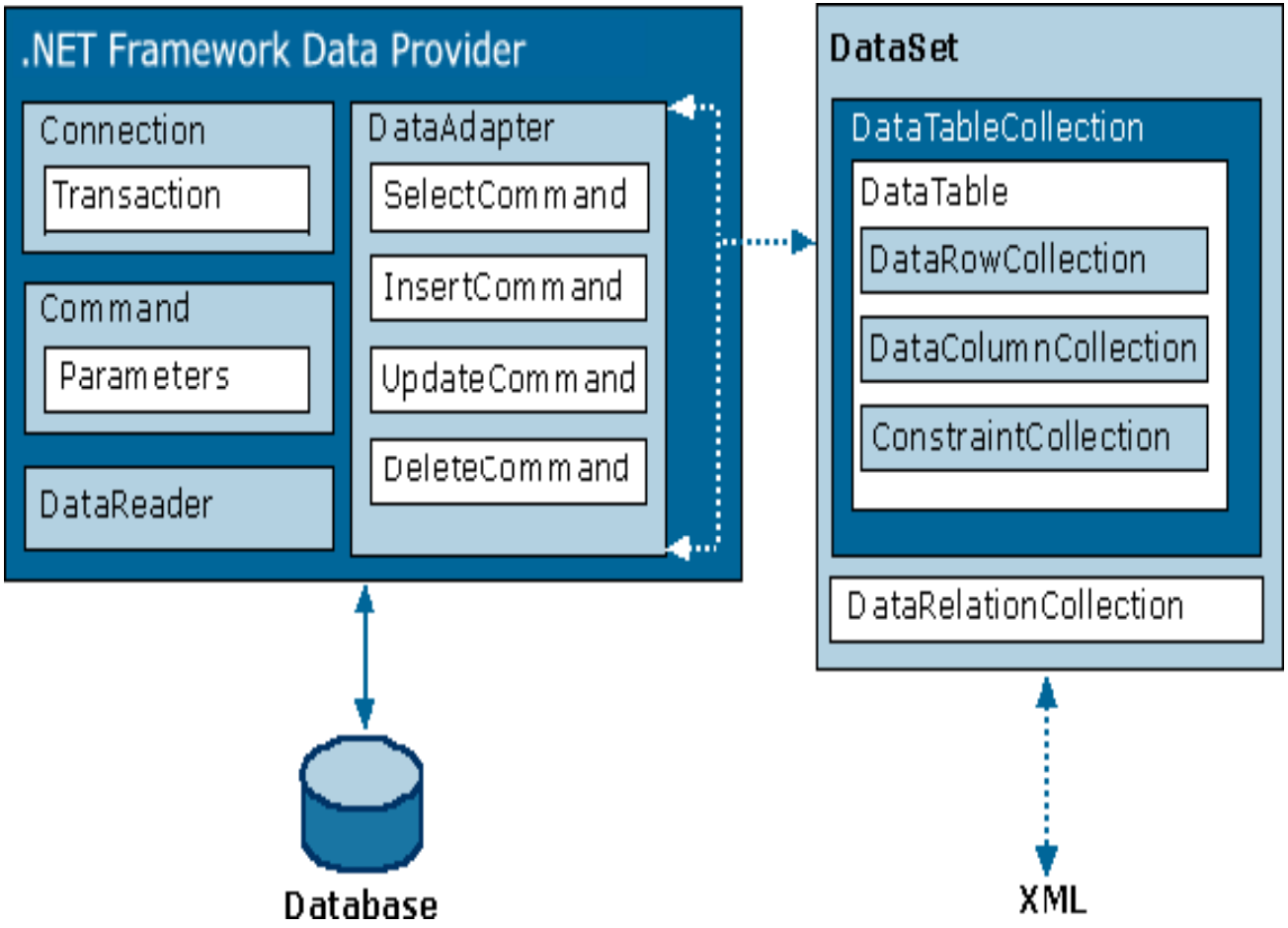
ADO.NET Disconnected Data Access Architecture



Disconnected Data Access Architecture of ADO.NET

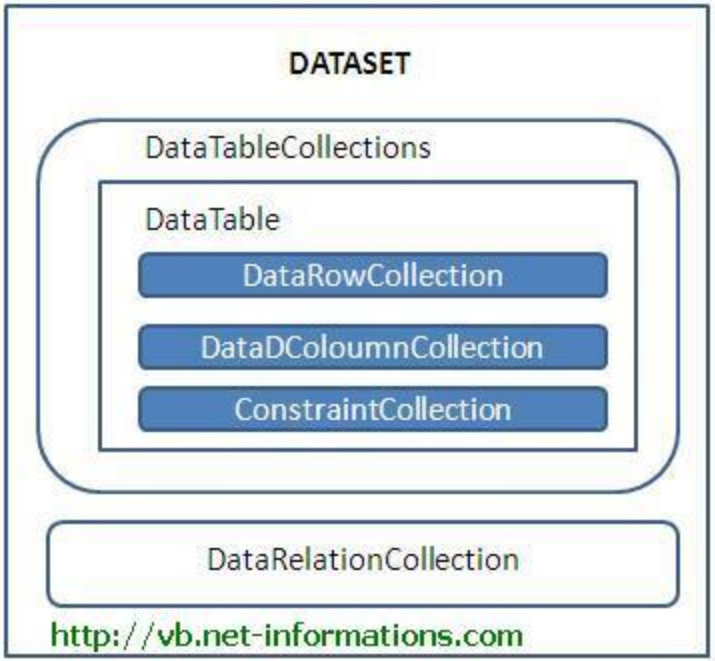
- ADO.NET introduces the concept of disconnected data architecture
- ADO.NET solves this problem(traditional data access) by managi ng a local buffer of persistent data called dataset
- Your application automatically connects to the database server when it needs to pass some query and then disconnects immediately after getting the result back and storing i t in dataset
- This design of ADO.NET is called disconnected data architecture and is very much similar to the connection less services of http over the internet

ADO.NET Architecture



Dataset

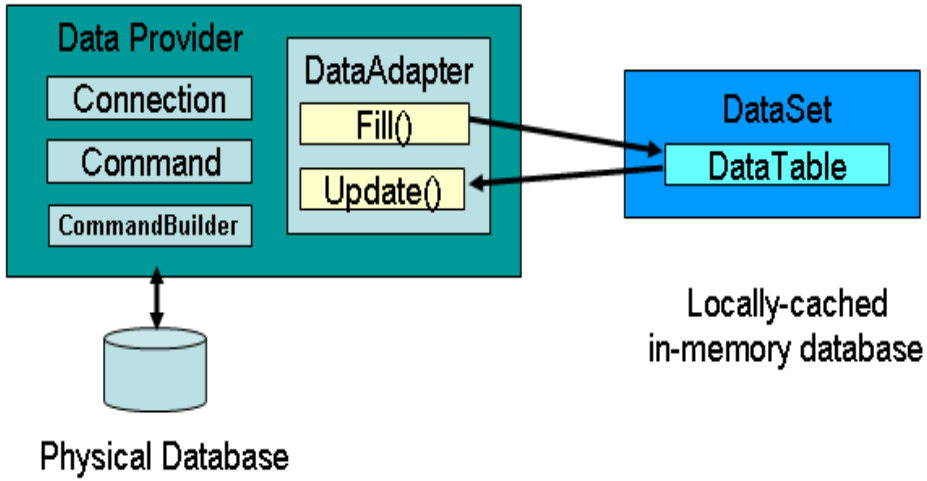
- The ADO.NET DataSet contains Da taTableCollection and their DataRelationCollection
- It represents a collection of data retrieved from the Data Source.
- The Dataset can work with the data i t contain, without knowing the sourc e of the data coming from
- That is, the Dataset can work with a disconnected mode from its Data Source



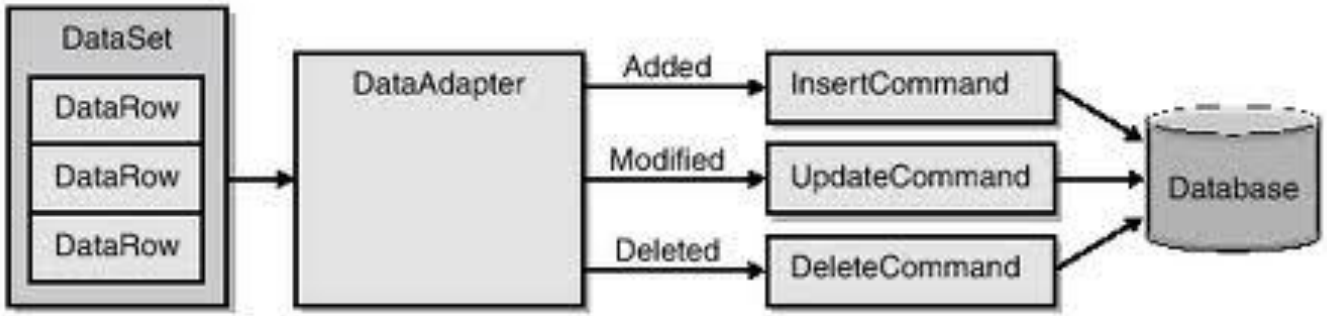
SqlDataAdapter

- An SqlDataAdapter object works as a mediator between a Data set and a Database.
- The main functions performed by DataAdapter are:

1. Populate the dataset by fetching data from database, using th e‘Fill’method
2. Update changes made to the dataset back to the database, using the 'Update' method

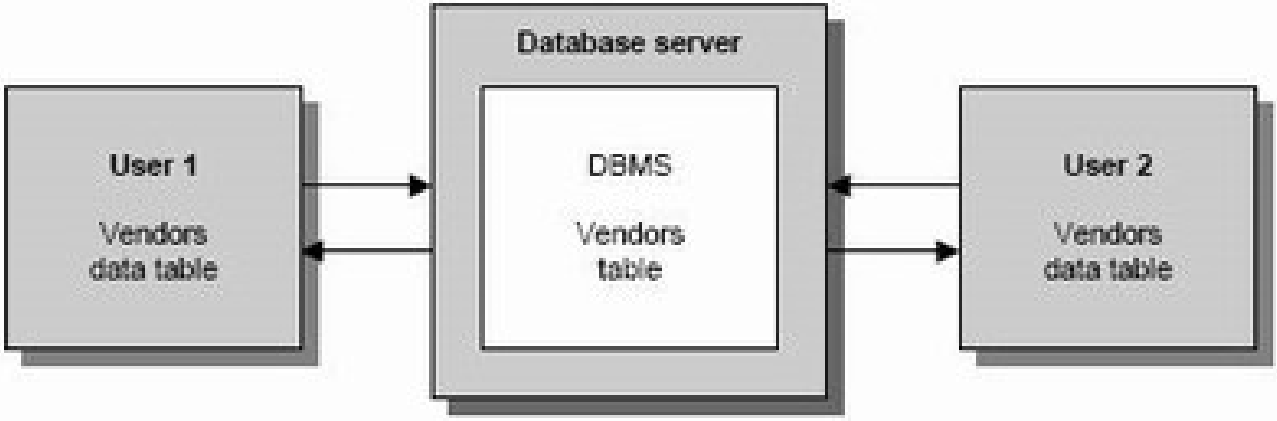


SqlCommandBuilder



- To generate INSERT, UPDATE, or DELETE statements, the SqlCommandBuilder uses the SelectCommand property to retrieve a required set of metadata automatically.
- If you change the SelectCommand after the metadata has bee n retrieved, such as after the first update, you should call the RefreshSchema method to update the metadata.

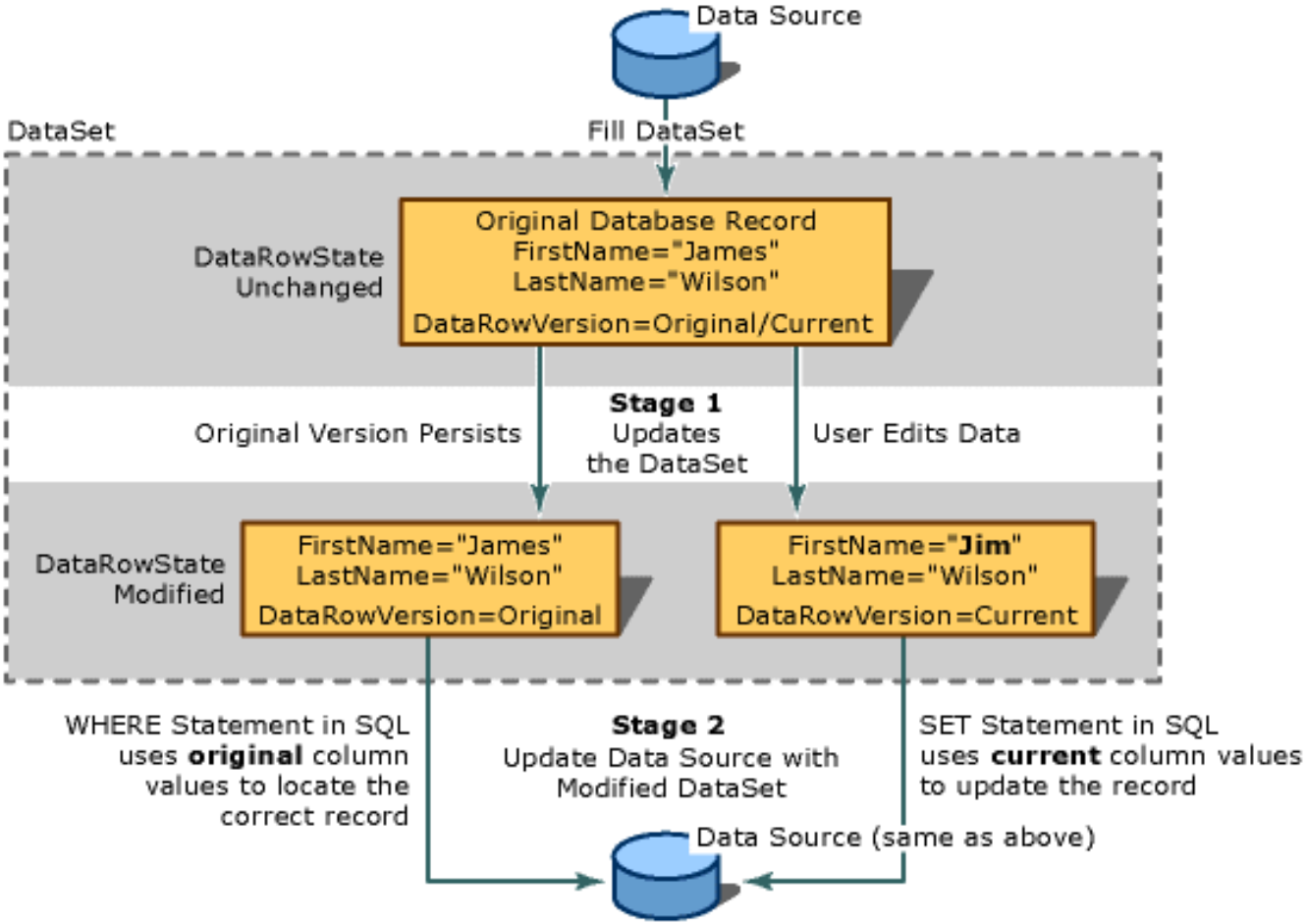
Managing Concurrency



What happens when two users try to update the same row ??

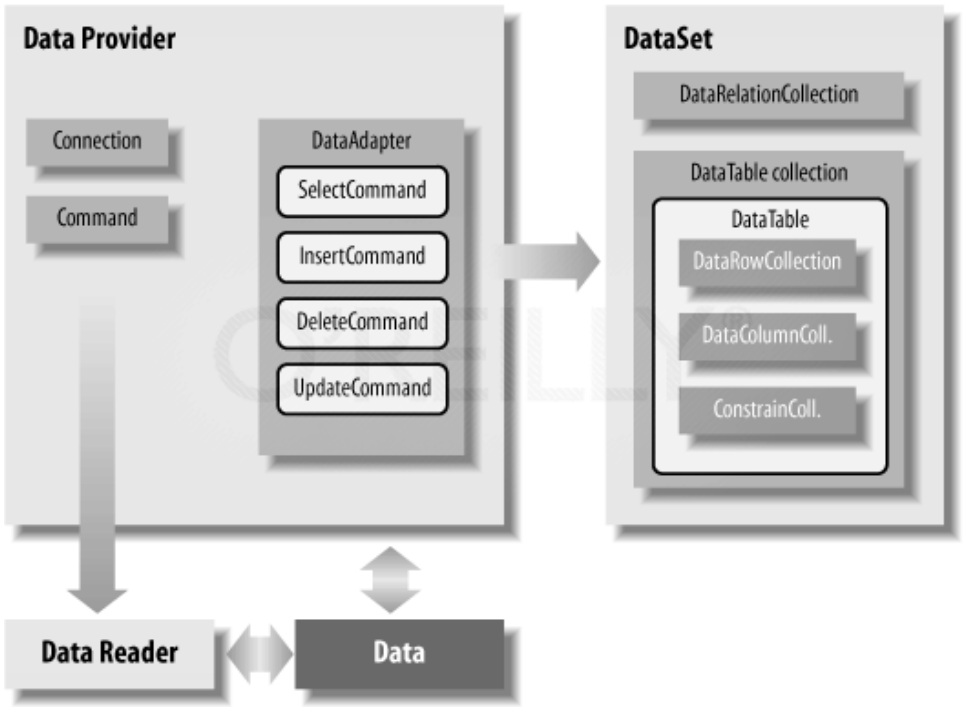
- When two or more users retrieve the data in the same row of a database table at the same time, it is called concurrency. Because ADO.NET uses a disconnected data architecture, the database management system can't prevent this from happening.
- By default, ADO.NET uses *optimistic concurrency* (the program checks to see whether the database row that's going to be updated or deleted has been changed since it was retrieved.)

Dataset Changes



Initializing DataAdapters for Update

- In ADO.NET, you must add your own code for submitting **database updates** to the **DataAdapter** object. There are three ways of doing this:



1. You can supply your own updating logic.
2. You can use the Data Adapter Configuration Wizard to generate the updating logic.
3. You can use the **CommandBuilder** object to generate the updating logic.

SqlDataAdapter Syntax

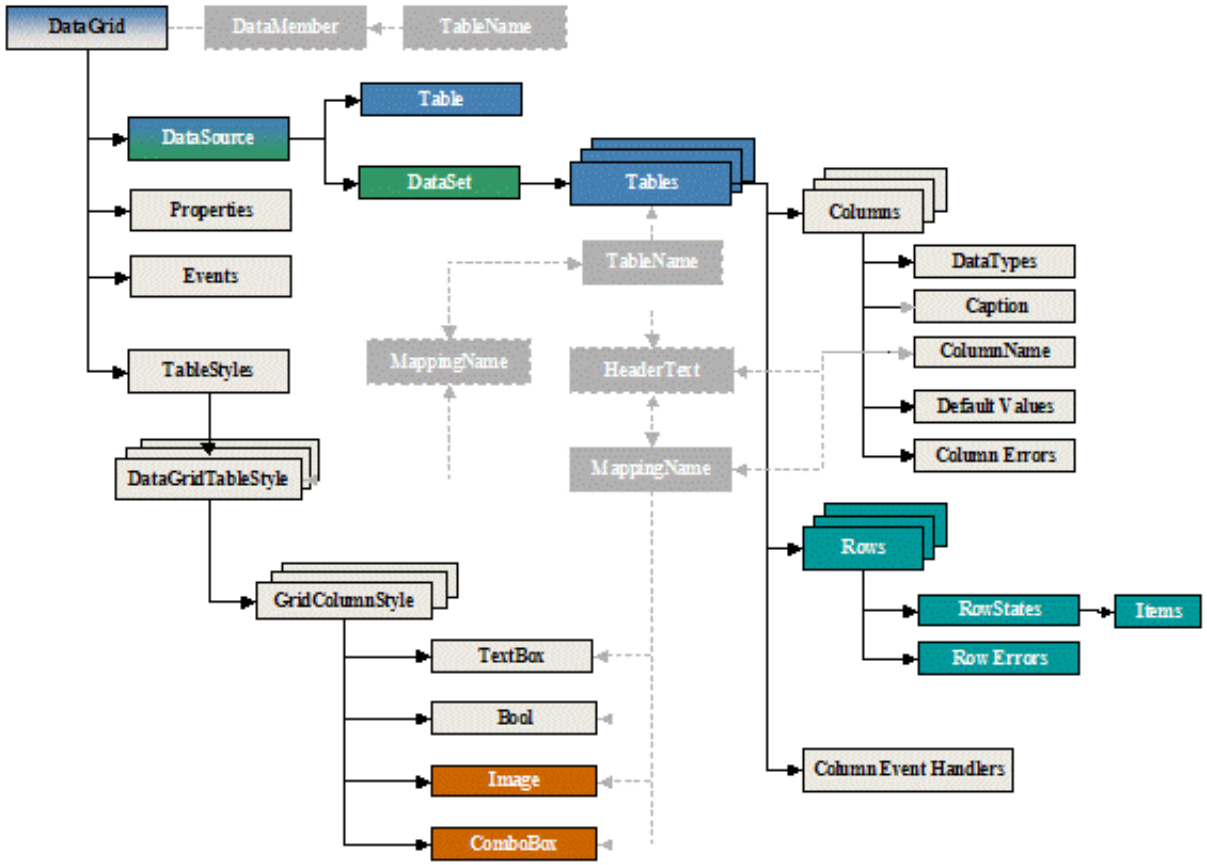
```
' The DataSet that holds the data
Dim ds As New DataSet(DATASET_NAME)

' Create the SqlDataAdapter
Dim da As SqlDataAdapter
da = New SqlDataAdapter(SELECT_STRING, CONNECT_OBJECT)

' Create the SqlCommandBuilder
Dim cb As SqlCommandBuilder = New SqlCommandBuilder(da)

' Fill the DataSet
da.MissingSchemaAction=MissingSchemaAction.AddWithKey
da.Fill(ds)
```

Changing the Order of Insert, Update, and Delete Operations

```
Dim dt As DataTable = ds.Tables("Authors")

' First process deletes.
da.Update(dt.Select(Nothing, Nothing, _
      DataViewRowState. Deleted))

' Next process updates.
da.Update(dt.Select(Nothing, Nothing, _
      DataViewRowState. ModifiedCurrent))

' Finally process inserts.
da.Update(dt.Select(Nothing, Nothing, _
      DataViewRowState.Added))
```

Dataset Manipulation

After your dataset is populated with data, you will typically perform some kind of man ipulation of the data before sending it bac k to the data source or to another process or application



Updating Existing Records in a Dataset

```
Dim rowUbah As DataRow = dtPenjualan.Rows(0)

rowUbah.BeginEdit()
rowUbah("Tanggal") = _
  dtpPenjualan.Value.ToShortDateString
rowUbah("Kode_Pelanggan")=tbKodePelanggan.Text
rowUbah.EndEdit()
```

Inserting New Records into a Dataset

```
Dim rowBaru As DataRow = dtPenjualan.NewRow

rowBaru("Tanggal") = _
  dtpPenjualan.Value.ToShortDateString
rowBaru("Kode_Pelanggan")=tbKodePelanggan.Text
dtPenjualan.Rows.Add(rowBaru)
```

Deleting Records in a Dataset

```
Dim rowHapus As DataRow = dtPenjualan.Rows(0)
dtPenjualan.Rows.Remove(rowHapus)
```

Or

```
dtPenjualan.Rows(0).Delete()
```

Committing Changes in the Dataset

- You can commit the pending changes to the dataset by calling the **AcceptChanges** method.
- Typically, **AcceptChanges** would be called at the following times in your application.

```
'commit
dtPenjualan.AcceptChanges()

'rollback
dtPenjualan.RejectChanges()
```

Daftar Pustaka

http://www.codeproject.com/KB/grid/practicalguidedatagrids1.aspx

http://www.programmersheaven.com/2/FAQ-ADONET-Disconnected-Data-Access

http://vb.net-informations.com/dataset/ado.net-dataset.htm

http://msdn.microsoft.com/en-us/library/ee817654.aspx#daag_performingupdates

http://www.microsoft.com/mspress/books/sampchap/5199b.aspx

http://www.akadia.com/services/dotnet_rowstate.html