Changing the Contents of a Database

Changing the Contents of a Database

- Data grid views can also be used to add, modify, and delete records from a database.
- After a DataAdapter has been created, the statement

```
Dim commandBuilder As New _
    OleDbCommandBuilder(dataAdapter)
```

will automatically generate the commands used for the Insert, Update, and Delete operations.

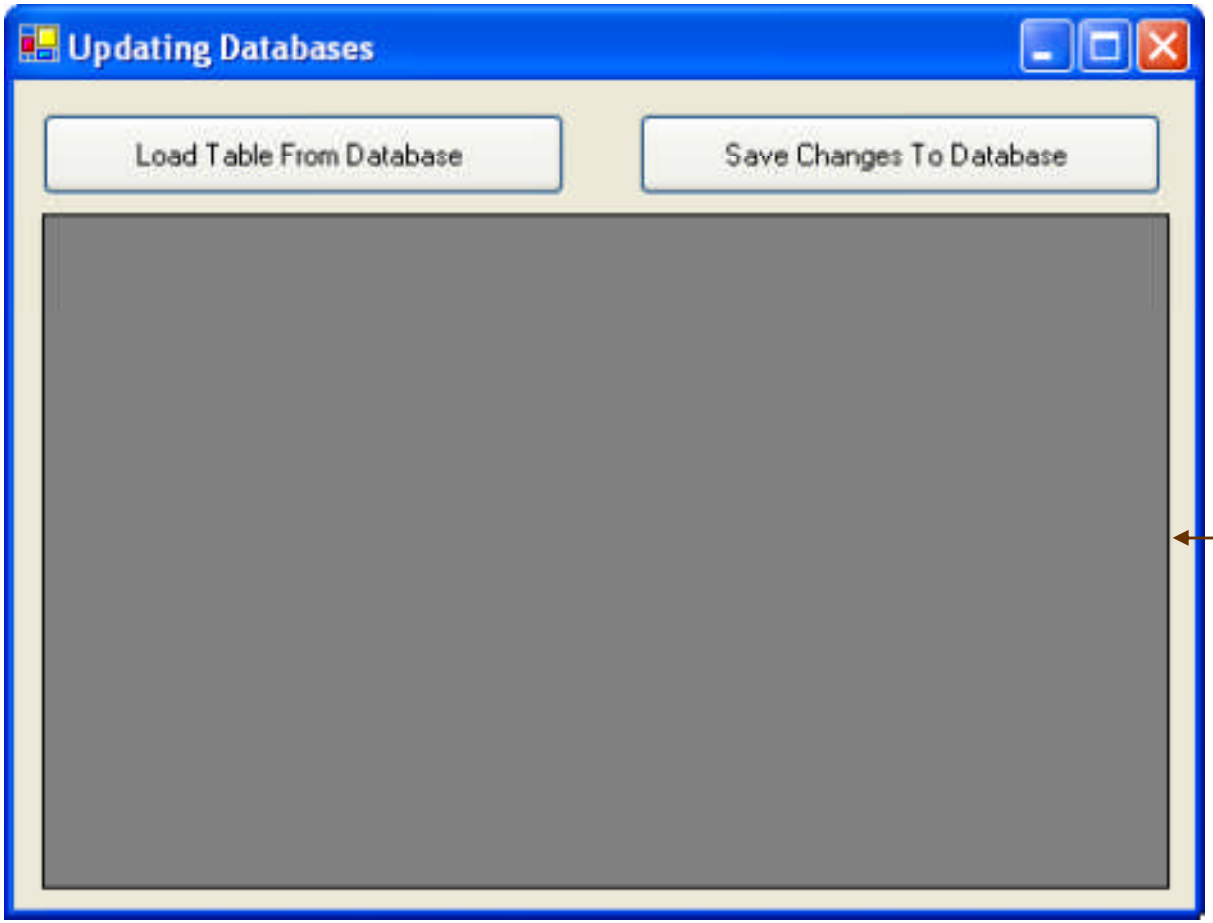
Using the DataAdapter to Change a Database

- If *changes* is an Integer variable, then the statement

  changes = dataAdapter.Update(dt)

  will store all of the insertions, updates, and deletions made in the data table to the database and assign the number of records changed to the variable *changes.*

Lab sheet 10.7: Form



Lab sheet 10.7: Partial Code

```
Dim connStr As String = "Provider=Microsoft.Jet.OLEDB.4.0;" & _
                        "Data Source=MEGACITIES.MDB"
Dim sqlStr As String = "SELECT * FROM Cities"
Dim dt As New DataTable()

Private Sub btnLoad_Click(...) Handles btnLoad.Click
  dt.Clear()
  Dim dataAdapter As New OleDb.OleDbDataAdapter(sqlStr, connStr)
  dataAdapter.Fill(dt)
  dataAdapter.Dispose()
  dgvDisplay.DataSource = dt
End Sub
```

Lab sheet 10.7: Code continued

```
Private Sub btnSave_Click(...) Handles btnSave.Click
  Dim changes As Integer
  Dim dataAdapter As New OleDb.OleDbDataAdapter(sqlStr, connStr)
  Dim commandBuilder As New _
                          OleDb.OleDbCommandBuilder(dataAdapter)
  changes = dataAdapter.Update(dt)
  dataAdapter.Dispose()
  If changes > 0 Then
    MsgBox(changes & " changed rows stored in the database.")
  Else
    MsgBox("No changes made.")
  End If
End Sub
```

Calculated Columns with SQL

In the SQL statement

```
SELECT field1, field2,..., fieldN FROM Table1
```

one of the fields mentioned can consist of an expression Involving other fields, followed by a clause of the form “AS *column header*”. If so, a new column will be created whose values are determined by the expression and having the stated header. For instance, using the string

```
sqlStr = "SELECT city, Round(pop2015-pop2005, 1)" & _
         "AS popGrowth FROM Cities"
```

to fill the table produces the output shown in slide 66.

Calculated Columns with SQL

	city	popGrowth
▶	Bombay	4.4
	Calcutta	2.5
	Delhi	5.8
	Dhaka	5.5
	Jakarta	4.5
	Lagos	6
	Mexico City	1.6
	New York	1.2
	Sao Paulo	1.8
	Tokyo	1

Comments

1. There is a **one-to-many relationship** from the Countries table to the Cities table since each record of the Countries table is related to one or more records of the Cities table, and each record of the Cities table is related to only one record of the Countries table.
2. SQL statements are case insensitive.
3. When the Like operator is used, the “pattern” must appear on the right of the operator.

SELECT * FROM Cities WHERE city Like 'S%'

Comments continued

4. An expression such as “[letter1-letter2]” is a placeholder for any letter from letter1 to letter2. Example: the pattern “[A-F]ad” is matched by Bad and Dad, but not Sad.
5. When Like is used in SQL statements, it is case insensitive. That is, (‘bad’ Like ‘[A-F]ad’) is True. When Like is used in an If block, the asterisk is used instead of the percent sign to denote any number of characters, and the question mark stands for any one character.

Comments continued

6. The requirement that no record may have a null primary key and that entries for primary keys be unique is called the **Rule of Entity Integrity**.