Lab 22
SQL Queries

Assuming the following database is created to maintain our Studebaker cars.

Microsoft Access

File Edit View Insert Format Records Tools Window Help   Type a question for help

studebaker : Database (Access 2000 file format)

Open Design New

Objects		Create table in Design view
Tables		Create table by using wizard
Queries		Create table by entering data
Forms		Colors
Reports		Manufactured
Pages		Models
Macros		Options
Modules		PackageOptions
		Packages
Groups		
Favorites		

Options : Table

OptionID	OptionName	OptionPrice
1	Radio	100
10	Floor mats	100
11	Captain Chair	500
12	Head lights	12.99
2	CD Player	100
3	Moon Roof	500
4	Alarm System	300
5	Power Door	100
6	Power Windows	250
7	Air Conditioning	800
8	Engine	2000
9	Mirrors	25

Record: 1 of 12

PackageOptions : ...

PackageID	OptionID
2	1
2	4
2	5
2	8
3	1
3	2
3	3
3	4
3	5
3	6
3	7
3	8
4	1
4	11
4	3
4	5
4	7
4	9

Record: 16

Models : Table

	ModelID	ModelName	BasePrice
+	STB001	President	2400
+	STB002	Dictator	2200
+	STB003	Land Cruser	1500
+	STB004	Starliner	800
+	STB005	Speedster	2100
+	STB006	Avanti	5100
+	STB007	Turismo	4500
+	STB008	Lark	6000

Record: 1 of 8

Packages : Table

PackageID	PackageName	PackagePrice
1	No Package	0
2	Silver Package	1000
3	Gold Package	2500
4	Platinum Packa	5500

Record: 1 of 4

Manufactured : Table

ModelID	Year	ColorID	Picture	PackageID
STB001	1920	1	pic2.jpg	2
STB001	1921	2	pic3.jpg	2
STB001	1922	3	pic6.jpg	3
STB001	1922	4	pic7.jpg	2
STB001	1922	5	pic7.jpg	4
STB002	1930	3	pic4.jpg	2
STB004	1950	2	pic5.jpg	2

Record: 1 of 7

Colors : Table

ColorID	ColorName	ColorDescription
1	Red	Red
2	Yellow	Yellow
3	Blue	Blue
4	White	White
5	Black	Black

Record: 1 of 5

Datasheet View
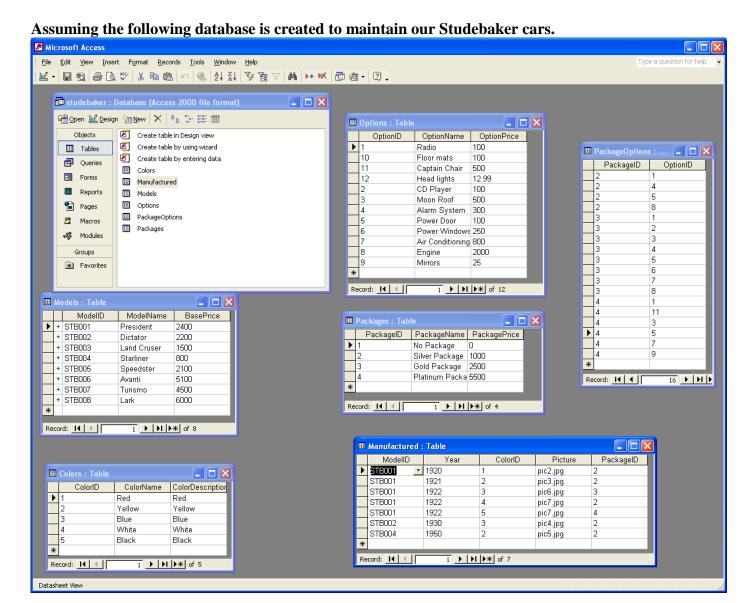
In order to populate our GUI ComboBoxes, we need to query the database and retrieve the proper information. For the purpose of this assignment, we need to populate the following controls with proper data:

Studebaker National Museum

File Help

Studebaker National Museum

Select a Model:
Select the Year:
Select a Color:
Select a Package:

Options in Your Package

Studebaker National Museum Center for History

Your new car

The Museums at Washington and Chapin

Visit the Museum web site

Base Price $ 0
Options $ 0
Total Price $ 0

Print   Exit

1) **Model ComboBox**
2) **Year ComboBox**
3) **Color ComboBox**
4) **BasePrice TextBox**
5) **Ex. Credit (Package ComboBox and Options Textbox)**

The code segment below demonstrates how one can construct a SQL statement. Note that each SQL string is displayed using the MessageBox.Show() to make sure the statement is correctly constructed.

Select all the available MODELS.

```vbnet
Dim sqlStr As String = "SELECT distinct ModelName FROM Models"

MessageBox.Show(sqlStr)
```

Select the YEARs when a given Model was manufactured. Prior to issuing such a query, we must know what the ModelID or ModelName is.

```vbnet
SelectedModel = CStr(ComboBoxModel.SelectedItem())    'ModelName is selected by the user

Dim sqlStr As String = "SELECT distinct Year " & _
                       "FROM   Models, Manufactured " & _
                       "WHERE  ModelName = " & "'" & SelectedModel & "'" &_
                       " AND " & _
                       "Models.ModelID = Manufactured.ModelID"

MessageBox.Show(sqlStr)
```

Selecting the COLORS available for a given Model and Year. Prior to issuing such a query, we must know what the ModelName and Year are.

```vbnet
SelectedModel = CStr(ComboBoxModel.SelectedItem())
SelectedYear = CStr(ComboBoxYear.SelectedItem())

Dim sqlStr As String = "SELECT distinct Colors.ColorName " & _
                       "FROM   Models, Colors, Manufactured " & _
                       "WHERE  ModelName = " & "'" & SelectedModel & "'" & _
                       " AND " & _
                       "Models.ModelID = Manufactured.ModelID" & _
                       " AND " & _
                       "Manufactured.year = " & "'" & SelectedYear & "'" & _
                       " AND " & _
                       "Manufactured.ColorID = Colors.ColorID"

MessageBox.Show(sqlStr)
```

Selecting the BASE PRICE associated with a given Model. In our current database, the BasePrice is associated to the Model. Therefore, prior to issuing such a query, we must know what the ModelID or ModelName is.

```vbnet
Dim sqlStr As String = "SELECT BasePrice " & _
                       "FROM   Models " & _
                       "WHERE " & _
                       "Models.ModelName   = " & "'" & SelectedModel & "'"

MessageBox.Show(sqlStr)
```

Selecting the PICTURE associated with a given Model, Year, and Color.

```vbnet
Dim sqlStr As String = "SELECT distinct Picture " & _
                       "FROM   " & _
                        "Models, Colors, Manufactured " & _
                       "WHERE " & _
                        "Models.ModelName   = " & "'" & SelectedModel & "'" & " AND " & _
                        "Colors.ColorName   = " & " '" & SelectedColor & "'" & " AND " & _
                        "Manufactured.Year    = " & "'" & SelectedYear & "'" & " AND " & _
                        "Manufactured.ModelID = Models.ModelID " & " AND " & _
                        "Manufactured.ColorID = Colors.ColorID"

MessageBox.Show(sqlStr)
```

Selecting the OPTIONS associated with a given Model, Year, and Package. (This query will be used by those who are working on the extra credit)

```vbnet
Dim sqlStr As String = "SELECT distinct OptionName " & _
                       "FROM   Packages, Options, PackageOptions " & _
                       "WHERE " & _
                       "Packages.PackageName = " & "'" & SelectedPackage & "'" & _
                       " AND " & _
                       "Packages.PackageID = PackageOptions.PackageID" & _
```

```
                                    " And " & _
                                    "PackageOptions.Optionid = Options.OptionID"

        MessageBox.Show(sqlStr)
```

Each of the above SQL statements could be tested using the shell module below:

```vbnet
'----------------------------------------
Option Explicit On
Option Strict On
'----------------------------------------
Imports System.Data.OleDb
'----------------------------------------

Public Class Form1
    Inherits System.Windows.Forms.Form


    Private Sub Form1_Load(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles MyBase.Load

        Dim SelectedModel, SelectedYear, SelectedPackage As String

        SelectedModel = "President"
        SelectedYear = "1922"
        SelectedPackage = "Gold Package"

        Dim connStr As String = "Provider=Microsoft.Jet.OLEDB.4.0;" & _
                                "Data Source = Studebaker.MDB"


        Dim sqlStr As String = "SELECT ………… "

        MessageBox.Show(sqlStr)

        Dim dataAdapter As New OleDbDataAdapter(sqlStr, connStr)

        Dim dt As New DataTable          'An internal (in memory) DataTable structure

        dataAdapter.Fill(dt)             'load the DataTable from the database

        dataAdapter.Dispose()            'Get rid of the connection.


        Dim RecordNo As Integer

        For RecordNo = 0 To dt.Rows.Count - 1

            MessageBox.Show(CStr(dt.Rows(RecordNo)("FILED_NAME")))
        Next RecordNo

    End Sub

End Class
```