



CENTRE FOR DIPLOMA STUDIES
MULTIMEDIA CONCEPT

LABORATORY INSTRUCTION SHEET

| | |
|----------------------------|--------------------------------------|
| Course Code | DAT 21103 |
| Lab Practical Title | ADO.NET AND CREATING DATABASE |
| Lab Practical | 11 |

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| | Lab Practical Title: ADO.NET and Creating Database | Semester | 2 |

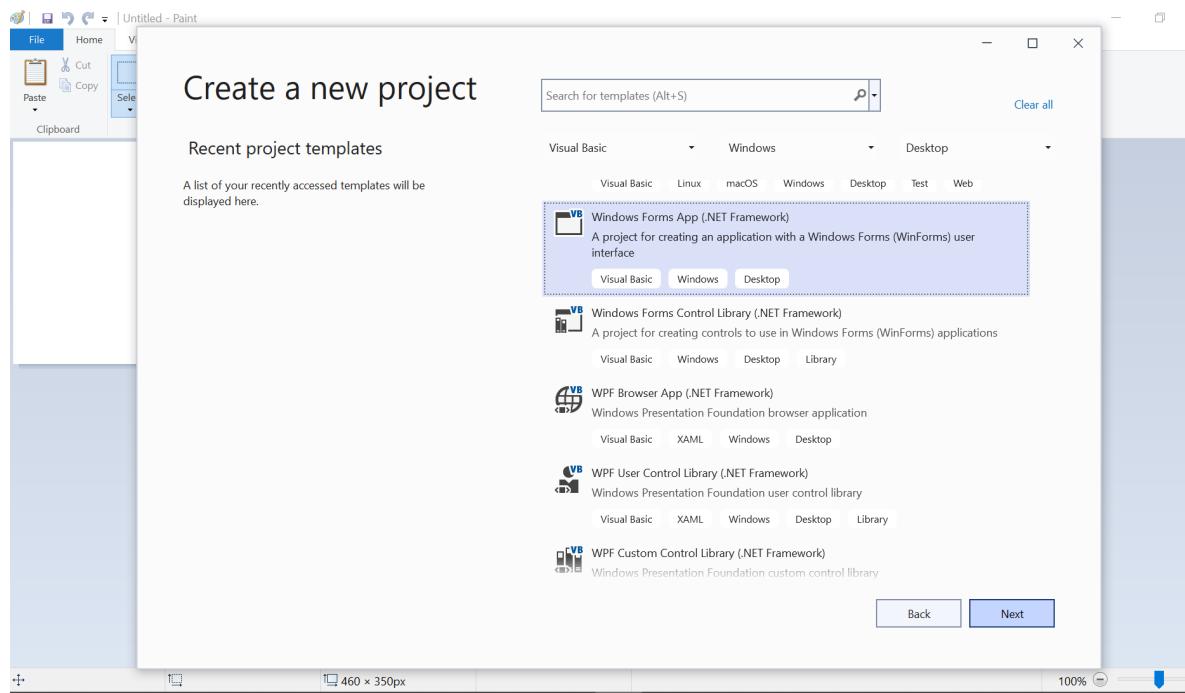
Learning Outcome(s)

At the end of this practical session, you should be able to:

1. Create a database using Visual Basic
2. Create connection between database and Visual Basic application using connection string
3. Insert data into connected database using SQL command
4. View the data from database at windows forms or web forms

Guided Task 11.1: Create Database using Microsoft SQL Server

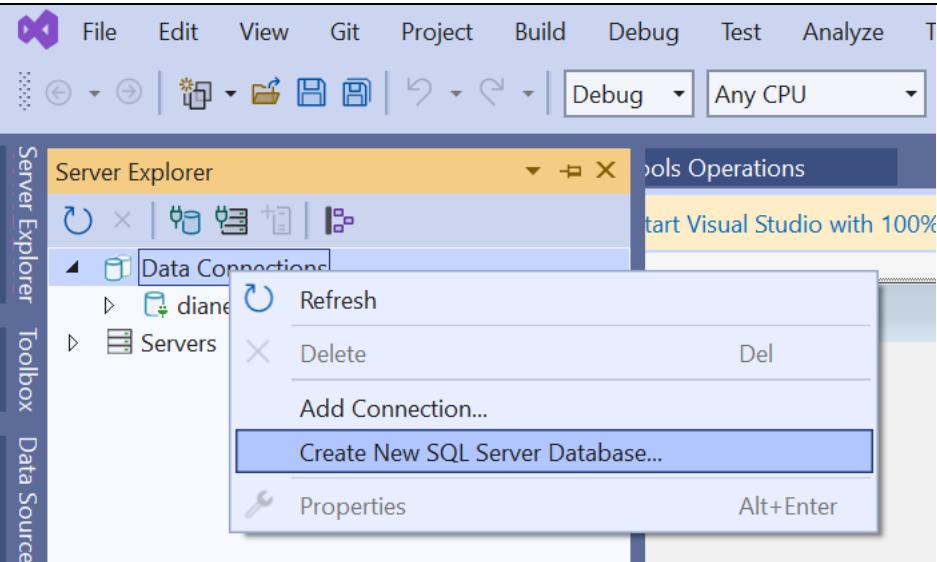
1. Create a new Windows Forms App (.NET Framework) Project for Visual Basic Windows Desktop.



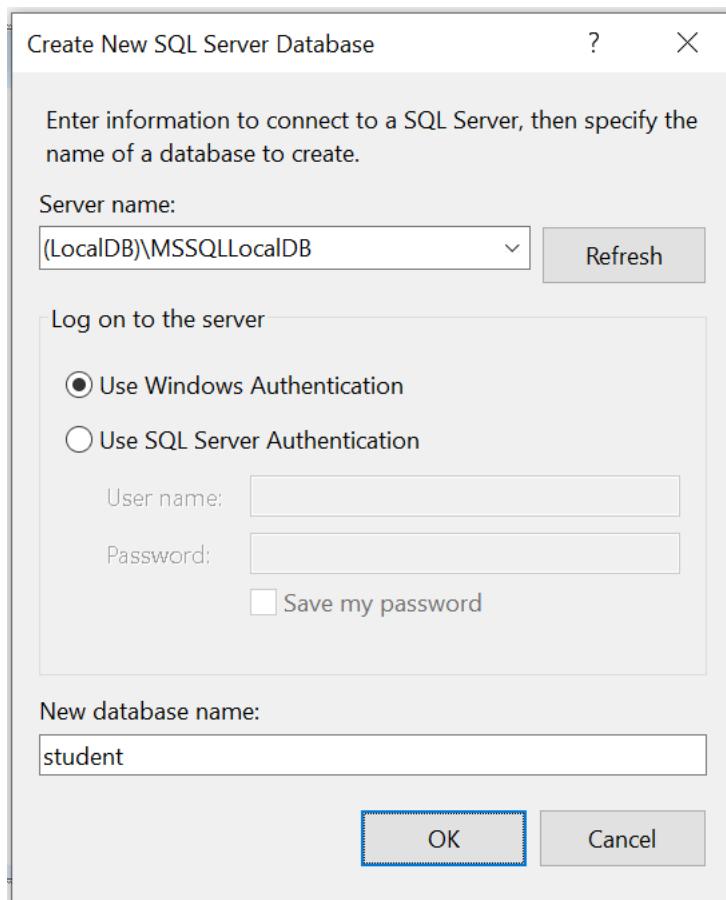
2. Create a new Microsoft SQL Server database named student:

- i. Click Server Explorer, and Right-click the Data Connections node and choose Create New SQL Server Database. ...

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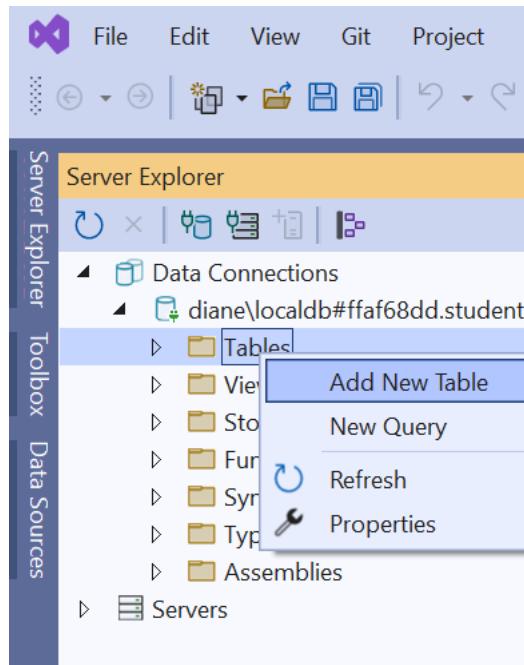
- ii. Enter the server's name where the database will be located - (LocalDB) \MSSQLLocalDB.
- iii. Enter the name of the new database - student.
- iv. Click OK.



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3. Create a new Table:

- i. Right click the Table tab and select add New Table option, the dbo.Table [Design] window will appear; this is where we will add tables.



- ii. Create 6 fields, and specify on what can be entered into them by Editing the Fields' Names and Data Types.

| | Name | Data Type | Allow Nulls | Default | |
|--|------------|-------------|-------------------------------------|---------|--|
| | Id | int | <input checked="" type="checkbox"/> | | |
| | MatrixNo | nchar(10) | <input type="checkbox"/> | | |
| | Name | varchar(50) | <input checked="" type="checkbox"/> | | |
| | Section | int | <input checked="" type="checkbox"/> | | |
| | ScoreTest1 | int | <input checked="" type="checkbox"/> | | |
| | Grade | nchar(10) | <input checked="" type="checkbox"/> | | |
| | | | | | |

- iii. When you have completed setting the columns, rename the table name from Table to DAT21103, the screen should look as shown below.

Changed to DAT21103

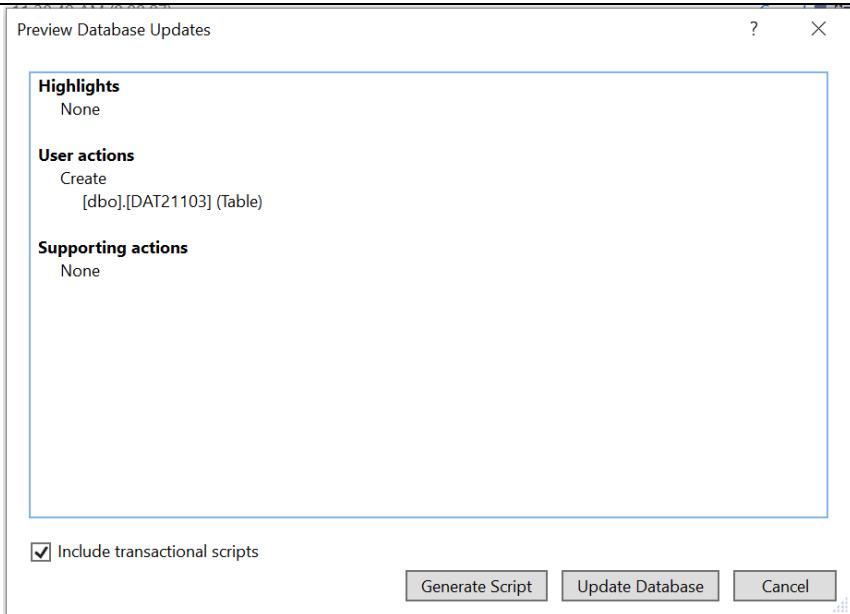
```
CREATE TABLE [dbo].[Table]
(
    [Id] INT NULL,
    [MatrixNo] NCHAR(10) NOT NULL PRIMARY KEY,
    [Name] VARCHAR(50) NULL,
    [Section] INT NULL,
    [ScoreTest1] INT NULL,
    [Grade] NCHAR(10) NULL
)
```

- iv. Update the database by clicking the Update button at the left top corner of the screen and then click the Update Database button.

Update

```
CREATE TABLE [dbo].[DAT21103]
(
    [Id] INT NULL,
    [MatrixNo] NCHAR(10) NOT NULL PRIMARY KEY,
    [Name] VARCHAR(50) NULL,
    [Section] INT NULL,
    [ScoreTest1] INT NULL,
    [Grade] NCHAR(10) NULL
)
```

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- v. Refresh Server Explorer to see your changes appear in Tables. Then, Right click at the Table created to see your Table Data. At this moment your Table data is still empty.

Now the database and table has been setup. The next task is about to manipulate the database and table.

Guided Task 11.2: Insert Data into Database and Display the data from database at DataGridView

Contextual Situation 11.2:

Using database created in Guided Task1, insert the following data into the database through Visual Basic Windows Application.

| ID | Name | MatrixNo | Section | ScoreTest1 | Grade |
|----|-----------|----------|---------|------------|-------|
| 1 | Ali | AA15100 | 1 | 100 | A |
| 2 | Dian Pang | AA15101 | 2 | 95 | A |
| 3 | Samirah | AA15102 | 1 | 80 | A |
| 4 | Zamri | AA15103 | 2 | 40 | D |

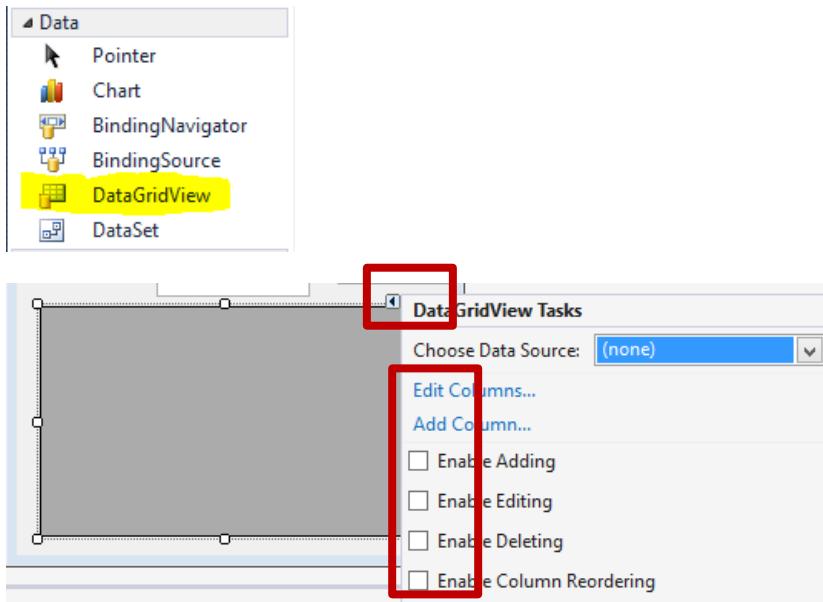
Solution 11.2:

Step 1: Design a Form

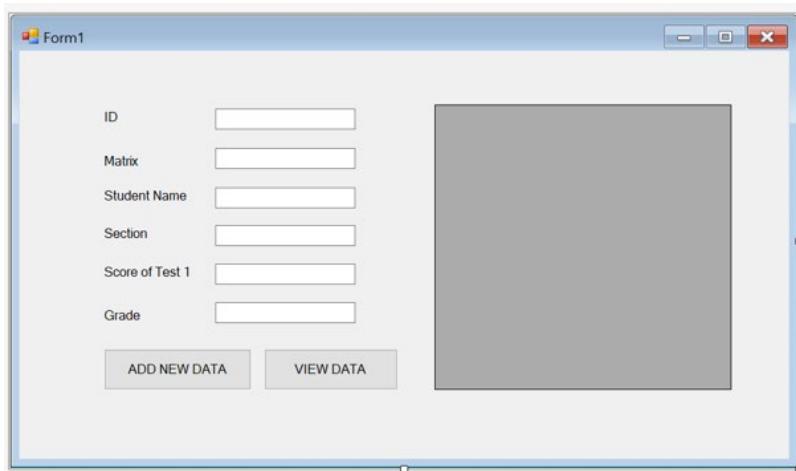
- (a) In the Windows Form, add 6 Labels

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- (b) Add 6 Textboxes
- (c) Add 2 Buttons
- (d) Add a DataGridView and click  on the right side of the DataGridView, then uncheck all the check boxes



Form created would resemble below figure.



Step 2: Set the properties for each object controls

- (a) Set the properties of TextBox1 :
 - i. Click on your TextBox1 to select it.
 - ii. Change the default name at **Name property** to **txtID**.

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- (b) Set the properties of Label1 :
- i. Click on your Label1 to select it.
 - ii. Change the default name at **Name property** to **lblID**.
 - iii. Change the **Text property** to “ID”.
- (c) Set the properties of TextBox2 :
- i. Click on your TextBox2 to select it.
 - ii. Change the default name at **Name property** to **txtName**.
- (d) Set the properties of Label2 :
- i. Click on your Label2 to select it.
 - ii. Change the default name at **Name property** to **lblName**.
 - iii. Change the **Text property** to “Student Name”.
- (e) Set the properties of TextBox3 :
- i. Click on your TextBox3 to select it.
 - ii. Change the default name at **Name property** to **txtMatrix**
- (f) Set the properties of Label3 :
- i. Click on your Label3 to select it.
 - ii. Change the default name at **Name property** to **lblMatrix**
 - iii. Change the **Text property** to “Matrix”.
- (g) Set the properties of TextBox4 :
- i. Click on your TextBox4 to select it.
 - ii. Change the default name at **Name property** to **txtSection**
- (h) Set the properties of Label4 :
- i. Click on your Label4 to select it.
 - ii. Change the default name at **Name property** to **lblSection**
 - iii. Change the **Text property** to “Matrix”.
- (i) Set the properties of TextBox5 :
- i. Click on your TextBox5 to select it.
 - ii. Change the default name at **Name property** to **txtScore**
- (j) Set the properties of Label5 :
- i. Click on your Label5 to select it.
 - ii. Change the default name at **Name property** to **lblScore**
 - iii. Change the **Text property** to “Score of Test 1”.
- (k) Set the properties of TextBox6 :
- i. Click on your TextBox6 to select it.
 - ii. Change the default name at **Name property** to **txtGrade**
- (l) Set the properties of Label6 :
- i. Click on your Label6 to select it.
 - ii. Change the default name at **Name property** to **lblGrade**
 - iii. Change the **Text property** to “Grade”.
- (m) Set the properties of a Button1:
- i. Click on your Button1 to select it.
 - ii. Change the default name at **Name property** to **btnInsert**.
 - iii. Change the **Text property** to “Insert Data”.
- (n) Set the properties of a Button2:

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- i. Click on your Button2 to select it.
 - ii. Change the default name at **Name property** to **btnView**.
 - iii. Change the **Text property** to “View Data”.
- (o) Set the properties of a DataGridView1:
- i. Click on your DataGridView1 to select it.
 - ii. Change the default name at **Name property** to **dgvResult**.

Step 3: Write a program code

(a) Set a namespace

Add following statement **before Public Class form**. This statement used imports .NET Framework Data Provider for SQL Server which describes a collection of classes used to access a SQL Server database in the managed space.

```
Imports System.Data.SqlClient
```

(b) Set ADO.NET SQL Server Connection

Add following statement after Public Class form and before event procedure:

```
Dim conn As New SqlConnection("Data Source=(LocalDB)\MSSQLLocalDB;" &
                           "Initial Catalog=student;" &
                           "Integrated Security=True;" &
                           "Connect Timeout=30;")
```

```
Dim dd As New SqlCommand
```

(c) Click Event Procedure for a btnInsert:

Double-click the button and add the following code to the Click event of the button:

```
Try
  conn.Open()
  dd.Connection = conn
  dd.CommandText = "insert into
    DAT21103(Id,MatrixNo,Name,Section,ScoreTest1,Grade) " &
    "values('" & txtID.Text & "','" & txtMatrix.Text & "','" &
    txtName.Text & "','" &
    "','" & txtSection.Text & "','" & txtScore.Text & "','" &
    txtGrade.Text & "')"
  dd.ExecuteNonQuery()
  MsgBox("Data Saved")
  conn.Close()
Catch ex As Exception
  MsgBox("SQL Problem")
End Try
```

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(d) Click Event Procedure for a btnView:

Double-click the button and add the following code to the Click event of the button:

```

conn.Open()
Dim adp As SqlDataAdapter = New SqlDataAdapter("select * from DAT21103", conn)
Dim ds As DataSet = New DataSet()
adp.Fill(ds)
dgvResult.DataSource = ds.Tables(0)
conn.Close()

```

Step 4: Run the program and fix the error (if occurred)

- i. Run using Start button available at the Microsoft Visual Studio tool bar
- ii. Key in the data through textboxes and click button Insert
- iii. Click button ‘View Data’ to view the data