

## STUDENT ACTIVITY 4.1: UNDERSTAND .NET FILE CLASSES

MTA Course: 10754 Microsoft .NET Fundamentals

Topic: Understand .NET file classes

File name: 10754\_Msft.NET\_SA\_4.1

### Lesson Objective

**4.1:** Understand .NET file classes. *This objective may include but is not limited to:* understanding read/write file classes and stream readers and writers.

### Resources, software, and additional files needed for this lesson:

- Microsoft® Visual Studio® 2010; students may also use Microsoft Visual C#® 2010 Express or Microsoft Visual Basic® 2010 Express, available free at <http://www.microsoft.com/express/Windows/>.

### Reading and Writing Files

#### Directions to the student:

Follow the steps below to create a Visual Studio project for reading and writing files.

*Note: if you are using Windows® 7, there will be slight alterations to the code. These changes are noted as comments in the source code.*

#### Reading and writing text files:

1. Create a new Visual Studio project using the Windows Forms Application template; name it **TextIO**.
2. Add two Buttons (`btnRead` and `btnWrite`) that the user can click to read and write the text file, respectively.
3. Add a `ListBox` to the form (named `lstText`) that you will use to display data that is read from the text file.
4. In the Code View, add the following to the `using` directives at the top of the file:  
`using System.IO;`

**5. Create an event handler for the `btnWrite` Click event. Add the following code:**

```
// Create an array of strings. Add as many colors as you wish.
string[] Colors = { "Blue", "Green", "Red", "Gold", "Yellow" };

// Create a stream and open the file in "append" mode
StreamWriter sw = new StreamWriter("C:\\textIO.txt", true);

// For Windows 7, due to permissions issues, substitute the code // below for the
preceding line:

StreamWriter sw = new StreamWriter("%TEMP%", true);

// Iterate through the array of color names
foreach (string str in Colors)
{
    sw.WriteLine(str); // Write each color name to the file
}

// Close the file
sw.Close();
```

**6. Run the application and click `btnWrite`. Navigate to the root of your C: drive and open `TextIO.txt`.**

You should see the list of color names.

Note: in Windows 7 (with the change indicated in the comments), the text file will be located in `C:\Users\<username>\Documents\Visual Studio 2010\Projects\TextIO\TextIO\bin\Debug`.

**7. Close the text file and run the application again. This time, click `btnWrite` three times. Again, open the text file. Now the color names should be listed four times—each time you click the button, the names are appended to the end of the text file.**

**8. Edit the `btnWrite` Click event handler so that `StreamWriter` opens the file in overwrite (not append) mode by changing `true` to `false` in the following line:**

```
// Create a stream and open the file in "append" mode
StreamWriter sw = new StreamWriter("C:\\textIO.txt", false);
```

**9. Execute the application again and click `btnWrite` several times. Now open the text file and observe that the color names are listed just one time.**

**10. Now create a Click event handler for `btnRead`. Add the following code:**

```
// Make sure the file exists
if (! File.Exists("c:\\textIO.txt") ) return;

// In Windows 7, change preceding line to the following:
if (!File.Exists("%TEMP%")) return;

// Create a stream and open the file
```

```
StreamReadersr = new StreamReader("c:\\textIO.txt");

// In Windows 7, change preceding line to the following:
StreamReadersr = new StreamReader("%TEMP%");

// Loop as long as there is more data available
while (sr.Peek() != -1)
{
    // Add each line to the ListBox
    lstText.Items.Add(sr.ReadLine());
}

// Close the file
sr.Close();
```

9. Run the application and click `btnRead`. The color names listed in `textIO.txt` will be displayed in the `ListBox`.
10. Try editing the text file in Notepad, perhaps by listing the names of all the students in class. Then run the application and read the file; the list should be displayed in the `ListBox`.