Folder Lock

Privacy of personal identifiable information or other sensitive information is an important issue, especially the golden era of technology and information utility. The fields of data security and information security design and utilize software, hardware and human resources to address this issue. A simple, yet effective way to secure personal files or folders is by using file system security features provided by windows operation system. These guidelines show how implement an application in VB.Net to lock/unlocking folders in windows environment.

Time needed to accomplish this task: 20 - 30 minutes

GUI

- Create a new VB.NET project "Windows Form Application", change the project name and path according to your preferences.

- Create a new windows form (if it is not created by default), name it "frmLock", and change its caption/text to "Folder Lock/Unlock"

- In "frmLock" form, create 1 textbox, 1 label, and 3 buttons and change their properties as follows:

Old Name	New Name	Caption/Text	Other Properties
TextBox1	txtInp		
Label1	lblInp	File Name:	
Button1	btnBrowse	Browse	
Button2	btnLock	Lock	
Button3	btnUnlock	Unlock	

- By the end of this step you should have something looks like the following picture:
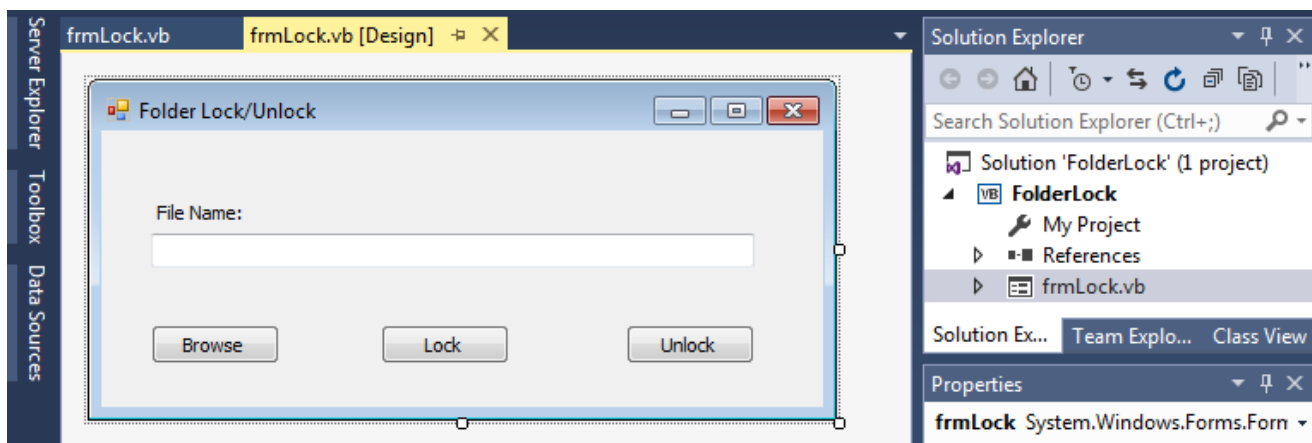
Now… Let's do some coding…

Coding

- At the beginning, let's do some imports. Add these lines to the beginning of your "frmLock.vb" file

```
Imports System.Security.AccessControl
Imports System.IO
```

Note: The above imports help us to minimize the code and the time needed to write the code.

Browsing for the folder:

To select the folder that you want to lock/unlock, we will use "FolderBrowseDialog" tool that you can find it in the Toolbox under "Dialogs" subcategory.

- Drag and drop "FolderBrowseDialog" into your form. You will notice that this tool is added to under the divider below your form.

- Change the name of this tool from "FolderBrowseDialog1" to "FBD1"

- Double click on frmBrowse button. On btnBrowse_Click event, write the following code

```
With FBD1
    If .ShowDialog() = DialogResult.OK Then
        txtInp.Text = .SelectedPath
    End If
End With
```

Note: The code above will show the FolderBrowseDialog "FBD1" to the user and let the user browse and select a folder. When a folder is selected, the path (of the selected folder) will be returned and displayed on TxtInp textbox.

Since the folder is selected successfully, now it is time to lock it…

Locking Folder

To do the locking of the folder, we will use the file system security services provided by Windows operating system and are available in .NET platform.

The folder locking is carried out following these steps.

- Double click on "btnLock" to write the code in "btnLock_Click" event sub:

- Define and assign access rules for the selected folder to deny access to that folder.

```
Dim fs As FileSystemSecurity = File.GetAccessControl(txtInp.Text)

fs.AddAccessRule(New FileSystemAccessRule(Environment.UserName,
FileSystemRights.FullControl, AccessControlType.Deny))

File.SetAccessControl(txtInp.Text, fs)
```

- To show the user that the folder was locked successfully, a messagebox is used as follows:

```
MessageBox.Show("Folder is now LOCKED!")
```

Unlocking Folder

Similarly, to implement the unlocking part, we will use the services provided by .NET platform.
To do so, write the following code in "btnUnlock_Click" event sub:

- Use the "FileSystemSecurity" class to remove access rules from the selected folder.

```vb
Dim fs As FileSystemSecurity = File.GetAccessControl(txtInp.Text)

fs.RemoveAccessRule(New FileSystemAccessRule(Environment.UserName,
FileSystemRights.FullControl, AccessControlType.Deny))

File.SetAccessControl(txtInp.Text, fs)
```
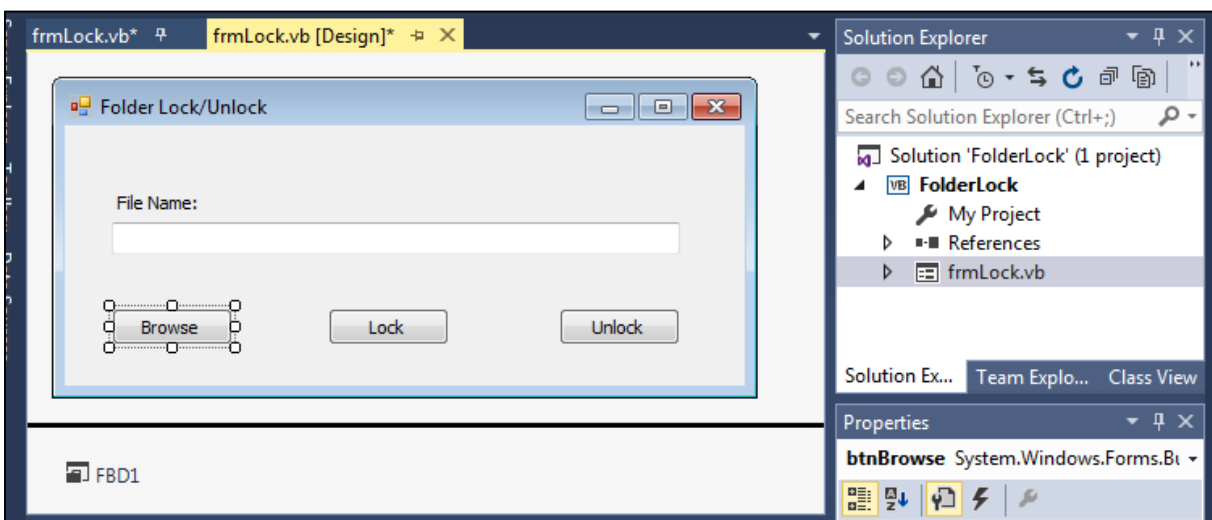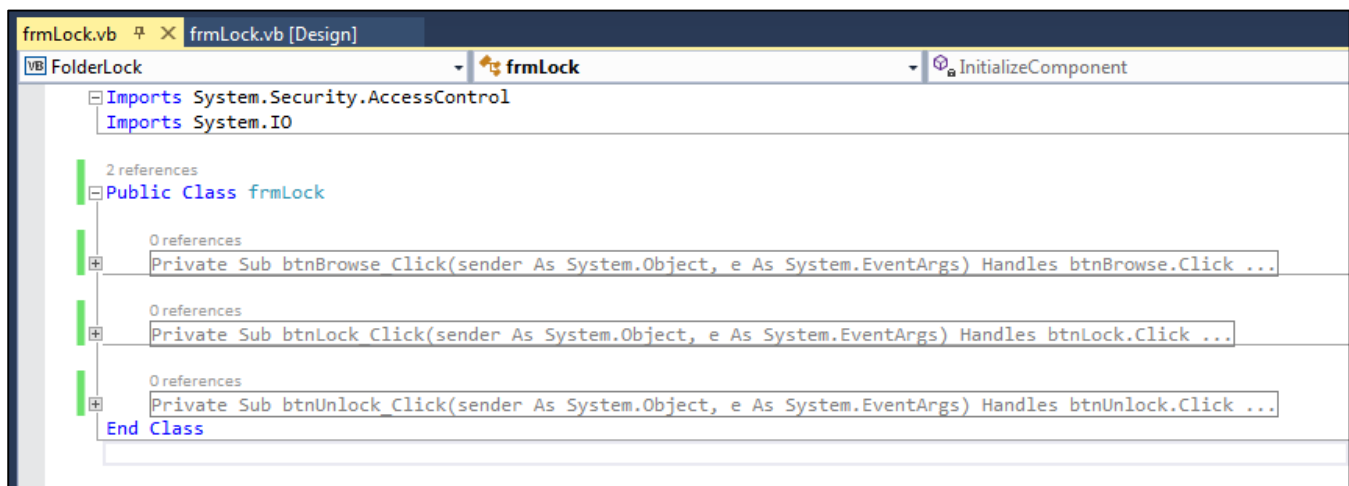
- To show the user that the folder was unlocked successfully, a messagebox is used as follows:

```vb
MessageBox.Show("Folder is now UNLOCKED!")
```

Final Product:

At the end of this session you should have the following codes:

The "btnBrowse_Click" sub should look like this:

```vb
Private Sub btnBrowse_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles btnBrowse.Click
    With FBD1
        If .ShowDialog() = DialogResult.OK Then
            txtInp.Text = .SelectedPath
        End If
    End With

End Sub
```

The "btnLock_Click" sub should look like this:

```vb
Private Sub btnLock_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles btnLock.Click

    Dim fs As FileSystemSecurity = File.GetAccessControl(txtInp.Text)
    fs.AddAccessRule(New FileSystemAccessRule(Environment.UserName, FileSystemRights.FullControl, AccessControlType.Deny))
    File.SetAccessControl(txtInp.Text, fs)
    MessageBox.Show("Folder is now LOCKED!")

End Sub
```

The "btnUnlock_Click" sub should look like this:

```vb
Private Sub btnUnlock_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles btnUnlock.Click

    Dim fs As FileSystemSecurity = File.GetAccessControl(txtInp.Text)
    fs.RemoveAccessRule(New FileSystemAccessRule(Environment.UserName, FileSystemRights.FullControl, AccessControlType.Deny))
    File.SetAccessControl(txtInp.Text, fs)
    MessageBox.Show("Folder is now UNLOCKED!")

End Sub
```

Question 1:

We used FileSystemSecurity to control access rules for folders in Windows environment. Does FileSystemSecurity class support controlling access rules for **files** too? If yes, how?

Question 2:

How can you keep track of the folders that have been locked/unlocked in your system? What are the additional components and coding that are required to do this task?

Check:

Lock a folder in pen drive and try to open the folder in another PC… Working??? Justify.

Lock a folder and logout of windows and login again using another user,… try to open the locked file… is it locked?? Justify.