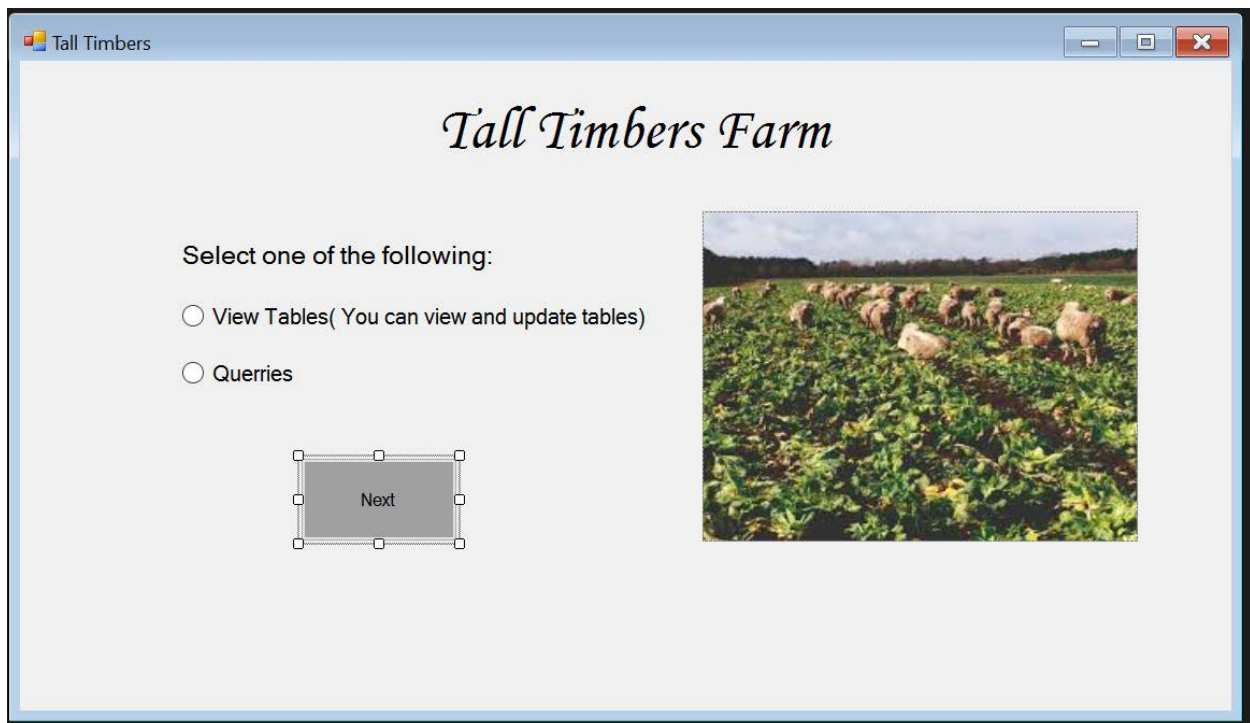


5. Project report 5 on Windows application with security and usability features. In this updated application, you will present information from only two tables and only two queries from your Access database although you may need to include all Access tables in your application. In this part of the project, each project team will add to the Windows application developed for Project Report4 the following:

- 1) (25 points) Security: the login function for the Updates part of the Windows application. When a user selects Updates from the main menu, the user is presented with prompts for login name and password. The application will store the login name and encrypted password of some users, and use an encryption algorithm to encrypt the password a user enters and determine if the encrypted password matches the stored password for the user with the given login name. If there is a match, the user is allowed the access the Updates part of the application. If there is no match, the user is denied the access to the Updates part of the application.
- 2) (20 points) Interface usability: reduce the number and levels of Windows forms in the application, i.e., letting the user access all functions and information in one screen, and make other improvements of the user interface design of the Windows application to make it more user-friendly.

Design View



Code View

```
1 Public Class Nextpage
2     Private Sub LaborBindingNavigatorSaveItem_Click(sender As Object, e As EventArgs)
3         Me.Validate()
4         Me.LaborBindingSource.EndEdit()
5         Me.TableAdapterManager.UpdateAll(Me.Database111DataSet)
6     End Sub
7
8
9     Private Sub Nextpage_Load(sender As Object, e As EventArgs) Handles MyBase.Load
10        'TODO: This line of code loads data into the 'Database111DataSet.Labor' table. You can move, or remove it, as needed.
11        Me.LaborTableAdapter.Fill(Me.Database111DataSet.Labor)
12    End Sub
13
14
15    Private Sub Button1_Click(sender As Object, e As EventArgs) Handles Button1.Click
16        If RadioButton1.Checked Then
17            Me.Hide()
18            Tables.Show()
19        ElseIf RadioButton2.Checked Then
20            Me.Hide()
21            Queries.Show()
22        End If
23    End Sub
24
25 End Class
```

Design View

Tables

0 of 0

List of Tables

Select one of the following to view:

☐ Crops

☐ LiveStock

View Update Table Back

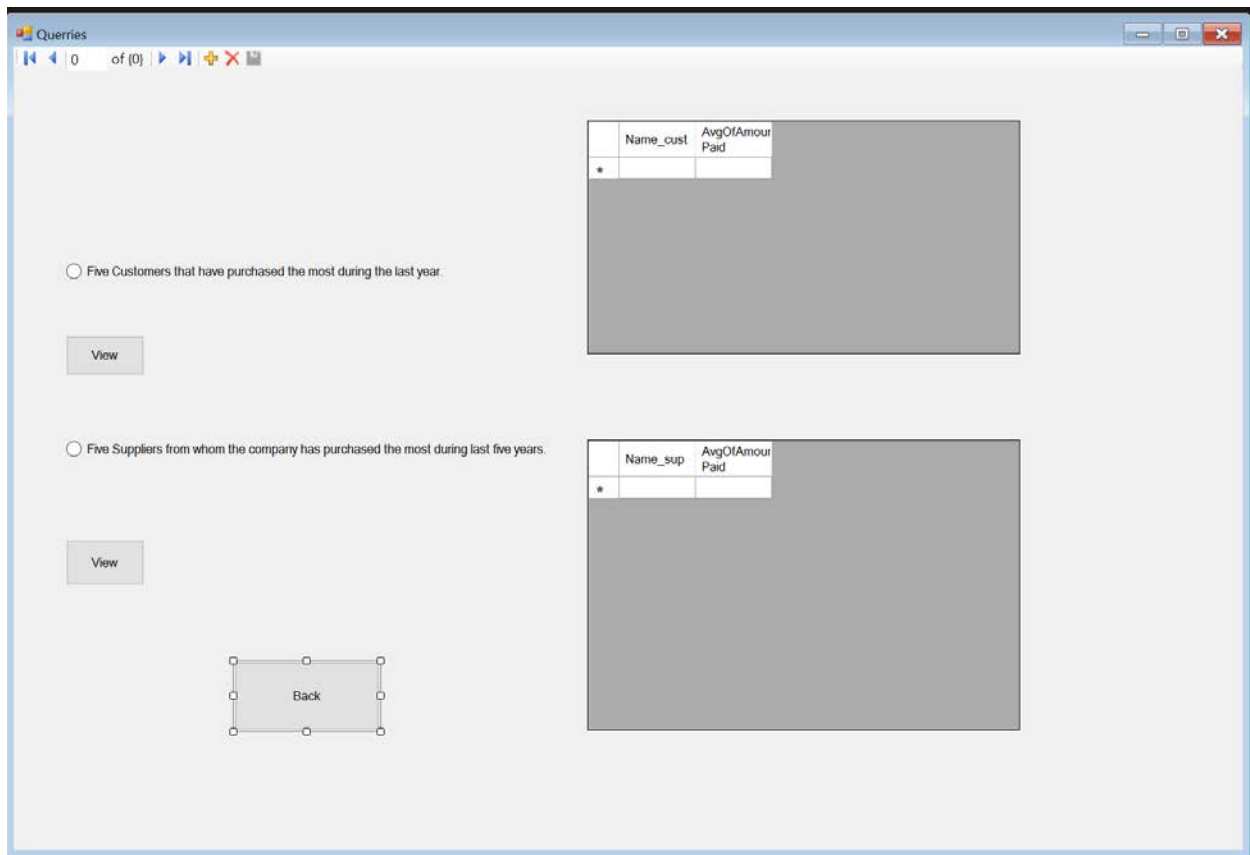
ID	Average Yield
*	

ID	Inv Number	Inventory Year	Age
*			

Code View

```
1 Public Class Tables
2     Private Sub Button1_Click(sender As Object, e As EventArgs) Handles Button1.Click
3         If RadioButton1.Checked Then
4             CropDataGridView1.Visible = vbYes
5         ElseIf RadioButton2.Checked Then
6             CropDataGridView.Visible = vbYes
7         End If
8     End Sub
9
10
11     Private Sub Button2_Click(sender As Object, e As EventArgs) Handles Button2.Click
12         Me.Hide()
13         Form1.Show()
14     End Sub
15
16     Private Sub CropBindingNavigatorSaveItem_Click(sender As Object, e As EventArgs) Handles CropBindingNavigatorSaveItem.Click
17         Me.Validate()
18         Me.CropBindingSource.EndEdit()
19         Me.TableAdapterManager.UpdateAll(Me.Database111DataSet)
20     End Sub
21
22
23     Private Sub Tables_Load(sender As Object, e As EventArgs) Handles MyBase.Load
24         'TODO: This line of code loads data into the 'Database111DataSet.Livestock' table. You can move, or remove it, as needed.
25         Me.LivestockTableAdapter.Fill(Me.Database111DataSet.Livestock)
26         'TODO: This line of code loads data into the 'Database111DataSet.Crop' table. You can move, or remove it, as needed.
27         Me.CropTableAdapter.Fill(Me.Database111DataSet.Crop)
28     End Sub
29
30
31     Private Sub BindingNavigatorAddNewItem_Click(sender As Object, e As EventArgs) Handles BindingNavigatorAddNewItem.Click
32     End Sub
33
34
35     Private Sub Button3_Click(sender As Object, e As EventArgs) Handles Button3.Click
36         Nextpage.Show()
37         Me.Hide()
38     End Sub
39 End Class
```

Design View



The Design View of the 'Queries' form shows a light gray background. At the top, there is a title bar with the text 'Queries' and standard window controls. Below the title bar, there is a toolbar with icons for navigation and editing. The main area contains two radio buttons, each with a corresponding 'View' button and a data grid.

☐ Five Customers that have purchased the most during the last year.

☐ Five Suppliers from whom the company has purchased the most during last five years.

☐ Back

	Name_cust	AvgOfAmour Paid
*		

	Name_sup	AvgOfAmour Paid
*		

Code View

```
1 2 references
2 Public Class Queries
3 0 references
4 Private Sub Queries_Load(sender As Object, e As EventArgs) Handles MyBase.Load
5 'TODO: This line of code loads data into the 'Database111DataSet.Query3d' table. You can move, or remove it, as needed.
6 Me.Query3dTableAdapter.Fill(Me.Database111DataSet.Query3d)
7 'TODO: This line of code loads data into the 'Database111DataSet.Query3b' table. You can move, or remove it, as needed.
8 Me.Query3bTableAdapter.Fill(Me.Database111DataSet.Query3b)
9 End Sub
10
11 0 references
12 Private Sub Button1_Click(sender As Object, e As EventArgs) Handles Button1.Click
13 If RadioButton1.Checked Then
14 Query3bDataGridView.Visible = vbYes
15 End If
16 End Sub
17
18 0 references
19 Private Sub Button2_Click(sender As Object, e As EventArgs) Handles Button2.Click
20 If RadioButton2.Checked Then
21 Query3dDataGridView.Visible = vbYes
22 End If
23 End Sub
24
25 0 references
26 Private Sub Button3_Click(sender As Object, e As EventArgs) Handles Button3.Click
27 Nextpage.Show()
28 Me.Hide()
29 End Sub
30 End Class
```

Design View

Form1

Farm Management Database

You need to Login to update the tables:

Username

Password

Login Create Account Back

Code View

```
VB FarmManagementHW5 Form1
2 references
1 Public Class Form1
2
3
4
5
6 0 references
Private Sub Button1_Click(sender As Object, e As EventArgs) Handles Button1.Click
7 If TextBox1.Text = My.Settings.Username And TextBox2.Text = My.Settings.Password Then
8 Me.Hide()
9 Table_Updated.Show()
10
11 End If
12 End Sub
13
14 0 references
Private Sub Button2_Click(sender As Object, e As EventArgs) Handles Button2.Click
15 Me.Hide()
16 ForgotPassword.Show()
17 End Sub
18
19 0 references
Private Sub Button3_Click(sender As Object, e As EventArgs) Handles Button3.Click
20 Me.Hide()
21 Tables.Show()
22 End Sub
23 End Class
24
```

Design View

The image shows the Design View of a Windows form titled "Create Username". The form has a light gray background and contains three text boxes labeled "New Username", "New Password", and "Confirm New Password". Below the text boxes are two buttons: "Save" and "Back". The form is enclosed in a standard Windows window frame with minimize, maximize, and close buttons.

Code View

```
VB FarmManagementHW5 ForgotPassword

1 1 reference
2 Public Class ForgotPassword
3     0 references
4     Private Sub Button1_Click(sender As Object, e As EventArgs) Handles Button1.Click
5         My.Settings.Username = TextBox1.Text
6         My.Settings.Password = TextBox2.Text
7         My.Settings.Confirm = TextBox3.Text
8
9         If TextBox2.Text <> TextBox3.Text Then
10             MsgBox("Passwords do not match")
11
12         ElseIf TextBox2.Text = TextBox3.Text Then
13
14             Dim Encryption As Integer = 3
15             For Each letter As String In TextBox2.Text
16                 TextBox2.Text += Chr(Asc(letter) + Encryption)
17             Next
18             My.Settings.Save()
19             'login.show()
20             'Me.Hide()
21
22             MsgBox("Account created")
23             Form1.Show()
24             Me.Hide()
25         End If
26     End Sub
27
28     0 references
29     Private Sub Button2_Click(sender As Object, e As EventArgs) Handles Button2.Click
30         Form1.Show()
31         Me.Hide()
32     End Sub
33 End Class
```

Design View

Table_Updated

0 of (0)

List of Tables

Select one of the following to view:

☐ Crops

☐ LiveStock

View Update Table Log out

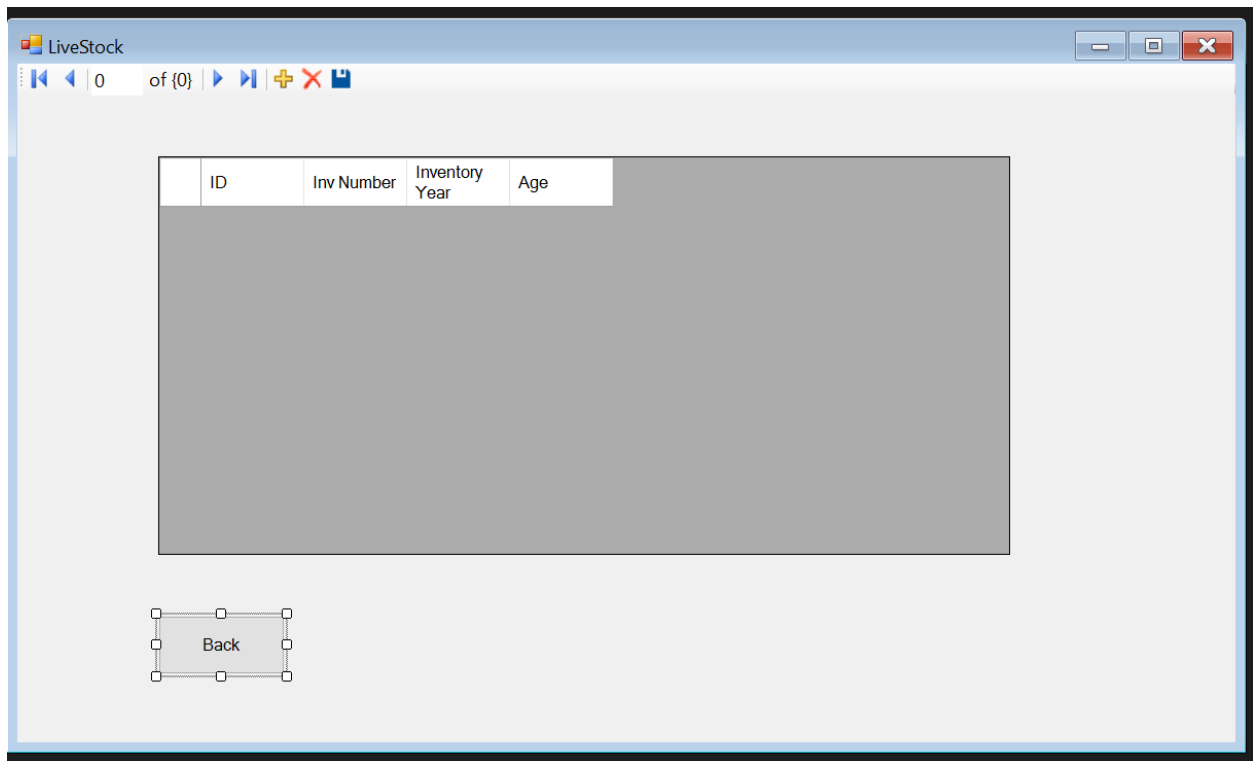
ID	Average Yield
*	

ID	Inv Number	Inventory Year	Age
*			

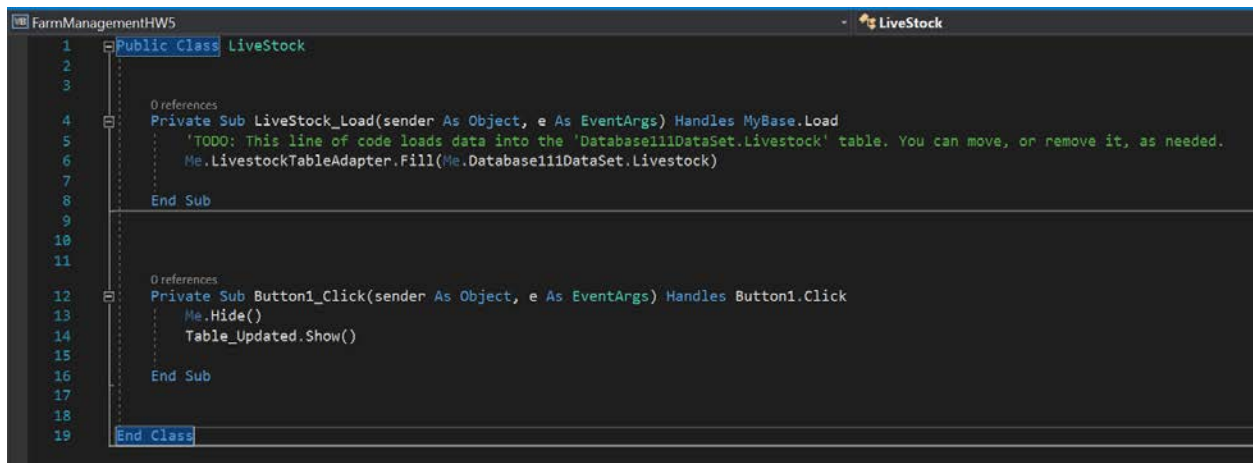
Code View

```
1 Public Class Table_Updated
2     Private Sub Button2_Click(sender As Object, e As EventArgs) Handles Button2.Click
3         If RadioButton1.Checked Then
4             Crops.Show()
5         ElseIf RadioButton2.Checked Then
6             LiveStock.Show()
7         End If
8     End Sub
9
10    Private Sub CropBindingNavigatorSaveItem_Click(sender As Object, e As EventArgs) Handles CropBindingNavigatorSaveItem.Click
11        Me.Validate()
12        Me.CropBindingSource.EndEdit()
13        Me.TableAdapterManager.UpdateAll(Me.Database111DataSet)
14    End Sub
15
16    Private Sub Table_Updated_Load(sender As Object, e As EventArgs) Handles MyBase.Load
17        'TODO: This line of code loads data into the 'Database111DataSet.Livestock' table. You can move, or remove it, as needed.
18        Me.LivestockTableAdapter.Fill(Me.Database111DataSet.Livestock)
19        'TODO: This line of code loads data into the 'Database111DataSet.Crop' table. You can move, or remove it, as needed.
20        Me.CropTableAdapter.Fill(Me.Database111DataSet.Crop)
21    End Sub
22
23    Private Sub Button1_Click(sender As Object, e As EventArgs) Handles Button1.Click
24        If RadioButton1.Checked Then
25            CropDataGridView.Visible = vbYes
26        ElseIf RadioButton2.Checked Then
27            LivestockDataGridView.Visible = vbYes
28        End If
29    End Sub
30
31    Private Sub Button3_Click(sender As Object, e As EventArgs) Handles Button3.Click
32        Me.Hide()
33        Form1.Show()
34    End Sub
35 End Class
```

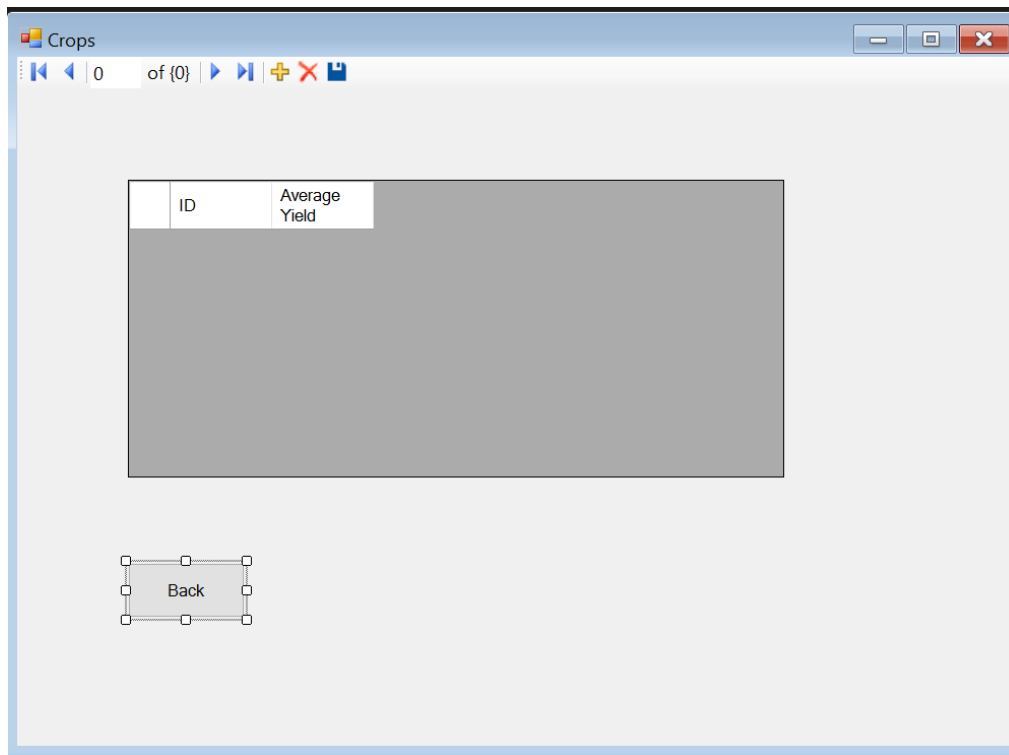
Design View



Code View



Design View

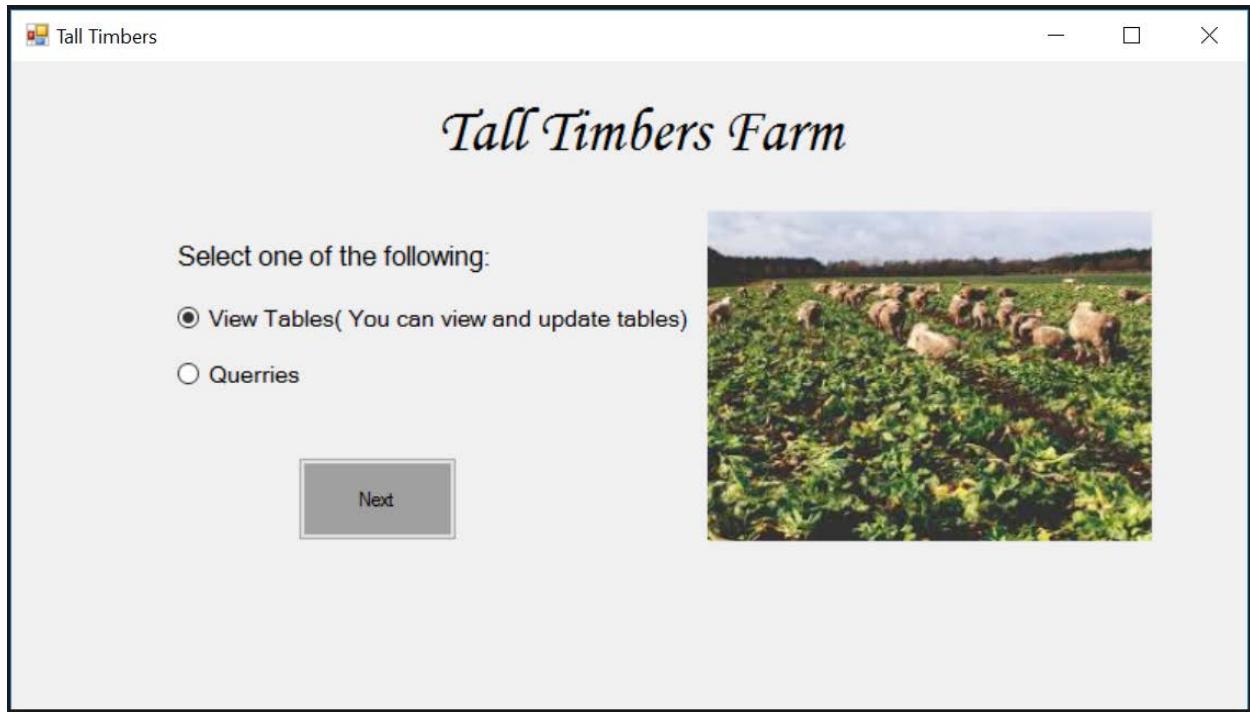


Code View

```
1  Public Class Crops
2
3
4
5  References
6  Private Sub Crops_Load(sender As Object, e As EventArgs) Handles MyBase.Load
7      'TODO: This line of code loads data into the 'Database111DataSet.Crop' table. You can move, or remove it, as needed.
8      Me.CropTableAdapter.Fill(Me.Database111DataSet.Crop)
9  End Sub
10
11 References
12 Private Sub Button1_Click(sender As Object, e As EventArgs) Handles Button1.Click
13     Me.Hide()
14     Table_Updated.Show()
15 End Sub
16 End Class
17
```

Steps after RUN:

- 1) This is the home screen of the application, where we can select two options view tables or perform queries.



- 2) As you can see in the following image, one can view the required tables by selecting one of the options



- 3) Tables can be viewed side by side for the options selected as shown.

Tables

1 of 5

List of Tables

Select one of the following to view:

☒ Crops

☐ LiveStock

View

Update Table

Back

	ID	Average Yield
▶	1	100
	2	200
	3	450
	4	200
	5	250
•		

Tables

1 of 5

List of Tables

Select one of the following to view:

☐ Crops

☒ LiveStock

View

Update Table

Back

	ID	Average Yield
▶	1	100
	2	200
	3	450
	4	200
	5	250
•		

	ID	Inv Number	Inventory Year	Age
▶	6	50	7/3/2011	6
	7	150	7/4/2010	8
	8	60	7/7/2013	6
	9	12	7/9/2008	7
	10	68	7/9/2007	5
•				

4) If you perform queries, following data can be obtained.

Tall Timbers


Tall Timbers Farm

Select one of the following:

☐ View Tables(You can view and update tables)

☒ Queries

Next



Queries

1 of 3

☒ Five Customers that have purchased the most during the last year.

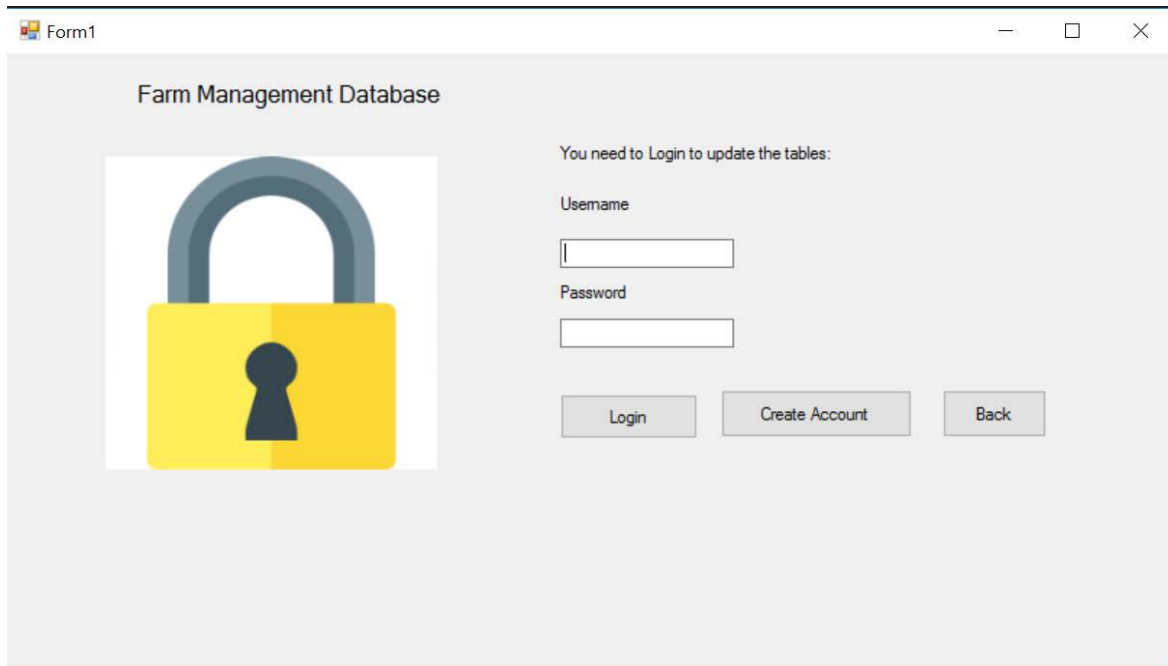
View

☐ Five Suppliers from whom the company has purchased the most during last five years.

View

Back

- 5) If a person wants to update the data that can be viewed in initial windows forms, then, he/she needs to either login or create account.



Form1

Farm Management Database

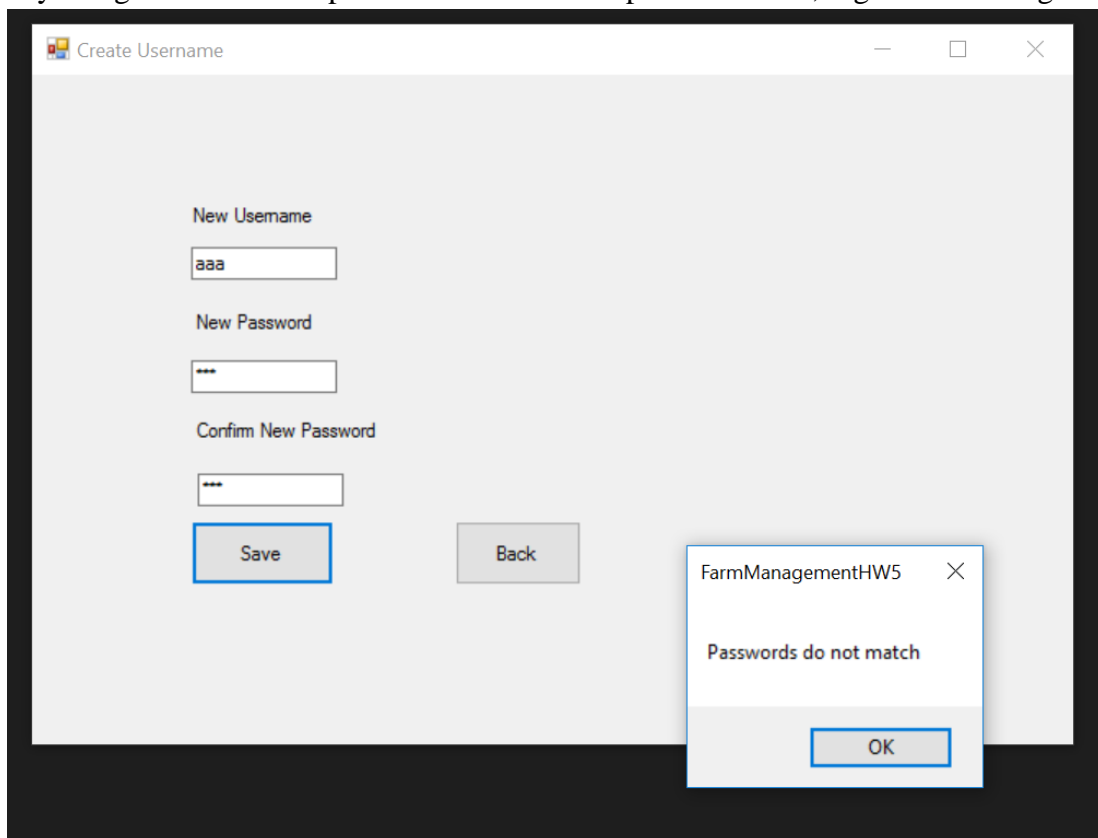
You need to Login to update the tables:

Username

Password

Login Create Account Back

- 6) Try using username: aaa password: aaa confirm password: bbb, it gives following O/P.



Create Username

New Username

aaa

New Password

Confirm New Password

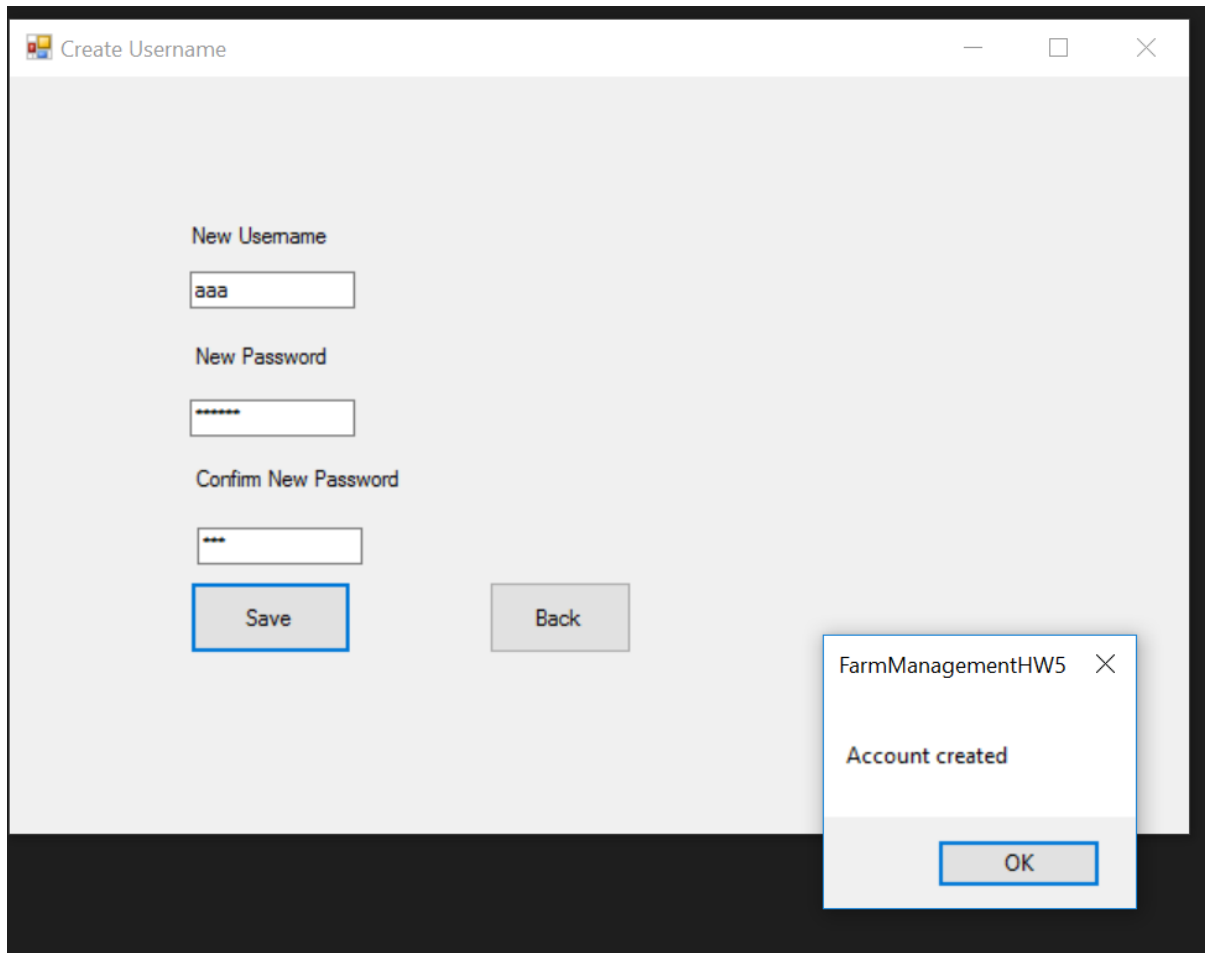
Save Back

FarmManagementHW5

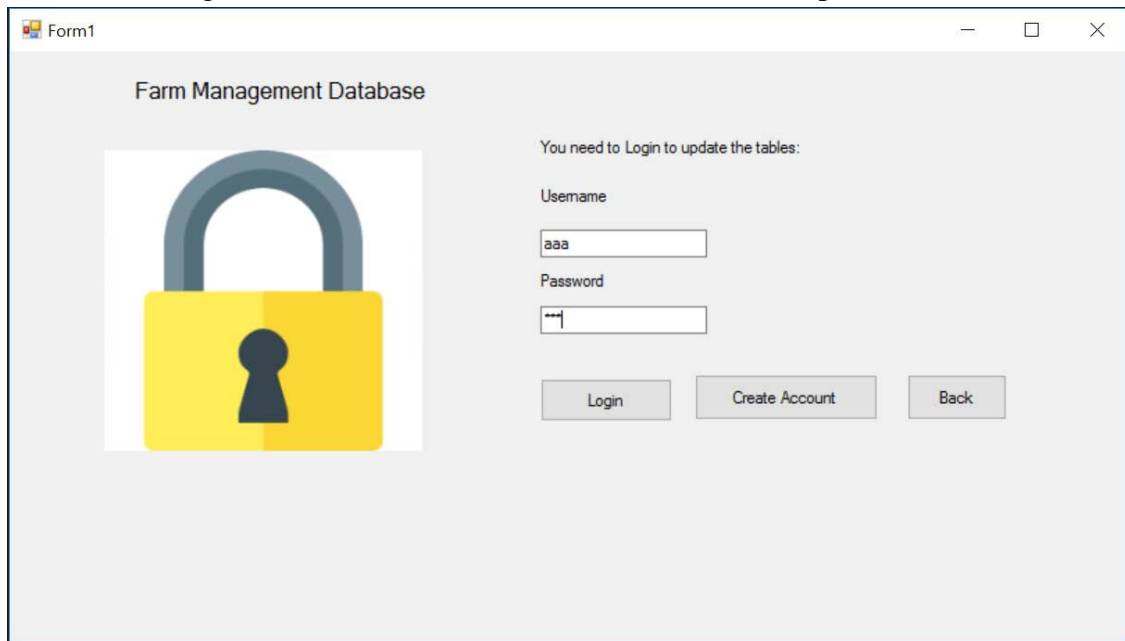
Passwords do not match

OK

- 7) When used correct confirm password, the encryption of password takes place which can be seen in the following output, as the password saved is aaa but once we press save, encryption is done to produce public key and hence, password textbox shows 6 characters instead of 3.

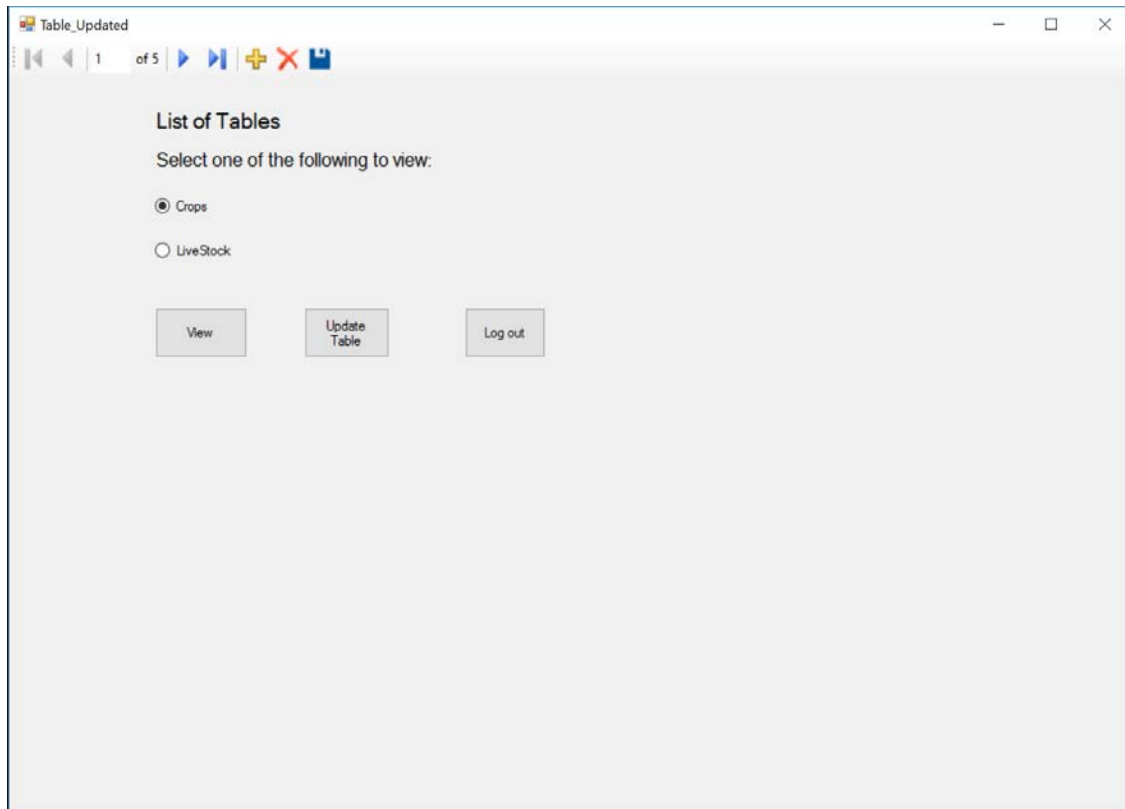


- 8) We return to log in screen and then enter correct username and password



The screenshot shows a window titled "Form1" with the text "Farm Management Database" at the top. On the left is a large yellow padlock icon. To the right, the text "You need to Login to update the tables:" is displayed. Below this, there are two input fields: "Username" with the text "aaa" and "Password" with masked characters. At the bottom right, there are three buttons: "Login", "Create Account", and "Back".

- 9) Then continue to update the livestock and crop forms.



The screenshot shows a window titled "Table_Updated" with a toolbar at the top containing navigation icons and a "1 of 5" indicator. The main content area is titled "List of Tables" and contains the text "Select one of the following to view:". Below this, there are two radio buttons: "Crops" (which is selected) and "LiveStock". At the bottom, there are three buttons: "View", "Update Table", and "Log out".

Table_Updated

1 of 5

List of Tables

Select one of the following to view:

☒ Crops

☐ LiveStock

View

Update Table

Log out

	ID	Average Yield
▶	1	100
	2	200
	3	450
	4	200
	5	250
*		

Table_Updated

1 of 5

List of Tables

Select one of the following to view:

☐ Crops

☒ LiveStock

View

Update Table

Log out

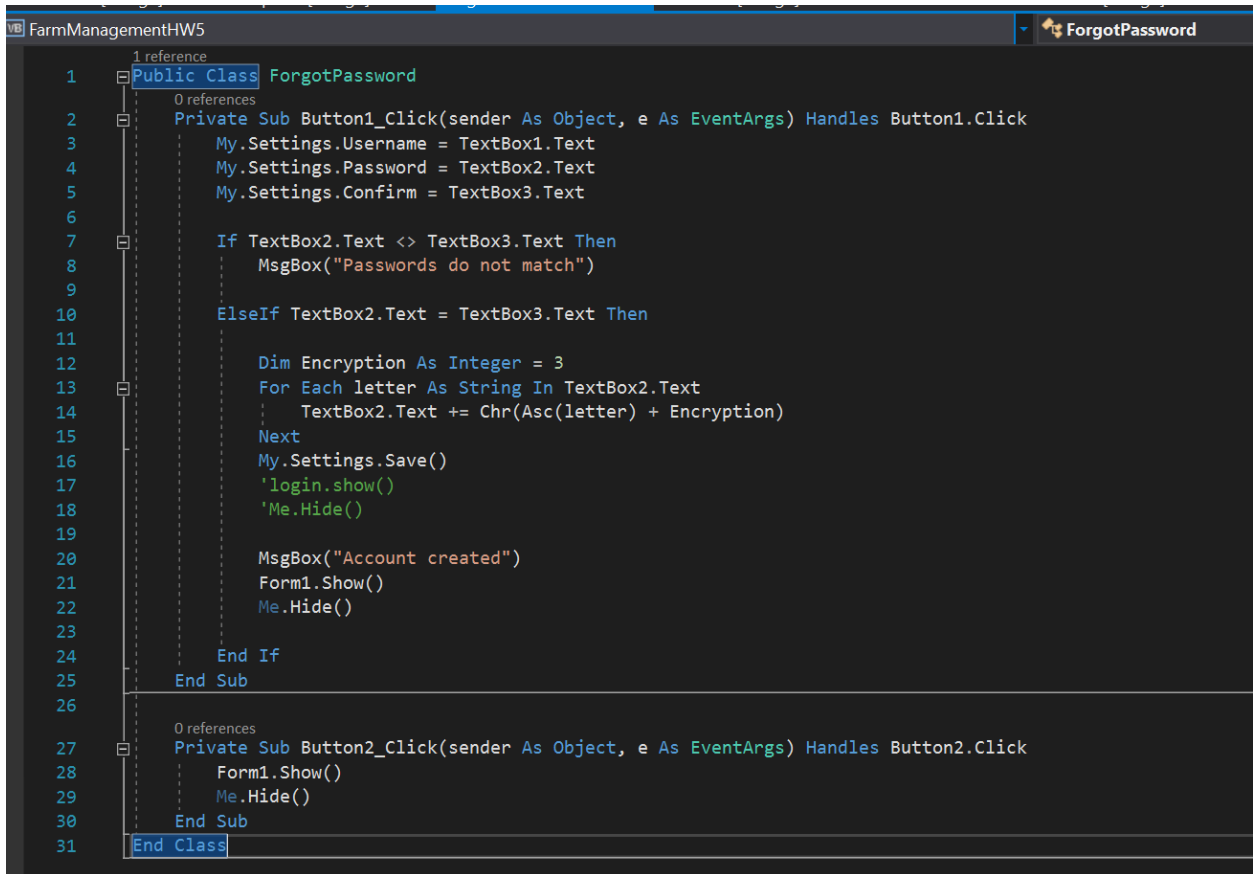
	ID	Average Yield
▶	1	100
	2	200
	3	450
	4	200
	5	250
*		

	ID	Inv Number	Inventory Year	Age
▶	6	50	7/3/2011	6
	7	150	7/4/2010	8
	8	60	7/7/2013	6
	9	12	7/9/2008	7
	10	68	7/9/2007	5
*				

< >

Q.5)

1) Security:



```
1 reference
Public Class ForgotPassword
0 references
Private Sub Button1_Click(sender As Object, e As EventArgs) Handles Button1.Click
    My.Settings.Username = TextBox1.Text
    My.Settings.Password = TextBox2.Text
    My.Settings.Confirm = TextBox3.Text

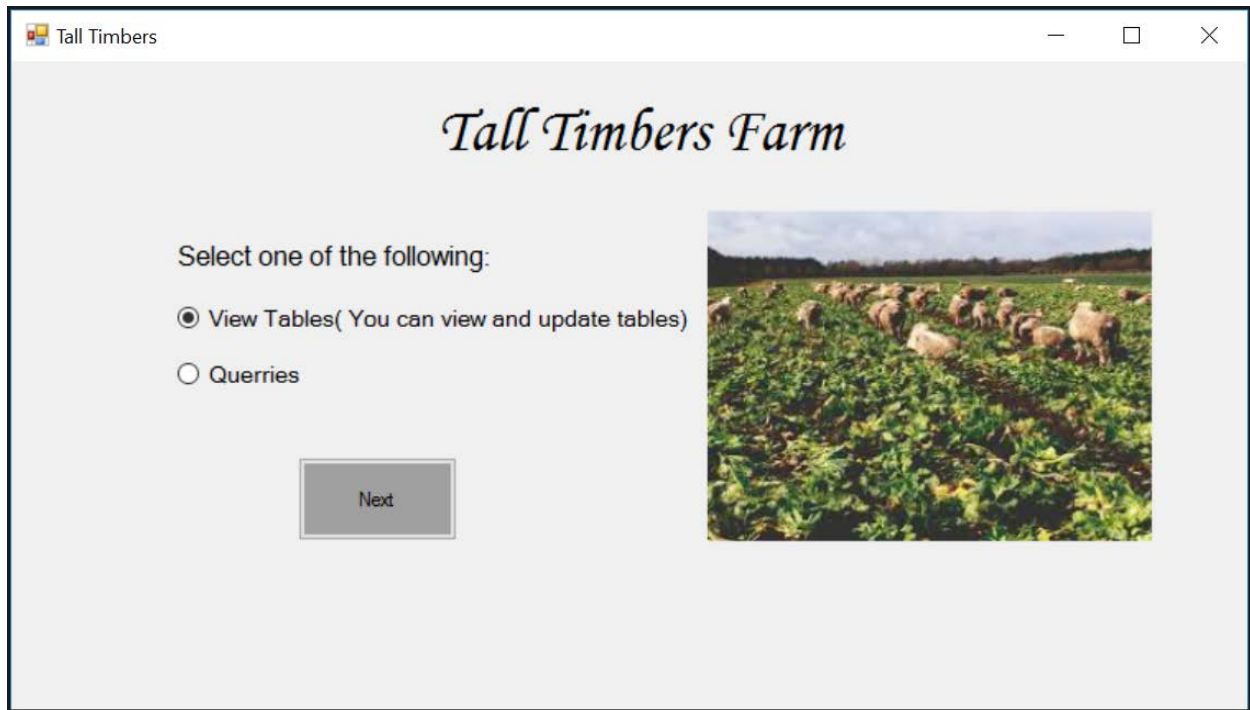
    If TextBox2.Text <> TextBox3.Text Then
        MsgBox("Passwords do not match")
    ElseIf TextBox2.Text = TextBox3.Text Then
        Dim Encryption As Integer = 3
        For Each letter As String In TextBox2.Text
            TextBox2.Text += Chr(Asc(letter) + Encryption)
        Next
        My.Settings.Save()
        'login.show()
        'Me.Hide()

        MsgBox("Account created")
        Form1.Show()
        Me.Hide()
    End If
End Sub

0 references
Private Sub Button2_Click(sender As Object, e As EventArgs) Handles Button2.Click
    Form1.Show()
    Me.Hide()
End Sub
End Class
```

- The log in form provides access to the correct match of password to the user to update the data, and not otherwise.
- As we can see in the code view, ASCII encryption for log in process is used.
- The application saves the username and password because of the code my.settings.save()

2) Interface Usability:



- **Learnability:** This application is very simple with guided instructions written in each form so that a person can learn it quickly. For e.g. next, back buttons, etc. are easily visible. And comments are visible in forms.
- **Efficiency:** copy, paste and cut operation can also be performed directly for the data. Add, delete, etc. options are also available in the application.
- **Memorability:** User name and password is encrypted and stored as well for the future use.
- **Low error rate:** 'Passwords do not match' the prompt is shown for user to reduce the error next time the user puts in the password to log in.
- **User Satisfaction:** Interactive software that offers user to select multiple options and view in the same form to edit or to compare the tables gives customer satisfaction of obtaining the required data. Also, added security ensures that customer data is safe and cannot be changed without the authorization.