Walkthrough 1 - Web Forms

Setup

This lab will use Web Forms to create a website that allows the user to access hospital data.

- 1. Start Visual Studio.
- 2. Click Create a new project.
- 3. Set language to C#, project type to Web and search to framework.
- 4. Select the ASP.NET Web Application (.NET Framework) template, click Next.
- 5. Set Project name to Hospital_wf.
- 6. Set Location to a folder of your choosing.
- 7. Ensure Place solution and project in the same directory is not selected.
- 8. Click Create.
- 9. Choose the Web Forms template.
- 10. Unselect Configure for HTTPS, click Create.
- 11. Press Ctrl+F5 to run the site and navigate around it.
- 12. This site has been styled with Bootstrap 3.4.1 (https://getbootstrap.com/docs/3.4/)_

WebForm1.aspx

- 1. In the Solution Explorer, right-click the project (with the globe icon) choose Add / Web Form, accept the name of **WebForm1**, click OK.
- 2. If the Toolbox pane isn't visible, select it from the View menu.
- 3. From the Toolbox in the Standard group, drag a Button between the div tags.

5. Add a break tag, then drag a label after the break.

- 7. Switch to Design view, by clicking the button at the bottom left of the editor.
- 8. Double click the button, you will be taken to the code editor with an event handler method stubbed out.

WebForm1.aspx.cs

1. Add the following line of code to the method.

```
2. protected void Button1_Click(object sender, EventArgs e)
{
    Label1.Text = "Set in Button1_Click";
}
```

- 3. Run the site.
- 4. Once the page loads, click the button and note that the label text changed.
- 5. Close the Browser and stop the application from running if necessary by pressing Shift+F5.
- 6. Add the following to the Page_Load method.

```
7. protected void Page_Load(object sender, EventArgs e)
{
    Label1.Text = "Set in Page_Load";
}
```

- 8. Run the site.
- 9. In the browser, view the page source and note the value of __VIEWSTATE variable.

Setup - CHDB Database

- 1. Start SQL Server. If you already have the CHDB database installed, you may skip the next few steps.
- 2. Download CHDB.sql; drag it into Solution Explorer and open it.
- 3. In the upper-left, click the Execute button.
- 4. You will be prompted to connect to a database, set Server Name to localhost\sqlexpress, click Connect.
- 5. The script should complete, create the database and present a summary of the INSERTs.

Medications.aspx

1. In Solution Explorer, right-click the project and select Add / New Item... From the list, choose Web Form with Master Page, set the name to **Medications.aspx**, click Add. Select Site.Master, click OK.

2. Set the page title to **Medications**.

4. Add a heading between the asp:Content tags.

6. From the Toolbox in the Data group, drag a GridView after the heading.

8. Rename the GridView to medicationsGridView.

- 10. Click the GridView's task button, in the Choose Data Source drop-down, select <New Data Source...>
- 11. Select the Database source and set the ID of the source to medicationsSqlDataSource, click OK.
- 12. Click the New Connection... button. In the Change Data Source dialog, select Microsoft SQL Server, click OK.
- 13. Set Server name to **localhost\sqlexpress**. Set the Select or enter a database name drop-down to **CHDB**, click OK. Click Next.
- 14. Save the connection string in the application configuration file with the suggested name of CHDBConnectionString, click Next.
- 15. Select the **medications** table, leave columns as *, click the Advanced... button.
- 16. Select Generate INSERT, UPDATE and DELETE statements, click OK, click Next, click Finish.
- 17. The GridView and SqlDataSource will look approximately like this.

```
18.
     <asp:GridView
         ID="medicationsGridView"
         runat="server"
         AutoGenerateColumns="False"
         DataKeyNames="medication id"
         DataSourceID="medicationsSqlDataSource">
         <Columns>
             <asp:BoundField> DataField="medication_id" HeaderText="medication_id" ReadOnly="True" SortExpression="medication_id"></asp:BoundFi</pre>
     eld>
             <asp:BoundField> DataField="medication_description" HeaderText="medication_description" SortExpression="medication_description">//
     asp:BoundField>
             <asp:BoundField> DataField="medication_cost" HeaderText="medication_cost" SortExpression="medication_cost"></asp:BoundField>
             <asp:BoundField> DataField="package_size" HeaderText="package_size" SortExpression="package_size"></asp:BoundField>
             <asp:BoundField> DataField="strength" HeaderText="strength" SortExpression="strength"></asp:BoundField>
             <asp:BoundField> DataField="sig" HeaderText="sig" SortExpression="sig"></asp:BoundField>
             <asp:BoundField> DataField="units_used_ytd" HeaderText="units_used_ytd" SortExpression="units_used_ytd"></asp:BoundField>
             <asp:BoundField> DataField="last_prescribed_date" HeaderText="last_prescribed_date" SortExpression="last_prescribed_date"></asp:Bo</pre>
     undField>
         </Columns>
     </asp:GridView>
     <asp:SqlDataSource
         runat="server"
         ID="medicationsSqlDataSource"
         ConnectionString='<%$ ConnectionStrings:CHDBConnectionString %>'
         DeleteCommand="DELETE FROM [medications] WHERE [medication_id] = @medication_id"
         InsertCommand="INSERT INTO [medications] ([medication_id], [medication_description], [medication_cost], [package_size], [strength], [s
     ig], [units_used_ytd], [last_prescribed_date]) VALUES (@medication_id, @medication_description, @medication_cost, @package_size, @strengt
     h, @sig, @units_used_ytd, @last_prescribed_date)"
         SelectCommand="SELECT * FROM [medications]"
         UpdateCommand="UPDATE [medications] SET [medication_description] = @medication_description, [medication_cost] = @medication_cost, [pac
     kage_size] = @package_size, [strength] = @strength, [sig] = @sig, [units_used_ytd] = @units_used_ytd, [last_prescribed_date] = @last_presc
     ribed_date WHERE [medication_id] = @medication_id">
         <DeleteParameters>
             <asp:Parameter> Name="medication_id" Type="Int32"></asp:Parameter>
         </DeleteParameters>
         <InsertParameters>
             <asp:Parameter> Name="medication_id" Type="Int32"></asp:Parameter>
             <asp:Parameter> Name="medication_description" Type="String"></asp:Parameter>
             <asp:Parameter> Name="medication_cost" Type="Decimal"></asp:Parameter>
             <asp:Parameter> Name="package_size" Type="String"></asp:Parameter>
             <asp:Parameter> Name="strength" Type="String"></asp:Parameter>
             <asp:Parameter> Name="sig" Type="String"></asp:Parameter>
             <asp:Parameter> Name="units_used_ytd" Type="Int32"></asp:Parameter>
             <asp:Parameter> DbType="Date" Name="last_prescribed_date"></asp:Parameter>
         </InsertParameters>
         <UpdateParameters>
             <asp:Parameter> Name="medication_description" Type="String"></asp:Parameter>
             <asp:Parameter> Name="medication_cost" Type="Decimal"></asp:Parameter>
             <asp:Parameter> Name="package_size" Type="String"></asp:Parameter>
             <asp:Parameter> Name="strength" Type="String"></asp:Parameter>
             <asp:Parameter> Name="sig" Type="String"></asp:Parameter>
             <asp:Parameter> Name="units_used_ytd" Type="Int32"></asp:Parameter>
             <asp:Parameter> DbType="Date" Name="last_prescribed_date"></asp:Parameter>
             <asp:Parameter> Name="medication_id" Type="Int32"></asp:Parameter>
         </UpdateParameters>
     </asp:SqlDataSource>
```

- 19. Run the site.
- 20. In the browser, view the page source and note the value of __VIEWSTATE variable, it is much larger now.
- 21. Set the CSS Class of the GridView to the Bootstrap class table.

```
22. <asp:GridView
    ID="medicationsGridView"
    runat="server"
    AutoGenerateColumns="False"
    DataKeyNames="medication_id"
    DataSourceID="medicationsSqlDataSource"
    CssClass="table">
        <Columns>
        ...
```

- 23. Run the site.
- 24. Change the class to table-condensed.

```
25. <asp:GridView
    ID="medicationsGridView"
    runat="server"
    AutoGenerateColumns="False"
    DataKeyNames="medication_id"
    DataSourceID="medicationsSqlDataSource"
    CssClass="table-condensed">
        <Columns>
        ...
```

- 26. Run the site.
- 27. Set the table rows to be striped.

- 29. Run the site.
- 30. Set the stripes to the background info colour to make them move visible.

```
31. <asp:GridView
    ID="medicationsGridView"
    runat="server"
    AutoGenerateColumns="False"
    DataKeyNames="medication_id"
    DataSourceID="medicationsSqlDataSource"
    CssClass="table-condensed table-striped bg-info">
        <Columns>
        ...
```

- 32. Run the site.
- 33. Click the GridView's task button and click Edit Columns....
- 34. From Selected fields, select medication_id and delete it.
- 35. Select medication_description, in BoundField properties, change HeaderText to **Description**.
 - 1. Change medication_cost header to Cost.
 - 2. Change package_size header to Package Size.
 - 3. Change strength header to **Strength**.
 - 4. Change sig header to **Sig**.
 - 5. Change units_used_ytd header to **Units Used YTD**.
 - 6. Change last_prescribed_date header to Last Prescribed.
- 36. Click OK.
- 37. Run the site.
- 38. Edit the columns of the GridView.
- 39. Right-align Cost and Units Used YTD by setting Styles / ItemStyle / HorizontalAlign to Right.
- 40. Set Last Prescribed, Data / DataFormatString to {0:d}
- 41. Set Units Used YTD, Data / DataFormatString to **{0:n0}**
- 42. Click OK.
- 43. Run the site.
- 44. Click the GridView's task button, select Enable Paging, Enable Sorting and Enable Editing.
- 45. The GridView will look approximately like this.

- 47. Run the site.
- 48. Notice the column headings are now links, experiment with them.
- 49. Notice that only 10 rows are presented, experiment with the paging controls in the table footer.
- 50. Edit a row and change a description.

Site.Master

1. Update the title tag.

3. Update Application name and footer.

```
4.
           <div class="navbar navbar-inverse navbar-fixed-top">
               <div class="container">
                   <div class="navbar-header">
                       <button type="button" class="navbar-toggle" data-toggle="collapse" data-target=".navbar-collapse">
                          <span> class="icon-bar"></span>
                          <span> class="icon-bar"></span>
                          <span> class="icon-bar"></span>
                       </button>
                      <a> class="navbar-brand" runat="server" href="~/">Application nameCommunity Hospital</a>
                   <div class="navbar-collapse collapse">
                       <a> runat="server" href="~/">Home</a>
                          <a> runat="server" href="~/About">About</a>
                          <a> runat="server" href="~/Contact">Contact</a>
                      </div>
               </div>
           <div class="container body-content">
               <asp:ContentPlaceHolder> ID="MainContent" runat="server">
               </asp:ContentPlaceHolder>
               <hr />
               <footer>
                  < <%: DateTime.Now.Year %> - My ASP.NET ApplicationCommunity Hospital
               </footer>
           </div>
       </form>
    </body>
   </html>
```

5. Add menu entries for Medications and WebForm1.

- 7. Run the site.
- 8. Create a new web form named **ActivePurchaseOrders** based on the Site.Master master page.
- 9. Add a menu entry for the new page.

```
<a runat="server" href="~/ActivePurchaseOrders">Active Purchase Orders</a>
<a runat="server" href="~/WebForm1">Web Form 1</a>
<a runat="server" href="~/About">About</a>
<a runat="server" href="~/Contact">Contact</a>
</div>
</div>

</div>
```

ActivePurchaseOrders.aspx

1. Add a title and header.

3. Add a paragraph with a drop-down list from the Toolbox / Standard group after the heading, name it departmentDropDownList.

- 5. Click the drop-down list task button and select Choose Data Source...
- 6. Create a new data source named **departmentSqlDataSource**.
- 7. Use the existing CHDBConnectionString connection string.
- 8. Select the departments table from the drop-down list. Choose the department id and department name columns.
- 9. Set the data field to display to department_name and the value to department_id.
- 10. Select Enable AutoPostBack.
- 11. Should look approximately like this.

```
<%@ Page Title="Active Purchase Orders" Language="C#" MasterPageFile="~/Site.Master" AutoEventWireup="true" CodeBehind="ActivePurchaseOrde</pre>
rs.aspx.cs" Inherits="Hospital_wf.ActivePurchaseOrders" %>
<asp:Content ID="Content1" ContentPlaceHolderID="MainContent" runat="server">
    <h2><%: Title %></h2>
    >
        Department:
        <asp:DropDownList>
            ID="departmentDropDownList"
            runat="server"
            DataSourceID="departmentSqlDataSource"
            DataTextField="department_name"
            DataValueField="department_id"
            AutoPostBack="True">
        </asp:DropDownList>
        <asp:SqlDataSource
            runat="server"
            ID="departmentSqlDataSource"
            ConnectionString='<%$ ConnectionStrings:CHDBConnectionString %>'
            SelectCommand="SELECT [department_id], [department_name] FROM [departments]">
        </asp:SqlDataSource>
    </asp:Content>
```

13. After the paragraph, add a GridView named poGridView.

```
<%@ Page Title="Active Purchase Orders" Language="C#" MasterPageFile="~/Site.Master" AutoEventWireup="true" CodeBehind="ActivePurchaseOrde</pre>
rs.aspx.cs" Inherits="Hospital_wf.ActivePurchaseOrders" %>
<asp:Content ID="Content1" ContentPlaceHolderID="MainContent" runat="server">
    <h2><%: Title %></h2>
        Department:
        <asp:DropDownList
            ID="departmentDropDownList"
            runat="server"
            DataSourceID="departmentSqlDataSource"
            DataTextField="department_name"
            DataValueField="department_id"
            AutoPostBack="True">
        </asp:DropDownList>
        <asp:SqlDataSource
            runat="server"
            ID="departmentSqlDataSource"
            ConnectionString='<%$ ConnectionStrings:CHDBConnectionString %>'
            SelectCommand="SELECT [department_id], [department_name] FROM [departments]">
        </asp:SqlDataSource>
    <asp:GridView ID="poGridView" runat="server"></asp:GridView>
</asp:Content>
```

- 15. Click the GridView's task button and create a new SqlDataSource named poSqlDataSource.
- 16. Use the existing CHDBConnectionString connection string.
- 17. Select the purchase_orders table from the drop-down list. Select all of the columns except department_id and order_status.
- 18. Click the WHERE... button.
- 19. Set Column to department_id, Source to Control and Control ID to departmentDropDownList, click Add.
- 20. Add another criteria; set Column to order_status, Source to None and Value to ACTIVE, click Add, click OK.
- 21. Click Next, click Finish.

22. The GridView and SqlDataSource will look approximately like this.

```
23.
            <asp:GridView
                     ID="poGridView"
                     runat="server"
                     AutoGenerateColumns="False"
                     DataKeyNames="purchase_order_id"
                     DataSourceID="poSqlDataSource">
                     <Columns>
                              <asp:BoundField> DataField="purchase_order_id" HeaderText="purchase_order_id" ReadOnly="True" SortExpression="purchase_order_id">
            </asp:BoundField>
                              <asp:BoundField> DataField="order_date" HeaderText="order_date" SortExpression="order_date"></asp:BoundField>
                              <asp:BoundField> DataField="vendor_id" HeaderText="vendor_id" SortExpression="vendor_id"></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></a><asp:BoundField</a></a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</pre><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:BoundField</a><asp:B
                              <asp:BoundField> DataField="total_amount" HeaderText="total_amount" SortExpression="total_amount"></asp:BoundField>
                     </Columns>
            </asp:GridView>
            <asp:SqlDataSource
                     runat="server"
                     ID="poSalDataSource"
                     ConnectionString='<%$ ConnectionStrings:CHDBConnectionString %>'
                     SelectCommand="SELECT [purchase_order_id], [order_date], [vendor_id], [total_amount] FROM [purchase_orders] WHERE (([department_id] =
            @department_id) AND ([order_status] = @order_status))">
                     <SelectParameters>
                              <asp:ControlParameter> ControlID="departmentDropDownList" PropertyName="SelectedValue" Name="department_id" Type="Int32"></asp:Con</pre>
            trolParameter>
                              <asp:Parameter> DefaultValue="ACTIVE" Name="order_status" Type="String"></asp:Parameter>
                     </SelectParameters>
            </asp:SqlDataSource>
```

- 24. Run the site.
- 25. Click the task button of poSqlDataSource, select Configure Data Source..., click Next.
- 26. Click the radio button Specify a custom SQL statement or stored procedure, click Next.
- 27. Click the Query Builder... button.
- 28. In the top pane, right-click and select Add Table..., select the vendors table and click Add, click Close. In the purchase_orders table, unselect vendor_id. In the vendors table, select vendor_name. Click OK, click Next, click Next, click Finish. Click Yes to Refresh Fields and Keys for 'poGridView'.
- 29. Run the site.
- 30. Click the GridView's task button and click Edit Columns...
 - 1. Change purchase_order_id header to **ID**.
 - 2. Change order_date header to **Date**.
 - 3. Change total_amount header to Total Amount.
 - 4. Change vendor_name header to **Vendor**.
 - 5. Change ID and Total Amount Styles / ItemStyle / HorizontalAlign to Right.
 - 6. Change Date Data / DataFormatString to {0:d}.
 - 7. Change Total Amount Data / DataFormatString to **{0:c}**.
- 31. Click OK.
- 32. Set the CssClass of the GridView to table-condensed table-striped bg-info.

```
<asp:GridView
     ID="poGridView"
     runat="server"
     AutoGenerateColumns="False"
     DataKeyNames="purchase_order_id"
     DataSourceID="poSqlDataSource"
     CssClass="table-condensed table-striped bg-info">
          <asp:BoundField DataField="purchase_order_id" HeaderText="ID" ReadOnly="True" SortExpression="purchase_order_id">
                <ItemStyle HorizontalAlign="Right"></ItemStyle>
          </asp:BoundField>
          <asp:BoundField DataField="order date" HeaderText="Date" SortExpression="order date" DataFormatString="{0:d}"></asp:BoundField>
          <asp:BoundField DataField="total_amount" HeaderText="Total Amount" SortExpression="total_amount" DataFormatString="{0:c}">
                <ItemStyle HorizontalAlign="Right"></ItemStyle>
          </asp:BoundField>
           <asp:BoundField DataField="vendor_name" HeaderText="Vendor" SortExpression="vendor_name"></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></asp:BoundField></a>
     </Columns>
</asp:GridView>
<asp:SqlDataSource
     runat="server'
     ID="poSqlDataSource"
     ConnectionString='<%$ ConnectionStrings:CHDBConnectionString %>'
     SelectCommand="SELECT purchase orders.purchase order id, purchase orders.order date, purchase orders.total amount, vendors.vendor name
FROM purchase_orders INNER JOIN vendors ON purchase_orders.vendor_id = vendors.vendor_id WHERE (purchase_orders.department_id = @departmen
t_id) AND (purchase_orders.order_status = @order_status)">
     <SelectParameters>
          <asp:ControlParameter ControlID="departmentDropDownList" PropertyName="SelectedValue" Name="department_id" Type="Int32"></asp:Cont</pre>
rolParameter>
          <asp:Parameter DefaultValue="ACTIVE" Name="order_status" Type="String"></asp:Parameter>
     </SelectParameters>
</asp:SqlDataSource>
```

34. Run the site.