

LAB 11

Default.aspx

```
<%@ Page Title="PVFC Home" Language="vb" AutoEventWireup="false"
CodeBehind="Default.aspx.vb" Inherits="pvfc_website._Default" %>

<!DOCTYPE html>
<html>
<head runat="server">
  <title>PVFC Home</title>
  <link rel="stylesheet" href="pvfcstyles.css">
</head>
<body>
  <form id="form1" runat="server">
    <div class="navbar">
      <!-- EVERYONE can see these -->
      <a href="Default.aspx">Home</a>
      <a href="productSearch.aspx">Products</a>

      <!-- ONLY ADMINS (1) and EMPLOYEES (3) can see this -->
      <% If Session("RoleId") IsNot Nothing AndAlso
(Convert.ToInt32(Session("RoleId")) = 1 OrElse Convert.ToInt32(Session("RoleId"))
= 3) Then %>
      <a href="catalog.aspx">Manage Catalog</a>
      <% End If %>

      <!-- ONLY CUSTOMERS (2) can see these -->
      <% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 2 Then %>
      <a href="updateCustomer.aspx">Update Profile</a>
      <a href="payment.aspx">Cart & Checkout</a>
      <% End If %>

      <!-- GUESTS see Login/Register, LOGGED-IN USERS see Logout -->
      <% If Session("RoleId") Is Nothing Then %>
      <a href="register.aspx">Register</a>
      <a href="login.aspx">Login</a>
      <% Else %>
      <a href="login.aspx">Logout</a>
      <% End If %>

      <!-- Only show this link if the logged-in user is Role 1 (Admin) -->
      <% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 1 Then %>
      <a href="segmentationDashboard.aspx" style="font-weight: bold; color:
green;">View Segmentation Dashboard</a>
      <% End If %>
    </div>

    <div class="main-content container">
      <h1>Pine Valley Furniture Company</h1>
      <p style="text-align: center;">Welcome to our online store. Please
navigate using the menu above.</p>
    </div>
  </form>
</body>
</html>
```

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</form>
</body>
</html>
```

Default.aspx.vb

```
Public Class _Default
    Inherits System.Web.UI.Page

    Protected Sub Page_Load(ByVal sender As Object, ByVal e As System.EventArgs)
        Handles Me.Load

    End Sub

End Class
```

login.aspx

```
<%@ Page Language="vb" AutoEventWireup="false" CodeBehind="login.aspx.vb"
Inherits="pvfc_website.login" %>

<!DOCTYPE html>
<html lang="en">
<head runat="server">
    <meta charset="UTF-8">
    <title>System Login</title>
    <link rel="stylesheet" href="pvfcstyles.css">
</head>
<body>
    <form id="form1" runat="server">
        <div class="navbar">
            <!-- EVERYONE can see these -->
            <a href="Default.aspx">Home</a>
            <a href="productSearch.aspx">Products</a>

            <!-- ONLY ADMINS (1) and EMPLOYEES (3) can see this -->
            <% If Session("RoleId") IsNot Nothing AndAlso
(Convert.ToInt32(Session("RoleId")) = 1 OrElse Convert.ToInt32(Session("RoleId"))
= 3) Then %>
            <a href="catalog.aspx">Manage Catalog</a>
            <% End If %>

            <!-- ONLY CUSTOMERS (2) can see these -->
            <% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 2 Then %>
            <a href="updateCustomer.aspx">Update Profile</a>
            <a href="payment.aspx">Cart & Checkout</a>
            <% End If %>

            <!-- GUESTS see Login/Register, LOGGED-IN USERS see Logout -->
            <% If Session("RoleId") Is Nothing Then %>
            <a href="register.aspx">Register</a>
            <a href="login.aspx">Login</a>
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        <% Else %>
        <a href="login.aspx">Logout</a>
        <% End If %>
    </div>

    <div class="page-wrapper" style="display: flex; align-items: flex-start;
justify-content: center;">
        <div class="login-container">
            <h1>System Login</h1>

            <asp:Label ID="lblMessage" runat="server" Font-Bold="true"
ForeColor="Red" Style="display: block; margin-bottom: 15px;"></asp:Label>

            <div style="text-align: left;">
                <label>Username</label>
                <asp:TextBox ID="emailTB" runat="server"
placeholder="you@email.com"></asp:TextBox>

                <label>Password</label>
                <asp:TextBox ID="pwdTB" runat="server"
TextMode="Password"></asp:TextBox>

                <asp:Button ID="btnlogin" runat="server" Text="Log In"
Style="width: 100%; margin-top: 15px;" />
            </div>
        </div>

        <div style="width: 220px; background: #fff; border: 1px solid
#e5e7eb; border-radius: 10px; padding: 1.2rem; font-family: sans-serif; flex-
shrink: 0; margin-top: 20px; margin-left: 40px;">
            <p style="font-size: 11px; font-weight: bold; color: #888; text-
transform: uppercase; letter-spacing: 0.05em; margin: 0 0 1rem 0;">Test
Credentials</p>

            <div style="margin-bottom: 1rem; padding-bottom: 1rem; border-
bottom: 1px solid #f0f0f0;">
                <span style="font-size: 11px; background: #dbeafe; color:
#1d4ed8; padding: 2px 8px; border-radius: 4px; font-weight: bold;">Admin</span>
                <p style="font-size: 11px; color: #888; margin: 8px 0
2px;">Username</p>
                <p style="font-size: 12px; font-family: monospace; margin: 0
0 6px;">admin@pvfc.com</p>
                <p style="font-size: 11px; color: #888; margin: 0 0
2px;">Password</p>
                <p style="font-size: 12px; font-family: monospace; margin:
0;">admin123</p>
            </div>

            <div style="margin-bottom: 1rem; padding-bottom: 1rem; border-
bottom: 1px solid #f0f0f0;">
                <span style="font-size: 11px; background: #dcfce7; color:
#15803d; padding: 2px 8px; border-radius: 4px; font-weight:
bold;">Employee</span>
                <p style="font-size: 11px; color: #888; margin: 8px 0
2px;">Username</p>
                <p style="font-size: 12px; font-family: monospace; margin: 0
0 6px;">employee@pvfc.com</p>
                <p style="font-size: 11px; color: #888; margin: 0 0
2px;">Password</p>
                <p style="font-size: 12px; font-family: monospace; margin:
0;">emp123</p>
            </div>

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        <div>
            <span style="font-size: 11px; background: #fef9c3; color:
#854d0e; padding: 2px 8px; border-radius: 4px; font-weight:
bold;">Customer</span>
            <p style="font-size: 11px; color: #888; margin: 8px 0 0;
line-height: 1.5;">Register first via the register page to get a customer
account.</p>
        </div>
    </div>
</div>
</form>
</body>
</html>

```

login.aspx.vb

```

Imports System.Data.SqlClient
Imports System.Web.Configuration

Public Class login
    Inherits System.Web.UI.Page

    ' LOGOUT MECHANISM
    Protected Sub Page_Load(ByVal sender As Object, ByVal e As System.EventArgs)
Handles Me.Load
        If Not IsPostBack Then
            ' log out = destroy session
            If Session("RoleId") IsNot Nothing Then
                Session.Clear()
                Session.Abandon()
                lblMessage.ForeColor = Drawing.Color.Green
                lblMessage.Text = "You have been successfully logged out."
            End If
        End If
    End Sub

    ' AUTHENTICATION MECHANISM
    Protected Sub btnlogin_Click(sender As Object, e As EventArgs) Handles
btnlogin.Click
        Dim constr As String =
WebConfigurationManager.ConnectionStrings("PVFCConString").ConnectionString

        ' retrieve both RoleId (for RBAC) and Customer_Id (to link to their
profile)
        Dim query As String = "SELECT RoleId, Customer_Id FROM Users WHERE
Username = @Username AND Password = @Password"

        Try
            Using con As New SqlConnection(constr)
                Using cmd As New SqlCommand(query, con)
                    cmd.Parameters.AddWithValue("@Username", emailTB.Text.Trim())
                    cmd.Parameters.AddWithValue("@Password", pwdTB.Text)

                    con.Open()

                    Using dr As SqlDataReader = cmd.ExecuteReader()
                        If dr.Read() Then
                            ' Success = Establish RBAC Session
                            Dim role As Integer = Convert.ToInt32(dr("RoleId"))

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        Session("RoleId") = role

        ' If they are a Customer, save their Customer_Id to
the session too
        If Not IsDBNull(dr("Customer_Id")) Then
            Session("CustomerId") =
Convert.ToInt32(dr("Customer_Id"))
        End If

        ' Route based on role
        If role = 1 Then
            ' Admin
            Response.Redirect("adminDashboard.aspx", False)
        ElseIf role = 2 Then
            ' Customer
            Response.Redirect("Default.aspx", False)
        ElseIf role = 3 Then
            ' Employee
            Response.Redirect("catalog.aspx", False)
        Else
            lblMessage.Text = "Role Not Found"
        End If
    Else
        ' Invalid credentials
        lblMessage.Text = "Cannot login. Invalid
credentials."
    End If
End Using
End Using
End Using
Catch ex As Exception
    lblMessage.Text = "An error occurred: " & ex.Message
End Try
End Sub

End Class

```

register.aspx

```

<%@ Page Title="Register Page" Language="vb" AutoEventWireup="false"
CodeBehind="register.aspx.vb" Inherits="pvfc_website.register" %>

```

```

<!DOCTYPE html>
<html lang="en">
<head runat="server">
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>New Customer Registration</title>
    <link rel="stylesheet" href="pvfcstyles.css">
</head>
<body>
    <form id="form1" runat="server">

        <div class="navbar">
            <!-- EVERYONE can see these -->
            <a href="Default.aspx">Home</a>
            <a href="productSearch.aspx">Products</a>

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        <!-- ONLY ADMINS (1) and EMPLOYEES (3) can see this -->
        <% If Session("RoleId") IsNot Nothing AndAlso
(Convert.ToInt32(Session("RoleId")) = 1 OrElse Convert.ToInt32(Session("RoleId"))
= 3) Then %>
        <a href="catalog.aspx">Manage Catalog</a>
        <% End If %>

        <!-- ONLY CUSTOMERS (2) can see these -->
        <% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 2 Then %>
        <a href="updateCustomer.aspx">Update Profile</a>
        <a href="payment.aspx">Cart & Checkout</a>
        <% End If %>

        <!-- GUESTS see Login/Register, LOGGED-IN USERS see Logout -->
        <% If Session("RoleId") Is Nothing Then %>
        <a href="register.aspx">Register</a>
        <a href="login.aspx">Login</a>
        <% Else %>
        <a href="login.aspx">Logout</a>
        <% End If %>

        <!-- Only show this link if the logged-in user is Role 1 (Admin) -->
        <% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 1 Then %>
        <a href="segmentationDashboard.aspx" style="font-weight: bold; color:
green;">View Segmentation Dashboard</a>
        <% End If %>
    </div>

    <div class="page-wrapper">
        <div class="login-container">

            <h1>Create Account</h1>
            <p style="color: #666; font-size: 14px; margin-bottom: 20px;">
                Join PVFC today
            </p>

            <asp:Label ID="lblMessage" runat="server"
                Font-Bold="true" Style="display: block; margin-bottom:
15px;">
            </asp:Label>

            <div style="text-align: left;">

                <label>Full Name</label>
                <asp:TextBox ID="txtName" runat="server"
                    placeholder="Full Name">
                </asp:TextBox>

                <label>Address</label>
                <asp:TextBox ID="txtAddress" runat="server"
                    placeholder="Street Address">
                </asp:TextBox>

                <label>City</label>
                <asp:TextBox ID="txtCity" runat="server"
                    placeholder="City">
                </asp:TextBox>

                <label>State</label>
                <asp:TextBox ID="txtState" runat="server"
                    placeholder="State">

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        </asp:TextBox>

        <label>Postal Code</label>
        <asp:TextBox ID="txtPostalCode" runat="server"
            placeholder="e.g. 32601-2871">
        </asp:TextBox>

        <label>Email Address (Username)</label>
        <asp:TextBox ID="txtEmail" runat="server"
placeholder="example@email.com" TextMode="Email"></asp:TextBox>

        <label>Password</label>
        <asp:TextBox ID="txtPassword" runat="server"
placeholder="Create a password" TextMode="Password"></asp:TextBox>

    </div>

    <asp:Button ID="btnRegister" runat="server"
        Text="Sign Up" Style="width: 100%;" />

</div>
</div>
</form>
</body>
</html>

```

register.aspx.vb

```

Imports System.Data.SqlClient
Imports System.Web.Configuration

Public Class register
    Inherits System.Web.UI.Page
    Protected Sub btnRegister_Click(sender As Object, e As EventArgs) Handles
btnRegister.Click
        Dim constr As String =
WebConfigurationManager.ConnectionStrings("PVFCConString").ConnectionString
        Dim conn As New SqlConnection(constr)

        ' We use a SQL Transaction to ensure BOTH inserts succeed.
        ' If one fails, it rolls back both, preventing "orphan" data.
        Dim transaction As SqlTransaction = Nothing
        Dim cmdCustomer As New SqlCommand()
        Dim cmdUser As New SqlCommand()

    Try
        conn.Open()
        transaction = conn.BeginTransaction()

        cmdCustomer.Connection = conn
        cmdCustomer.Transaction = transaction

        ' INSERT The Customer Profile
        cmdCustomer.CommandText = "INSERT INTO CUSTOMER_t (Customer_Name,
Customer_Address, Customer_City, Customer_State, Postal_Code) " &

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        "VALUES (@Name, @Address, @City, @State,
@PostalCode); " &
        "SELECT SCOPE_IDENTITY();" ' Get the ID of
the new customer record just created

        cmdCustomer.Parameters.AddWithValue("@Name", txtName.Text)
        cmdCustomer.Parameters.AddWithValue("@Address", txtAddress.Text)
        cmdCustomer.Parameters.AddWithValue("@City", txtCity.Text)
        cmdCustomer.Parameters.AddWithValue("@State", txtState.Text)
        cmdCustomer.Parameters.AddWithValue("@PostalCode",
txtPostalCode.Text)

        ' ExecuteScalar returns the ID generated by SCOPE_IDENTITY()
        Dim newCustomerId As Integer =
Convert.ToInt32(cmdCustomer.ExecuteScalar())

        ' INSERT The Login Credentials
        cmdUser.Connection = conn
        cmdUser.Transaction = transaction

        cmdUser.CommandText = "INSERT INTO Users (Username, Password, RoleId,
Customer_Id) " &
        "VALUES (@Username, @Password, 2, @CustId)" ' Role
2 = Customer

        cmdUser.Parameters.AddWithValue("@Username", txtEmail.Text.Trim())
        cmdUser.Parameters.AddWithValue("@Password", txtPassword.Text)
        cmdUser.Parameters.AddWithValue("@CustId", newCustomerId) ' Link to
the profile we just made

        cmdUser.ExecuteNonQuery()

        ' If we made it here without errors, save everything to the database
        transaction.Commit()

        lblMessage.ForeColor = Drawing.Color.Green
        lblMessage.Text = "Registration successful! You can now log in."

        ' Clear the form
        txtName.Text = ""
        txtEmail.Text = ""
        If txtAddress.Text.Trim().Length > 100 Then
            lblMessage.ForeColor = Drawing.Color.Red
            lblMessage.Text = "Address is too long. Please shorten it."
            Return
        End If

    Catch ex As Exception
        ' If anything went wrong (like a duplicate email), undo the whole
thing
        If transaction IsNot Nothing Then
            transaction.Rollback()
        End If
        lblMessage.ForeColor = Drawing.Color.Red
        lblMessage.Text = "Error during registration: " & ex.Message

    Finally
        If conn.State = ConnectionState.Open Then conn.Close()
        conn.Dispose()
        cmdCustomer.Dispose()
        cmdUser.Dispose()
    End Try
End Sub

```

End Class

adminDashboard.aspx

```
<%@ Page Language="vb" AutoEventWireup="false"
CodeBehind="adminDashboard.aspx.vb" Inherits="pvfc_website.adminDashboard" %>

<!DOCTYPE html>
<html lang="en">
<head runat="server">
    <meta charset="UTF-8">
    <title>Admin Dashboard</title>
    <link rel="stylesheet" href="pvfcstyles.css">
</head>
<body>
    <form id="form1" runat="server">

        <div class="navbar">

            <!-- EVERYONE can see these -->
            <a href="Default.aspx">Home</a>
            <a href="productSearch.aspx">Products</a>

            <%-- Visible to Admins (1) and Employees (3) --%>
            <% If Session("RoleId") IsNot Nothing AndAlso
(Convert.ToInt32(Session("RoleId")) = 1 OrElse Convert.ToInt32(Session("RoleId"))
= 3) Then %>
            <a href="catalog.aspx">Manage Catalog</a>
            <% End If %>

            <%-- Visible ONLY to Customers (2) --%>
            <% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 2 Then %>
            <a href="updateCustomer.aspx">Update Profile</a>
            <a href="payment.aspx">Cart & Checkout</a>
            <% End If %>

            <%-- Login/Logout Toggle --%>
            <% If Session("RoleId") Is Nothing Then %>
            <a href="register.aspx">Register</a>
            <a href="login.aspx">Login</a>
            <% Else %>
            <a href="login.aspx">Logout</a>
            <% End If %>

            <!-- Only show this link if the logged-in user is Role 1 (Admin) -->
            <% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 1 Then %>
            <a href="segmentationDashboard.aspx" style="font-weight: bold; color:
green;">View Segmentation Dashboard</a>
            <% End If %>
        </div>

        <!-- DASHBOARD CONTENT -->
        <div class="page-wrapper">
            <div class="main-content container" style="margin-top: 50px;">
                <h1>Admin Dashboard</h1>
                <p>Welcome to the PVFC Control Center, Administrator.</p>
            </div>
        </div>
    </form>
</body>
</html>
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        <hr style="margin: 20px 0;" />
        <h3>Quick Actions</h3>
        <ul style="list-style-type: none; padding: 0;">
            <li style="margin-bottom: 10px;">
                <a href="catalog.aspx" class="btn" style="text-
decoration: none; display: inline-block; padding: 10px 20px; background-color:
#2c3e50; color: white; border-radius: 4px;">Update Product Catalog &
Inventory</a>
            </li>
        </ul>
    </div>
</div>
</form>
</body>
</html>

```

admiDashboard.aspx.vb

```

Public Class adminDashboard
    Inherits System.Web.UI.Page

    Protected Sub Page_Load(ByVal sender As Object, ByVal e As System.EventArgs)
Handles Me.Load
        ' Check if session is empty (Guest) OR if the role is anything OTHER than
1 (Admin)
        If Session("RoleId") Is Nothing OrElse Convert.ToInt32(Session("RoleId"))
<> 1 Then
            ' Kick unauthorized users out to the login page
            Response.Redirect("login.aspx", False)
            Exit Sub
        End If
    End Sub

End Class

```

catalog.aspx

```

<%@ Page Title="Admin Panel - Catalog Update" Language="vb"
AutoEventWireup="false" CodeBehind="catalog.aspx.vb"
Inherits="pvfc_website.catalog" %>

<!DOCTYPE html>
<html>
<head runat="server">
    <title>Product Catalog Update</title>
    <link rel="stylesheet" href="pvfcstyles.css">
</head>
<body>
    <form id="form1" runat="server">

        <div class="navbar">

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```

<!-- EVERYONE can see these -->
<a href="Default.aspx">Home</a>
<a href="productSearch.aspx">Products</a>

<!-- ONLY ADMINS (1) and EMPLOYEES (3) can see this -->
<% If Session("RoleId") IsNot Nothing AndAlso
(Convert.ToInt32(Session("RoleId")) = 1 OrElse Convert.ToInt32(Session("RoleId"))
= 3) Then %>
<a href="catalog.aspx">Manage Catalog</a>
<% End If %>

<!-- ONLY CUSTOMERS (2) can see these -->
<% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 2 Then %>
<a href="updateCustomer.aspx">Update Profile</a>
<a href="payment.aspx">Cart & Checkout</a>
<% End If %>

<!-- GUESTS see Login/Register, LOGGED-IN USERS see Logout -->
<% If Session("RoleId") Is Nothing Then %>
<a href="register.aspx">Register</a>
<a href="login.aspx">Login</a>
<% Else %>
<a href="login.aspx">Logout</a>
<% End If %>

<!-- Only show this link if the logged-in user is Role 1 (Admin) -->
<% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 1 Then %>
<a href="segmentationDashboard.aspx" style="font-weight: bold; color:
green;">View Segmentation Dashboard</a>
<% End If %>
</div>

<div class="main-content container">
<h2>Product Update Catalogue</h2>

<asp:Label ID="lblMessage" runat="server" Font-Bold="true"
Style="display: block; margin-bottom: 15px;">
</asp:Label>

<%--
DataKeyNames: stores Product_Id per row so it is
not visible or editable on the page
OnRowCommand: fires when any button inside the grid is clicked
--%>
<asp:GridView ID="gvCatalog" runat="server"
AutoGenerateColumns="False"
Width="100%"
DataKeyNames="Product_Id"
OnRowCommand="gvCatalog_RowCommand"
BorderColor="#dddddd"
BorderStyle="Solid"
BorderWidth="1px"
CellPadding="8">

<HeaderStyle BackColor="#2c3e50" ForeColor="White" Font-
Bold="true" />
<AlternatingRowStyle BackColor="#f8f9fa" />

<Columns>

<asp:BoundField DataField="Product_Id"

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        HeaderText="ID"
        ReadOnly="True" />

<asp:TemplateField HeaderText="Description">
    <ItemTemplate>
        <asp:TextBox ID="txtDesc" runat="server"
            Text='<%=# Bind("Product_Description") %>'
            Width="95%">
        </asp:TextBox>
    </ItemTemplate>
</asp:TemplateField>

<asp:TemplateField HeaderText="Finish">
    <ItemTemplate>
        <asp:TextBox ID="txtFinish" runat="server"
            Text='<%=# Bind("Product_Finish") %>'
            Width="95%">
        </asp:TextBox>
    </ItemTemplate>
</asp:TemplateField>

<asp:TemplateField HeaderText="Standard Price">
    <ItemTemplate>
        <asp:TextBox ID="txtPrice" runat="server"
            Text='<%=# Bind("Standard_Price") %>'
            Width="80px">
        </asp:TextBox>
    </ItemTemplate>
</asp:TemplateField>

<asp:TemplateField HeaderText="Stock Quantity">
    <ItemTemplate>
        <asp:TextBox ID="txtQty" runat="server"
            Text='<%=# Bind("Product_Quantity") %>'
            Width="80px">
        </asp:TextBox>
    </ItemTemplate>
</asp:TemplateField>

<asp:TemplateField HeaderText="Action">
    <ItemTemplate>
        <asp:Button ID="btnUpdate" runat="server"
            Text="Update"
            CommandName="UpdateRow"
            CommandArgument='<%=# Container.DataItemIndex %>'
        />
    </ItemTemplate>
</asp:TemplateField>

</Columns>
</asp:GridView>

</div>
</form>
</body>
</html>

```

catalog.aspx.vb

```
Imports System.Data
Imports System.Data.SqlClient
Imports System.Web.Configuration

Public Class catalog
    Inherits System.Web.UI.Page

    ' Page Load - bind the GridView only on first load
    Protected Sub Page_Load(sender As Object, e As EventArgs) Handles Me.Load

        ' 1. Check the URL. If the user is browsing the Lab 5 folder, SKIP the
        security check completely!
        If Not Request.RawUrl.ToLower().Contains("/lab5/") Then

            ' --- THE GATEKEEPER to prevent unauthorized access ---
            ' Check if session is empty (Guest) OR if the role is Customer (Role
            2)
            If Session("RoleId") Is Nothing OrElse
            Convert.ToInt32(Session("RoleId")) = 2 Then
                ' Kick them out to the login page
                Response.Redirect("login.aspx", False)
                Exit Sub ' Stop executing the rest of the page load
            End If

            End If

            ' Only load the catalog if they passed the security check
            If Not IsPostBack Then
                BindCatalog()
            End If
        End Sub

        ' BindCatalog - fetch all products and display in the GridView
        Private Sub BindCatalog()

            Dim connectionString As String =
            WebConfigurationManager.ConnectionStrings("PVFCConString").ConnectionString

            Dim selectSQL As String =
                "SELECT Product_Id, Product_Description, Product_Finish, " &
                "          Standard_Price, Product_Quantity " &
                "FROM    Product_T"

            Dim con As New SqlConnection(connectionString)
            Dim cmd As New SqlCommand(selectSQL, con)
            Dim adapter As New SqlDataAdapter(cmd)
            Dim ds As New DataSet()

            Try
                adapter.Fill(ds, "Products")
                gvCatalog.DataSource = ds.Tables("Products")
                gvCatalog.DataBind()
            Catch err As Exception
                lblMessage.ForeColor = System.Drawing.Color.Red
                lblMessage.Text = "Error loading catalog: " & err.Message
            End Try
        End Sub
    End Class
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    Finally
        con.Close()
    End Try

End Sub

' RowCommand - fires when Update button in a row is clicked
Protected Sub gvCatalog_RowCommand(sender As Object,
    e As GridViewCommandEventArgs)

    If e.CommandName = "UpdateRow" Then

        ' Identify which row was clicked
        Dim rowIndex As Integer = Convert.ToInt32(e.CommandArgument)
        Dim row As GridViewRow = gvCatalog.Rows(rowIndex)

        ' Retrieve the primary key from DataKeys (not from the page)
        Dim productId As Integer =
            Convert.ToInt32(gvCatalog.DataKeys(rowIndex).Value)

        ' Retrieve the TextBox values from inside that row
        Dim txtDesc As TextBox = CType(row.FindControl("txtDesc"), TextBox)
        Dim txtFinish As TextBox = CType(row.FindControl("txtFinish"),
TextBox)
        Dim txtPrice As TextBox = CType(row.FindControl("txtPrice"), TextBox)
        Dim txtQty As TextBox = CType(row.FindControl("txtQty"), TextBox)

        Dim connectionString As String =
WebConfigurationManager.ConnectionStrings("PVFConnString").ConnectionString

        Dim updateSQL As String =
            "UPDATE Product_T " &
            "SET    Product_Description = @Description, " &
            "        Product_Finish      = @Finish, " &
            "        Standard_Price      = @Price, " &
            "        Product_Quantity    = @Qty " &
            "WHERE Product_Id            = @ProductId"

        Dim con As New SqlConnection(connectionString)
        Dim cmd As New SqlCommand(updateSQL, con)

        cmd.Parameters.AddWithValue("@Description", txtDesc.Text)
        cmd.Parameters.AddWithValue("@Finish", txtFinish.Text)
        cmd.Parameters.AddWithValue("@Price",
Convert.ToDecimal(txtPrice.Text))
        cmd.Parameters.AddWithValue("@Qty", Convert.ToInt32(txtQty.Text))
        cmd.Parameters.AddWithValue("@ProductId", productId)

        Try
            con.Open()
            Dim rowsAffected As Integer = cmd.ExecuteNonQuery()

            If rowsAffected > 0 Then
                lblMessage.ForeColor = System.Drawing.Color.Green
                lblMessage.Text = "Product ID " & productId.ToString() &
                    " updated successfully."
                ' Reload the GridView to reflect the new data
                BindCatalog()
            Else
                lblMessage.ForeColor = System.Drawing.Color.Red
                lblMessage.Text = "Update failed. Product ID not found."
            End If
        End Try
    End If
End Sub

```

```

Catch err As Exception
    lblMessage.ForeColor = System.Drawing.Color.Red
    lblMessage.Text = "Error: " & err.Message

Finally
    con.Close()
End Try

End If

End Sub

End Class

```

payment.aspx

```

<%@ Page Title="Payment Page" Language="vb" AutoEventWireup="false"
CodeBehind="payment.aspx.vb" Inherits="pvfc_website.payment" %>

<!DOCTYPE html>
<html>
<head runat="server">
    <title>Payment</title>
    <link rel="stylesheet" href="pvfcstyles.css">
</head>
<body>
    <form id="form1" runat="server">
        <div class="navbar">
            <!-- EVERYONE can see these -->
            <a href="Default.aspx">Home</a>
            <a href="productSearch.aspx">Products</a>

            <!-- ONLY ADMINS (1) and EMPLOYEES (3) can see this -->
            <% If Session("RoleId") IsNot Nothing AndAlso
(Convert.ToInt32(Session("RoleId")) = 1 OrElse Convert.ToInt32(Session("RoleId"))
= 3) Then %>
            <a href="catalog.aspx">Manage Catalog</a>
            <% End If %>

            <!-- ONLY CUSTOMERS (2) can see these -->
            <% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 2 Then %>
            <a href="updateCustomer.aspx">Update Profile</a>
            <a href="payment.aspx">Cart & Checkout</a>
            <% End If %>

            <!-- GUESTS see Login/Register, LOGGED-IN USERS see Logout -->
            <% If Session("RoleId") Is Nothing Then %>
            <a href="register.aspx">Register</a>
            <a href="login.aspx">Login</a>
            <% Else %>
            <a href="login.aspx">Logout</a>
            <% End If %>

            <!-- Only show this link if the logged-in user is Role 1 (Admin) -->
            <% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 1 Then %>

```

```

        <a href="segmentationDashboard.aspx" style="font-weight: bold; color:
green;">View Segmentation Dashboard</a>
    <% End If %>
</div>

<div class="main-content container">
    <h2>Payment Provision</h2>

    <%-- Order Summary --%>
    <div style="border: 1px solid #ccc; padding: 10px; margin-bottom:
20px; text-align: left;">
        <h3>Order Summary</h3>
        <asp:GridView ID="gvCart" runat="server"
AutoGenerateColumns="False" Width="100%">
            <Columns>
                <asp:BoundField DataField="Description"
HeaderText="Product" />
                <asp:BoundField DataField="Finish" HeaderText="Finish" />
                <asp:BoundField DataField="Price" HeaderText="Unit Price"
/>
                <asp:BoundField DataField="Qty" HeaderText="Qty" />
                <asp:BoundField DataField="Subtotal"
HeaderText="Subtotal" />
            </Columns>
        </asp:GridView>
        <br />
        <p>
            <strong>
                <asp:Label ID="lblTotal"
runat="server"></asp:Label></strong>
            </p>
            <asp:Label ID="lblEmptyCart" runat="server"
ForeColor="Red"></asp:Label>
        </div>

    <%-- Payment Form --%>
    <div style="text-align: left; display: inline-block; width: 100%;
max-width: 400px; padding: 20px; border: 1px solid #e0e0e0; border-radius: 8px;">
        <div style="margin-bottom: 15px; text-align: center;">
            <asp:Label ID="lblMessage" runat="server" Font-
Bold="true"></asp:Label>
        </div>

        <label><strong>Payment Method:</strong></label>
        <br />
        <asp:RadioButton ID="rbCard" runat="server" Text="Visa / Master
Card" GroupName="PaymentMethod" AutoPostBack="true" Checked="true" />
        <br />
        <asp:RadioButton ID="rbCOD" runat="server" Text="Cash on
Delivery" GroupName="PaymentMethod" AutoPostBack="true" />
        <br />
        <br />

        <%-- Card Fields Panel --%>
        <asp:Panel ID="pnlCard" runat="server">
            <label>Card Number:</label>
            <asp:TextBox ID="txtCardNum" runat="server"
placeholder="xxxx-xxxx-xxxx-xxxx" Style="width: 100%; margin-bottom:
15px;"></asp:TextBox>

            <div style="display: flex; gap: 20px; margin-bottom: 20px;">
                <div style="flex: 1;">
                    <label>Expiry (MM/YY):</label>

```

```

                <asp:TextBox ID="txtExpiry" runat="server"
Style="width: 100%;"></asp:TextBox>
            </div>
            <div style="width: 80px;">
                <label>CVV:</label>
                <asp:TextBox ID="txtCvv" runat="server"
TextMode="Password" Style="width: 100%;"></asp:TextBox>
            </div>
            </div>
            <asp:Button ID="btnPayNow" runat="server" Text="PAY NOW"
Style="width: 100%;" />
        </asp:Panel>

        <!-- COD Panel -->
        <asp:Panel ID="pnlCOD" runat="server" Visible="false">
            <asp:Button ID="btnPlaceOrder" runat="server" Text="PLACE
ORDER" Style="width: 100%;" />
        </asp:Panel>
    </div>
</div>
</form>
</body>
</html>

```

payment.aspx.vb

```

Imports System.Data
Imports System.Data.SqlClient
Imports System.Web.Configuration

Public Class payment
    Inherits System.Web.UI.Page

    Protected Sub Page_Load(ByVal sender As Object, ByVal e As System.EventArgs)
Handles Me.Load

        ' 1. Check the URL. If the user is browsing the Lab 5 folder, SKIP the
security check completely!
        If Not Request.RawUrl.ToLower().Contains("/lab5/") Then

            ' --- THE GATEKEEPER to prevent unauthorized access
            ' (only logged in customers allowed to check out otherwise redirected
to login page) ---
            If Session("RoleId") Is Nothing OrElse
Convert.ToInt32(Session("RoleId")) <> 2 Then
                Response.Redirect("login.aspx", False)
                Exit Sub
            End If

        End If

        If Not IsPostBack Then
            LoadCart()
            ShowCardPanel()
        End If
    End Sub

```

```

' LOAD CART FROM DATABASE
Private Sub LoadCart()
    Dim connString As String =
WebConfigurationManager.ConnectionStrings("PVFCConString").ConnectionString
    Dim conn As SqlConnection = Nothing
    Dim cmd As SqlCommand = Nothing
    Dim sda As SqlDataAdapter = Nothing

    Try
        conn = New SqlConnection(connString)
        Dim query As String = "SELECT p.Product_Description AS Description,
p.Product_Finish AS Finish, " &
"p.Standard_Price AS Price, c.Quantity AS Qty,
" &
"(p.Standard_Price * c.Quantity) AS Subtotal "
&
"FROM SHOPPING_CART_t c " &
"INNER JOIN PRODUCT_t p ON c.Product_Id =
p.Product_Id " &
"WHERE c.Session_Id = @SessionId"

        cmd = New SqlCommand(query, conn)
        cmd.Parameters.AddWithValue("@SessionId", Session.SessionID)

        sda = New SqlDataAdapter(cmd)
        Dim dt As New DataTable()

        conn.Open()
        sda.Fill(dt)

        If dt.Rows.Count > 0 Then
            gvCart.DataSource = dt
            gvCart.DataBind()

            Dim total As Decimal = 0
            For Each row As DataRow In dt.Rows
                total += Convert.ToDecimal(row("Subtotal"))
            Next
            lblTotal.Text = "Total: " & total.ToString("N2") & " PKR"
            lblEmptyCart.Text = ""
        Else
            gvCart.DataSource = Nothing
            gvCart.DataBind()
            lblEmptyCart.Text = "Your cart is empty."
            lblTotal.Text = ""
        End If

        Catch ex As Exception
            lblEmptyCart.Text = "Error loading cart: " & ex.Message
        Finally
            If sda IsNot Nothing Then sda.Dispose()
            If cmd IsNot Nothing Then cmd.Dispose()
            If conn IsNot Nothing Then
                If conn.State = ConnectionState.Open Then conn.Close()
                conn.Dispose()
            End If
        End Try
    End Sub

Private Sub ShowCardPanel()
    pnlCard.Visible = True
    pnlCOD.Visible = False

```

```

End Sub

Private Sub ShowCODPanel()
    pnlCard.Visible = False
    pnlCOD.Visible = True
End Sub

Protected Sub rbCard_CheckedChanged(sender As Object, e As EventArgs) Handles
rbCard.CheckedChanged
    If rbCard.Checked Then
        ShowCardPanel()
    End If
End Sub

Protected Sub rbCOD_CheckedChanged(sender As Object, e As EventArgs) Handles
rbCOD.CheckedChanged
    If rbCOD.Checked Then
        ShowCODPanel()
    End If
End Sub

' Credit Card Checkout
Protected Sub btnPayNow_Click(sender As Object, e As EventArgs) Handles
btnPayNow.Click
    If txtCardNum.Text.Trim() = "" OrElse txtExpiry.Text.Trim() = "" OrElse
txtCvv.Text.Trim() = "" Then
        lblMessage.Text = "Please fill in all card details."
        lblMessage.ForeColor = Drawing.Color.Red
        Return
    End If

    PlaceOrder()
End Sub

' Cash on Delivery Checkout
Protected Sub btnPlaceOrder_Click(sender As Object, e As EventArgs) Handles
btnPlaceOrder.Click
    PlaceOrder()
End Sub

' DEDUCT INVENTORY AND CLEAR CART
Private Sub PlaceOrder()
    Dim connString As String =
WebConfigurationManager.ConnectionStrings("PVFCConnString").ConnectionString
    Dim conn As SqlConnection = Nothing
    Dim cmdDeduct As SqlCommand = Nothing
    Dim cmdClear As SqlCommand = Nothing

    Try
        conn = New SqlConnection(connString)
        conn.Open()

        ' Deduct purchased quantities from PRODUCT_t
        Dim deductQuery As String = "UPDATE p " &
"SET p.Product_Quantity =
p.Product_Quantity - c.Quantity " &
"FROM PRODUCT_t p " &
"INNER JOIN SHOPPING_CART_t c ON
p.Product_Id = c.Product_Id " &
"WHERE c.Session_Id = @SessionId"

        cmdDeduct = New SqlCommand(deductQuery, conn)
        cmdDeduct.Parameters.AddWithValue("@SessionId", Session.SessionID)
    
```

```

        cmdDeduct.ExecuteNonQuery()

        ' Clear the user's cart
        Dim clearQuery As String = "DELETE FROM SHOPPING_CART_t WHERE
Session_Id = @SessionId"
        cmdClear = New SqlCommand(clearQuery, conn)
        cmdClear.Parameters.AddWithValue("@SessionId", Session.SessionID)
        cmdClear.ExecuteNonQuery()

        lblMessage.Text = "Order placed successfully! Inventory has been
updated."
        lblMessage.ForeColor = Drawing.Color.Green
        LoadCart() ' Refresh the UI to show empty cart

    Catch ex As Exception
        lblMessage.Text = "Error processing order: " & ex.Message
        lblMessage.ForeColor = Drawing.Color.Red
    Finally
        If cmdDeduct IsNot Nothing Then cmdDeduct.Dispose()
        If cmdClear IsNot Nothing Then cmdClear.Dispose()
        If conn IsNot Nothing Then
            If conn.State = ConnectionState.Open Then conn.Close()
            conn.Dispose()
        End If
    End Try
End Sub

End Class

```

productSearch.aspx

```

<%@ Page Title="Product Search Page" Language="vb" AutoEventWireup="false"
CodeBehind="productSearch.aspx.vb" Inherits="pvfc_website.productSearch" %>

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title></title>
    <link href="~/pvfcstyles.css" rel="stylesheet" type="text/css" runat="server"
/>
</head>
<body>
    <form id="form1" runat="server">
        <div class="navbar">
            <a href="Default.aspx">Home</a>
            <a href="productSearch.aspx">Products</a>

            <% If Session("RoleId") IsNot Nothing AndAlso
(Convert.ToInt32(Session("RoleId")) = 1 OrElse Convert.ToInt32(Session("RoleId"))
= 3) Then %>
                <a href="catalog.aspx">Manage Catalog</a>
            <% End If %>

            <% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 2 Then %>
                <a href="updateCustomer.aspx">Update Profile</a>
                <a href="payment.aspx">Cart & Check out</a>
            <% End If %>

```

```

        <% If Session("RoleId") Is Nothing Then %>
        <a href="register.aspx">Register</a>
        <a href="login.aspx">Login</a>
        <% Else %>
        <a href="login.aspx">Logout</a>
        <% End If %>

        <% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 1 Then %>
        <a href="segmentationDashboard.aspx" style="font-weight: bold; color:
green;">View Segmentation Dashboard</a>
        <% End If %>
    </div>

    <div class="container">
        <div style="text-align: center; padding-bottom: 20px; border-bottom:
1px solid #ccc;">
            <label>Search:</label>
            <asp:TextBox ID="txtSearch" runat="server" placeholder="Table,
Desk..."></asp:TextBox>
            <asp:Button ID="btnSearch" runat="server" Text="Go" />
            <br /><br />
            <strong>Category:</strong>
            <asp:Button ID="btnAsh" runat="server" Text="Natural Ash"
CssClass="btn" />
            <asp:Button ID="btnWalnut" runat="server" Text="Walnut"
CssClass="btn" />
            <asp:Button ID="btnCherry" runat="server" Text="Cherry"
CssClass="btn" />
        </div>

        <h2>Available Products</h2>

        <div style="text-align: center; margin-bottom: 15px;">
            <asp:Label ID="lblMessage" runat="server" ForeColor="Red" Font-
Bold="true"></asp:Label>
        </div>

        <%-- Customers: product grid with Select button --%>
        <asp:GridView ID="gvProducts" runat="server"
AutoGenerateColumns="False" Width="100%" Visible="false">
            <Columns>
                <asp:BoundField DataField="Product_Id" HeaderText="Product
ID" />
                <asp:BoundField DataField="Product_Description"
HeaderText="Product Description" />
                <asp:BoundField DataField="Product_Finish"
HeaderText="Finish" />
                <asp:BoundField DataField="Standard_Price"
HeaderText="Standard Price" DataFormatString="{0:N2}" />
                <asp:ButtonField ButtonType="Button" Text="Select"
CommandName="SelectProduct" HeaderText="Action" />
            </Columns>
        </asp:GridView>

        <%-- Admins and Employees: product grid with a View button to trigger
demand forecast --%>
        <asp:GridView ID="gvProductsReadOnly" runat="server"
AutoGenerateColumns="False" Width="100%" Visible="false">
            <Columns>
                <asp:BoundField DataField="Product_Id" HeaderText="Product
ID" />

```

```

        <asp:BoundField DataField="Product_Description"
HeaderText="Product Description" />
        <asp:BoundField DataField="Product_Finish"
HeaderText="Finish" />
        <asp:BoundField DataField="Standard_Price"
HeaderText="Standard Price" DataFormatString="{0:N2}" />
        <asp:ButtonField ButtonType="Button" Text="View"
CommandName="ViewProduct" HeaderText="Forecast" />
    </Columns>
</asp:GridView>

<br />

<!-- Add to Cart panel - customers only -->
<div id="divAddToCart" runat="server" visible="false"
style="border: 1px solid #ccc; padding: 15px; margin-top: 15px;">
    <h3>Selected Product</h3>
    <asp:Label ID="lblSelectedProduct" runat="server"></asp:Label>
    <br /><br />
    <label>Quantity:</label>
    <asp:TextBox ID="txtQuantity" runat="server" Text="1"
Style="width: 60px;"></asp:TextBox>
    <asp:Button ID="btnAddToCart" runat="server" Text="Add to Cart"
CssClass="btn" />
    <br />
    <asp:Label ID="lblCartMessage" runat="server" ForeColor="Green"
Font-Bold="true"></asp:Label>
</div>

<!-- Recommendation 1: Also Bought (shown to everyone after selecting
a product) -->
<asp:Panel ID="pnlAlsoBought" runat="server" Visible="false"
style="border: 1px solid #ccc; padding: 15px; margin-top: 20px;">
    <h3>Customers who bought this also bought</h3>
    <asp:GridView ID="gvAlsoBought" runat="server"
AutoGenerateColumns="False" Width="100%">
        <Columns>
            <asp:BoundField DataField="Product_Description"
HeaderText="Product" />
            <asp:BoundField DataField="Product_Finish"
HeaderText="Finish" />
            <asp:BoundField DataField="Standard_Price"
HeaderText="Price" DataFormatString="{0:N2}" />
            <asp:BoundField DataField="TimesBoughtTogether"
HeaderText="Times Bought Together" />
        </Columns>
    </asp:GridView>
</asp:Panel>

<!-- Recommendation 2: Reorder suggestions (customers only) -->
<asp:Panel ID="pnlReorder" runat="server" Visible="false"
style="border: 1px solid #ccc; padding: 15px; margin-top: 20px;">
    <h3>Your Previous Orders - Reorder?</h3>
    <p>Based on your order history, you may want to reorder these
items:</p>
    <asp:GridView ID="gvReorder" runat="server"
AutoGenerateColumns="False" Width="100%">
        <Columns>
            <asp:BoundField DataField="Product_Description"
HeaderText="Product" />
            <asp:BoundField DataField="Product_Finish"
HeaderText="Finish" />

```

```

                <asp:BoundField DataField="Standard_Price"
HeaderText="Price" DataFormatString="{0:N2}" />
                <asp:BoundField DataField="TimesOrdered"
HeaderText="Times Ordered" />
            </Columns>
        </asp:GridView>
    </asp:Panel>

    <!-- Recommendation 3: Demand Forecast (admin and employee only) -->
    <asp:Panel ID="pnlForecast" runat="server" Visible="false"
style="border: 1px solid #ccc; padding: 15px; margin-top: 20px;">
        <h3>Demand Forecast - Inventory Alert</h3>
        <p>When <strong><asp:Label ID="lblForecastProduct"
runat="server"></asp:Label></strong> sells,
            these items tend to sell as well. Consider restocking if stock
is low:</p>
        <asp:GridView ID="gvForecast" runat="server"
AutoGenerateColumns="False" Width="100%">
            <Columns>
                <asp:BoundField DataField="Product_Description"
HeaderText="Secondary Product" />
                <asp:BoundField DataField="Product_Finish"
HeaderText="Finish" />
                <asp:BoundField DataField="Product_Quantity"
HeaderText="Current Stock" />
                <asp:BoundField DataField="CoOccurrences" HeaderText="Co-
Sold Count" />
            </Columns>
        </asp:GridView>
    </asp:Panel>
</div>
</form>
</body>
</html>

```

productSearch.aspx.vb

Imports System.Configuration

Imports System.Data

Imports System.Data.SqlClient

Public Class productSearch

Inherits System.Web.UI.Page

```
Protected Sub Page_Load(ByVal sender As Object, ByVal e As System.EventArgs)
Handles Me.Load
```

```
    ' On first load, show reorder suggestions to logged-in customers
```

```
    If Not IsPostBack Then
```

```
        If Session("RoleId") IsNot Nothing AndAlso Convert.ToInt32(Session("RoleId")) = 2
Then
```

```
            LoadReorderSuggestions()
```

```
        End If
```

```
    End If
```

```
End Sub
```

```
    ' HELPER: decide which grid to bind results to
```

```
Private Sub BindProductGrid(dt As DataTable)
```

```
    Dim roleId As Integer = -1
```

```
    If Session("RoleId") IsNot Nothing Then
```

```
        roleId = Convert.ToInt32(Session("RoleId"))
```

```
    End If
```

```
    If roleId = 2 Then
```

```
        ' Customer — show grid with Select button
```

```
        gvProducts.DataSource = dt
```

```
        gvProducts.DataBind()
```

```
        gvProducts.Visible = True
```

```
        gvProductsReadOnly.Visible = False
```

```
    Else
```

```
        ' Admin, Employee, or Guest — show read-only grid
```

```
        gvProductsReadOnly.DataSource = dt
```

```
        gvProductsReadOnly.DataBind()
```

```
        gvProductsReadOnly.Visible = True
```

```
gvProducts.Visible = False
```

```
End If
```

```
End Sub
```

```
' SEARCH BY KEYWORD
```

```
Protected Sub btnSearch_Click(sender As Object, e As EventArgs) Handles  
btnSearch.Click
```

```
Dim searchText As String = txtSearch.Text.Trim()
```

```
Dim connString As String =  
ConfigurationManager.ConnectionStrings("PVFCCConnString").ConnectionString
```

```
Dim conn As SqlConnection = Nothing
```

```
Dim cmd As SqlCommand = Nothing
```

```
Dim sda As SqlDataAdapter = Nothing
```

```
Try
```

```
conn = New SqlConnection(connString)
```

```
Dim query As String = "SELECT Product_ID, Product_Description, Product_Finish,  
Standard_Price FROM PRODUCT_t WHERE Product_Description LIKE @SearchText"
```

```
cmd = New SqlCommand(query, conn)
```

```
cmd.Parameters.AddWithValue("@SearchText", "%" & searchText & "%")
```

```
sda = New SqlDataAdapter(cmd)
```

```
Dim dt As New DataTable()
```

```
conn.Open()
```

```
sda.Fill(dt)
```

```
If dt.Rows.Count > 0 Then
```

```
BindProductGrid(dt)
```

```
lblMessage.Text = ""
```

```
Else
```

```
gvProducts.Visible = False
```

```
gvProductsReadOnly.Visible = False
```

```
lblMessage.Text = "No products found."
```

```
End If
```

```
Catch ex As Exception
```

```
lblMessage.Text = "An error occurred while searching: " & ex.Message
```

```
Finally
```

```
If sda IsNot Nothing Then sda.Dispose()
```

```
If cmd IsNot Nothing Then cmd.Dispose()
```

```
If conn IsNot Nothing Then
```

```
    If conn.State = ConnectionState.Open Then conn.Close()
```

```
    conn.Dispose()
```

```
End If
```

```
End Try
```

```
End Sub
```

```
' FILTER BY FINISH
```

```
Private Sub FilterByFinish(finish As String)
```

```
    Dim connString As String =
```

```
    ConfigurationManager.ConnectionStrings("PVFCConString").ConnectionString
```

```
    Dim conn As SqlConnection = Nothing
```

```
    Dim cmd As SqlCommand = Nothing
```

```
    Dim sda As SqlDataAdapter = Nothing
```

Try

```
conn = New SqlConnection(connString)
```

```
Dim query As String = "SELECT Product_Id, Product_Description, Product_Finish,  
Standard_Price FROM PRODUCT_t WHERE Product_Finish = @Finish"
```

```
cmd = New SqlCommand(query, conn)
```

```
cmd.Parameters.AddWithValue("@Finish", finish)
```

```
sda = New SqlDataAdapter(cmd)
```

```
Dim dt As New DataTable()
```

```
conn.Open()
```

```
sda.Fill(dt)
```

```
If dt.Rows.Count > 0 Then
```

```
    BindProductGrid(dt)
```

```
    lblMessage.Text = ""
```

```
Else
```

```
    gvProducts.Visible = False
```

```
    gvProductsReadOnly.Visible = False
```

```
    lblMessage.Text = "No Products Found in " & finish
```

```
End If
```

```
Catch ex As Exception
```

```
    lblMessage.Text = "An error occurred filtering products: " & ex.Message
```

```
Finally
```

```
    If sda IsNot Nothing Then sda.Dispose()
```

```
    If cmd IsNot Nothing Then cmd.Dispose()
```

```
    If conn IsNot Nothing Then
```

```
        If conn.State = ConnectionState.Open Then conn.Close()
```

```
        conn.Dispose()
    End If
End Try
End Sub
```

```
Protected Sub btnAsh_Click(sender As Object, e As EventArgs) Handles btnAsh.Click
    FilterByFinish("Natural Ash")
End Sub
```

```
Protected Sub btnWalnut_Click(sender As Object, e As EventArgs) Handles
btnWalnut.Click
    FilterByFinish("Walnut")
End Sub
```

```
Protected Sub btnCherry_Click(sender As Object, e As EventArgs) Handles
btnCherry.Click
    FilterByFinish("Cherry")
End Sub
```

'PRODUCT SELECTION (customers only)

```
Protected Sub gvProducts_RowCommand(sender As Object, e As
GridViewCommandEventArgs) Handles gvProducts.RowCommand
    If e.CommandName = "SelectProduct" Then
        Dim rowIndex As Integer = Convert.ToInt32(e.CommandArgument)
        Dim row As GridViewRow = gvProducts.Rows(rowIndex)

        Dim productId As String = row.Cells(0).Text
        Dim productDesc As String = row.Cells(1).Text
        Dim productFinish As String = row.Cells(2).Text
```

```
Dim productPrice As String = row.Cells(3).Text
```

```
Session("SelectedProductId") = productId
```

```
Session("SelectedProductDesc") = productDesc
```

```
Session("SelectedProductFinish") = productFinish
```

```
Session("SelectedProductPrice") = productPrice
```

```
lblSelectedProduct.Text = productDesc & " (" & productFinish & ") - " &  
productPrice
```

```
divAddToCart.Visible = True
```

```
lblCartMessage.Text = ""
```

```
' Show also-bought recommendation for the selected product
```

```
LoadAlsoBought(Convert.ToInt32(productId))
```

```
' Show reorder suggestions for this customer
```

```
LoadReorderSuggestions()
```

```
End If
```

```
End Sub
```

```
'ROW COMMAND FOR ADMIN/EMPLOYEE (read-only grid)
```

```
Protected Sub gvProductsReadOnly_RowCommand(sender As Object, e As  
GridViewCommandEventArgs) Handles gvProductsReadOnly.RowCommand
```

```
If e.CommandName = "ViewProduct" Then
```

```
Dim rowIndex As Integer = Convert.ToInt32(e.CommandArgument)
```

```
Dim row As GridViewRow = gvProductsReadOnly.Rows(rowIndex)
```

```
Dim productId As Integer = Convert.ToInt32(row.Cells(0).Text)
```

```
Dim productDesc As String = row.Cells(1).Text
```

```
LoadAlsoBought(productId)
```

```
LoadDemandForecast(productId, productDesc)
```

```
End If
```

```
End Sub
```

```
'RECOMMENDATION 1: ALSO BOUGHT
```

```
Private Sub LoadAlsoBought(selectedProductId As Integer)
```

```
Dim connString As String =  
ConfigurationManager.ConnectionStrings("PVFCConnString").ConnectionString
```

```
Dim conn As SqlConnection = Nothing
```

```
Dim cmd As SqlCommand = Nothing
```

```
Dim sda As SqlDataAdapter = Nothing
```

```
Try
```

```
conn = New SqlConnection(connString)
```

```
Dim query As String =
```

```
"SELECT TOP 5 p.Product_Description, p.Product_Finish, p.Standard_Price, " &
```

```
"COUNT(*) AS TimesBoughtTogether " &
```

```
"FROM Order_line_t ol1 " &
```

```
"INNER JOIN Order_line_t ol2 ON ol1.Order_Id = ol2.Order_Id " &
```

```
"INNER JOIN PRODUCT_t p ON ol2.Product_Id = p.Product_Id " &
```

```
"WHERE ol1.Product_Id = @ProductId " &
```

```
"AND ol2.Product_Id <> @ProductId " &
```

```
"GROUP BY p.Product_Description, p.Product_Finish, p.Standard_Price " &
```

```
"ORDER BY TimesBoughtTogether DESC"
```

```
cmd = New SqlCommand(query, conn)
```

```
cmd.Parameters.AddWithValue("@ProductId", selectedProductId)
```

```

sda = New SqlDataAdapter(cmd)
Dim dt As New DataTable()
conn.Open()
sda.Fill(dt)

If dt.Rows.Count > 0 Then
    gvAlsoBought.DataSource = dt
    gvAlsoBought.DataBind()
    pnlAlsoBought.Visible = True
Else
    pnlAlsoBought.Visible = False
End If

Catch ex As Exception
    pnlAlsoBought.Visible = False
Finally
    If sda IsNot Nothing Then sda.Dispose()
    If cmd IsNot Nothing Then cmd.Dispose()
    If conn IsNot Nothing Then
        If conn.State = ConnectionState.Open Then conn.Close()
        conn.Dispose()
    End If
End Try
End Sub

' RECOMMENDATION 2: REORDER SUGGESTIONS
Private Sub LoadReorderSuggestions()

```

If Session("CustomerId") Is Nothing Then

 pnlReorder.Visible = False

 Return

End If

Dim customerId As Integer = Convert.ToInt32(Session("CustomerId"))

Dim connString As String =

ConfigurationManager.ConnectionStrings("PVFCConnString").ConnectionString

Dim conn As SqlConnection = Nothing

Dim cmd As SqlCommand = Nothing

Dim sda As SqlDataAdapter = Nothing

Try

 conn = New SqlConnection(connString)

 Dim query As String =

 "SELECT TOP 5 p.Product_Description, p.Product_Finish, p.Standard_Price, " &

 "COUNT(*) AS TimesOrdered " &

 "FROM ORDER_t o " &

 "INNER JOIN Order_line_t ol ON o.Order_Id = ol.Order_Id " &

 "INNER JOIN PRODUCT_t p ON ol.Product_Id = p.Product_Id " &

 "WHERE o.Customer_Id = @CustomerId " &

 "GROUP BY p.Product_Description, p.Product_Finish, p.Standard_Price " &

 "ORDER BY TimesOrdered DESC"

 cmd = New SqlCommand(query, conn)

 cmd.Parameters.AddWithValue("@CustomerId", customerId)

```
sda = New SqlDataAdapter(cmd)
Dim dt As New DataTable()
conn.Open()
sda.Fill(dt)

If dt.Rows.Count > 0 Then
    gvReorder.DataSource = dt
    gvReorder.DataBind()
    pnlReorder.Visible = True
Else
    pnlReorder.Visible = False
End If

Catch ex As Exception
    pnlReorder.Visible = False
Finally
    If sda IsNot Nothing Then sda.Dispose()
    If cmd IsNot Nothing Then cmd.Dispose()
    If conn IsNot Nothing Then
        If conn.State = ConnectionState.Open Then conn.Close()
        conn.Dispose()
    End If
End Try
End Sub
```

'RECOMMENDATION 3: DEMAND FORECAST

```
Private Sub LoadDemandForecast(primaryProductId As Integer, primaryProductDesc
As String)
```

```

Dim connString As String =
ConfigurationManager.ConnectionStrings("PVFCConnString").ConnectionString

Dim conn As SqlConnection = Nothing

Dim cmd As SqlCommand = Nothing

Dim sda As SqlDataAdapter = Nothing

Try

    conn = New SqlConnection(connString)

    Dim query As String =
        "SELECT TOP 5 p.Product_Description, p.Product_Finish, p.Product_Quantity, "
&
        "COUNT(*) AS CoOccurrences " &
        "FROM Order_line_t ol1 " &
        "INNER JOIN Order_line_t ol2 ON ol1.Order_Id = ol2.Order_Id " &
        "INNER JOIN PRODUCT_t p ON ol2.Product_Id = p.Product_Id " &
        "WHERE ol1.Product_Id = @ProductId " &
        "AND ol2.Product_Id <> @ProductId " &
        "GROUP BY p.Product_Description, p.Product_Finish, p.Product_Quantity " &
        "ORDER BY CoOccurrences DESC"

    cmd = New SqlCommand(query, conn)
    cmd.Parameters.AddWithValue("@ProductId", primaryProductId)

    sda = New SqlDataAdapter(cmd)

    Dim dt As New DataTable()

    conn.Open()

    sda.Fill(dt)

```

```
If dt.Rows.Count > 0 Then
    lblForecastProduct.Text = primaryProductDesc
    gvForecast.DataSource = dt
    gvForecast.DataBind()
    pnlForecast.Visible = True
Else
    pnlForecast.Visible = False
End If
```

```
Catch ex As Exception
```

```
    pnlForecast.Visible = False
```

```
Finally
```

```
    If sda IsNot Nothing Then sda.Dispose()
```

```
    If cmd IsNot Nothing Then cmd.Dispose()
```

```
    If conn IsNot Nothing Then
```

```
        If conn.State = ConnectionState.Open Then conn.Close()
```

```
        conn.Dispose()
```

```
    End If
```

```
End Try
```

```
End Sub
```

```
' ADD TO CART
```

```
Protected Sub btnAddToCart_Click(sender As Object, e As EventArgs) Handles  
btnAddToCart.Click
```

```
    Dim qty As Integer = 0
```

```
    If Not Integer.TryParse(txtQuantity.Text.Trim(), qty) OrElse qty <= 0 Then
```

```
        lblCartMessage.Text = "Please enter a valid quantity."
```

```
        lblCartMessage.ForeColor = Drawing.Color.Red
```

Return

End If

Dim connString As String =

ConfigurationManager.ConnectionStrings("PVFCConnString").ConnectionString

Dim conn As SqlConnection = Nothing

Dim cmd As SqlCommand = Nothing

Try

conn = New SqlConnection(connString)

Dim query As String = "INSERT INTO SHOPPING_CART_t (Session_Id, Product_Id, Quantity) VALUES (@SessionId, @ProductId, @Qty)"

cmd = New SqlCommand(query, conn)

cmd.Parameters.AddWithValue("@SessionId", Session.SessionID)

cmd.Parameters.AddWithValue("@ProductId",
Session("SelectedProductId").ToString())

cmd.Parameters.AddWithValue("@Qty", qty)

conn.Open()

cmd.ExecuteNonQuery()

lblCartMessage.Text = "Item added to cart! (" & qty & "x " &
Session("SelectedProductDesc").ToString() & ")"

lblCartMessage.ForeColor = Drawing.Color.Green

Catch ex As Exception

lblCartMessage.Text = "Database Error: " & ex.Message

lblCartMessage.ForeColor = Drawing.Color.Red

Finally

If cmd IsNot Nothing Then cmd.Dispose()

If conn IsNot Nothing Then

If conn.State = ConnectionState.Open Then conn.Close()

conn.Dispose()

End If

End Try

End Sub

End Class

updateCustomer.aspx

```
<%@ Page Title="Customer Information Update Page" Language="vb"
AutoEventWireup="false" CodeBehind="updateCustomer.aspx.vb"
Inherits="pvfc_website.updateCustomer" %>
```

```
<!DOCTYPE html>
<html lang="en">
<head runat="server">
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Update Customer Profile</title>
  <link rel="stylesheet" href="pvfcstyles.css">
</head>
<body>
  <form id="form1" runat="server">

    <div class="navbar">
      <!-- EVERYONE can see these -->
      <a href="Default.aspx">Home</a>
      <a href="productSearch.aspx">Products</a>

      <!-- ONLY ADMINS (1) and EMPLOYEES (3) can see this -->
      <% If Session("RoleId") IsNot Nothing AndAlso
(Convert.ToInt32(Session("RoleId")) = 1 OrElse Convert.ToInt32(Session("RoleId"))
= 3) Then %>
      <a href="catalog.aspx">Manage Catalog</a>
      <% End If %>
```



```

        <asp:TextBox ID="txtAddress"
runat="server"></asp:TextBox>

        <label>City</label>
        <asp:TextBox ID="txtCity" runat="server"></asp:TextBox>

        <label>State</label>
        <asp:TextBox ID="txtState" runat="server"></asp:TextBox>

        <label>Postal Code</label>
        <asp:TextBox ID="txtPostalCode"
runat="server"></asp:TextBox>

        <asp:Button ID="btnUpdate" runat="server"
            Text="Save Changes" Style="width: 100%; margin-top:
10px;" />

    </div>
</asp:Panel>
</div>
</div>
</form>
</body>
</html>

```

updateCustomer.aspx.vb

```

Imports System.Data.SqlClient
Imports System.Web.Configuration

Public Class updateCustomer
    Inherits System.Web.UI.Page

    Protected Sub Page_Load(sender As Object, e As EventArgs) Handles Me.Load
        ' --- THE GATEKEEPER to prevent unauthorized access ---
        ' Only allow Role 2 (Customers)
        If Session("RoleId") Is Nothing OrElse Convert.ToInt32(Session("RoleId"))
<> 2 Then
            Response.Redirect("login.aspx", False)
            Exit Sub
        End If

    End Sub

    ' 1 - Find the customer record using Name and Postal Code
    Protected Sub btnFetch_Click(sender As Object, e As EventArgs) _
        Handles btnFetch.Click

        Dim connectionString As String =
WebConfigurationManager.ConnectionStrings("PVFConnString").ConnectionString

        Dim selectSQL As String =
            "SELECT Customer_Id, Customer_Name, Customer_Address, " &

```

```

        "        Customer_City, Customer_State, Postal_Code " &
        "FROM    CUSTOMER_T " &
        "WHERE   Customer_Name = @Name AND Postal_Code = @PostalCode"

Dim con As New SqlConnection(connectionString)
Dim cmd As New SqlCommand(selectSQL, con)

cmd.Parameters.AddWithValue("@Name", txtSearchName.Text)
cmd.Parameters.AddWithValue("@PostalCode", txtSearchZip.Text)

Try
    con.Open()
    Dim reader As SqlDataReader = cmd.ExecuteReader()

    If reader.Read() Then
        ' Store the primary key in the hidden field
        hfCustomerId.Value = reader("Customer_Id").ToString()

        ' Populate the editable text boxes
        txtName.Text = reader("Customer_Name").ToString()
        txtAddress.Text = reader("Customer_Address").ToString()
        txtCity.Text = reader("Customer_City").ToString()
        txtState.Text = reader("Customer_State").ToString()
        txtPostalCode.Text = reader("Postal_Code").ToString()

        ' Show the edit panel
        pnlEditProfile.Visible = True
        lblMessage.ForeColor = System.Drawing.Color.Blue
        lblMessage.Text = "Profile found. Make your changes below."

    Else
        ' No match found - keep the edit panel hidden
        pnlEditProfile.Visible = False
        lblMessage.ForeColor = System.Drawing.Color.Red
        lblMessage.Text = "No record found matching that Name and Postal
Code."

    End If

    reader.Close()

Catch err As Exception
    lblMessage.ForeColor = System.Drawing.Color.Red
    lblMessage.Text = "Error: " & err.Message

Finally
    con.Close()
End Try

End Sub

' 2 - Save the changes back to the database
Protected Sub btnUpdate_Click(sender As Object, e As EventArgs) _
    Handles btnUpdate.Click

    Dim connectionString As String =
WebConfigurationManager.ConnectionStrings("PVFConnString").ConnectionString

    Dim updateSQL As String =
        "UPDATE CUSTOMER_T " &
        "SET    Customer_Name    = @Name, " &
        "        Customer_Address = @Address, " &
        "        Customer_City    = @City, " &

```

```

        "          Customer_State      = @State, " &
        "          Postal_Code        = @PostalCode " &
        "WHERE Customer_Id            = @CustomerId"

Dim con As New SqlConnection(connectionString)
Dim cmd As New SqlCommand(updateSQL, con)

' Bind form values to parameters
cmd.Parameters.AddWithValue("@Name", txtName.Text)
cmd.Parameters.AddWithValue("@Address", txtAddress.Text)
cmd.Parameters.AddWithValue("@City", txtCity.Text)
cmd.Parameters.AddWithValue("@State", txtState.Text)
cmd.Parameters.AddWithValue("@PostalCode", txtPostalCode.Text)

' Use the hidden field to safely identify the row to update
cmd.Parameters.AddWithValue("@CustomerId", hfCustomerId.Value)

Try
    con.Open()
    Dim rowsAffected As Integer = cmd.ExecuteNonQuery()

    If rowsAffected > 0 Then
        lblMessage.ForeColor = System.Drawing.Color.Green
        lblMessage.Text = "Your profile has been updated successfully."

        ' Hide the edit panel and reflect new values in the search boxes
        pnlEditProfile.Visible = False
        txtSearchName.Text = txtName.Text
        txtSearchZip.Text = txtPostalCode.Text
    Else
        lblMessage.ForeColor = System.Drawing.Color.Red
        lblMessage.Text = "Update failed. Please try again."
    End If

Catch err As Exception
    lblMessage.ForeColor = System.Drawing.Color.Red
    lblMessage.Text = "Error: " & err.Message

Finally
    con.Close()
End Try

End Sub

End Class

```

segmentationDashboard.aspx

```

<%@ Page Language="vb" AutoEventWireup="false"
CodeBehind="segmentationDashboard.aspx.vb"
Inherits="pvfc_website.segmentationDashboard" %>

<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">

<head runat="server">
    <meta charset="UTF-8">

```

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<link rel="stylesheet" href="pvfcstyles.css">
<title>Customer Segmentation Dashboard</title>
<style>
  body {
    font-family: Arial, sans-serif;
    margin: 0;
    padding: 20px;
    background-color: #f4f7f6;
  }

  .container {
    max-width: 1200px;
    margin: auto;
    background: white;
    padding: 20px;
    border-radius: 8px;
    box-shadow: 0 4px 8px rgba(0,0,0,0.1);
  }

  .quadrant-grid {
    display: grid;
    grid-template-columns: 1fr 1fr;
    gap: 20px;
    margin-top: 20px;
  }

  .quadrant {
    border: 2px solid #ddd;
    border-radius: 8px;
    padding: 15px;
  }

  .quadrant h3 {
    margin: 0 0 10px 0;
    padding: 10px;
    border-radius: 5px;
    color: white;
    text-align: center;
  }

  .premium {
    border-color: #27ae60;
  }

  .premium h3 {
    background-color: #27ae60;
  }

  .highvalue {
    border-color: #2980b9;
  }

  .highvalue h3 {
    background-color: #2980b9;
  }

  .frequent {
    border-color: #f39c12;
  }
}
```

```

        .frequent h3 {
            background-color: #f39c12;
        }

        .casual {
            border-color: #95a5a6;
        }

        .casual h3 {
            background-color: #95a5a6;
        }

        .quadrant table {
            width: 100%;
            border-collapse: collapse;
        }

        .quadrant table th {
            background-color: #f8f9fa;
            padding: 8px;
            border: 1px solid #ddd;
            text-align: left;
        }

        .quadrant table td {
            padding: 8px;
            border: 1px solid #ddd;
        }

        .btn {
            padding: 8px 15px;
            border: none;
            border-radius: 4px;
            cursor: pointer;
            font-weight: bold;
        }

        .btn-primary {
            background-color: #007bff;
            color: white;
        }

        .btn-success {
            background-color: #27ae60;
            color: white;
            margin-left: 10px;
        }
    }
</style>
</head>
<body>
    <form id="form1" runat="server">
        <div class="navbar">
            <!-- EVERYONE can see these -->
            <a href="Default.aspx">Home</a>
            <a href="productSearch.aspx">Products</a>

            <!-- ONLY ADMINS (1) and EMPLOYEES (3) can see this -->
            <% If Session("RoleId") IsNot Nothing AndAlso
(Convert.ToInt32(Session("RoleId")) = 1 OrElse Convert.ToInt32(Session("RoleId"))
= 3) Then %>
            <a href="catalog.aspx">Manage Catalog</a>
            <% End If %>
        </div>
    </form>
</body>
</html>

```

```

        <!-- ONLY CUSTOMERS (2) can see these -->
        <% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 2 Then %>
        <a href="updateCustomer.aspx">Update Profile</a>
        <a href="payment.aspx">Cart & Checkout</a>
        <% End If %>

        <!-- GUESTS see Login/Register, LOGGED-IN USERS see Logout -->
        <% If Session("RoleId") Is Nothing Then %>
        <a href="register.aspx">Register</a>
        <a href="login.aspx">Login</a>
        <% Else %>
        <a href="login.aspx">Logout</a>
        <% End If %>

        <!-- Only show this link if the logged-in user is Role 1 (Admin) -->
        <% If Session("RoleId") IsNot Nothing AndAlso
Convert.ToInt32(Session("RoleId")) = 1 Then %>
        <a href="segmentationDashboard.aspx" style="font-weight: bold; color:
green;">View Segmentation Dashboard</a>
        <% End If %>
    </div>

    <div class="container">
        <h2>Customer Segmentation Dashboard</h2>
        <p style="color: #666;">Customers are segmented by purchase frequency
and total spend. Threshold: Orders &gt; 1 = Frequent. Spend &gt;= $1,000 = High
Value.</p>

        <asp:Label ID="lblMessage" runat="server" Font-Bold="true"
Style="display: block; margin-bottom: 15px;"></asp:Label>

        <asp:Button ID="btnAnalyze" runat="server" Text="Run Analysis"
CssClass="btn btn-primary" />
        <asp:Button ID="btnPremiumPromo" runat="server" Text="Send VIP Gift
to Premium Customers" CssClass="btn btn-success" />

        <asp:Panel ID="pnlQuadrants" runat="server" Visible="false">
            <div class="quadrant-grid">
                <div class="quadrant premium">
                    <h3>Premium Customers</h3>
                    <p style="font-size: 12px; color: #555;">High Frequency
(&gt;1) AND High Spend (&gt;=$1000)</p>
                    <asp:GridView ID="gvPremium" runat="server"
AutoGenerateColumns="False" Width="100%" EmptyDataText="No customers in this
segment.">
                        <Columns>
                            <asp:BoundField DataField="Name"
HeaderText="Customer" />
                            <asp:BoundField DataField="TotalOrders"
HeaderText="Orders" />
                            <asp:BoundField DataField="TotalSpend"
HeaderText="Spend ($)" DataFormatString="{0:N2}" />
                        </Columns>
                    </asp:GridView>
                </div>

                <div class="quadrant highvalue">
                    <h3>High-Value Buyers</h3>
                    <p style="font-size: 12px; color: #555;">Low Frequency
(=1) AND High Spend (&gt;=$1000)</p>
                </div>
            </div>
        </asp:Panel>
    </div>

```

```

        <asp:GridView ID="gvHighValue" runat="server"
AutoGenerateColumns="False" Width="100%" EmptyDataText="No customers in this
segment.">
            <Columns>
                <asp:BoundField DataField="Name"
HeaderText="Customer" />
                <asp:BoundField DataField="TotalOrders"
HeaderText="Orders" />
                <asp:BoundField DataField="TotalSpend"
HeaderText="Spend ($)" DataFormatString="{0:N2}" />
            </Columns>
        </asp:GridView>
    </div>

    <div class="quadrant frequent">
        <h3>Frequent Shoppers</h3>
        <p style="font-size: 12px; color: #555;">High Frequency
(>1) AND Low Spend (<$1000)</p>
        <asp:GridView ID="gvFrequent" runat="server"
AutoGenerateColumns="False" Width="100%" EmptyDataText="No customers in this
segment.">
            <Columns>
                <asp:BoundField DataField="Name"
HeaderText="Customer" />
                <asp:BoundField DataField="TotalOrders"
HeaderText="Orders" />
                <asp:BoundField DataField="TotalSpend"
HeaderText="Spend ($)" DataFormatString="{0:N2}" />
            </Columns>
        </asp:GridView>
    </div>

    <div class="quadrant casual">
        <h3>Casual Customers</h3>
        <p style="font-size: 12px; color: #555;">Low Frequency
(=1) AND Low Spend (<$1000)</p>
        <asp:GridView ID="gvCasual" runat="server"
AutoGenerateColumns="False" Width="100%" EmptyDataText="No customers in this
segment.">
            <Columns>
                <asp:BoundField DataField="Name"
HeaderText="Customer" />
                <asp:BoundField DataField="TotalOrders"
HeaderText="Orders" />
                <asp:BoundField DataField="TotalSpend"
HeaderText="Spend ($)" DataFormatString="{0:N2}" />
            </Columns>
        </asp:GridView>
    </div>
</div>
</asp:Panel>
</div>
</form>
</body>
</html>

```

segmentationDashboard.aspx.vb

Imports System.Configuration

```

Imports System.Data
Imports System.Data.SqlClient
Imports System.Web.Configuration

Public Class segmentationDashboard
    Inherits System.Web.UI.Page

    Dim connString As String =
ConfigurationManager.ConnectionStrings("PVFCConString").ConnectionString

    Protected Sub Page_Load(sender As Object, e As EventArgs) Handles Me.Load
        ' --- THE GATEKEEPER to prevent unauthorized access (only admins
allowed)---
        If Session("RoleId") Is Nothing OrElse Convert.ToInt32(Session("RoleId"))
<> 1 Then
            Response.Redirect("login.aspx")
            Exit Sub
        End If
    End Sub

    Private Function CreateSegmentTable() As DataTable
        Dim dt As New DataTable()
        dt.Columns.Add("Name", GetType(String))
        dt.Columns.Add("TotalOrders", GetType(Integer))
        dt.Columns.Add("TotalSpend", GetType(Decimal))
        Return dt
    End Function

    Protected Sub btnAnalyze_Click(sender As Object, e As EventArgs) Handles
btnAnalyze.Click
        Dim connectionString As String =
WebConfigurationManager.ConnectionStrings("PVFCConString").ConnectionString

        Dim query As String =
        "SELECT c.Customer_Name AS Name, " &
        "COUNT(DISTINCT o.Order_Id) AS TotalOrders, " &
        "SUM(ol.Ordered_Quantity * p.Standard_Price) AS TotalSpend, " &
        "CASE " &
        " WHEN COUNT(DISTINCT o.Order_Id) > 1 AND SUM(ol.Ordered_Quantity *
p.Standard_Price) >= 1000 THEN 'Premium' " &
        " WHEN COUNT(DISTINCT o.Order_Id) = 1 AND SUM(ol.Ordered_Quantity *
p.Standard_Price) >= 1000 THEN 'HighValue' " &
        " WHEN COUNT(DISTINCT o.Order_Id) > 1 AND SUM(ol.Ordered_Quantity *
p.Standard_Price) < 1000 THEN 'Frequent' " &
        " ELSE 'Casual' " &
        "END AS Segment " &
        "FROM CUSTOMER_t c " &
        "JOIN ORDER_t o ON c.Customer_Id = o.Customer_Id " &
        "JOIN Order_line_t ol ON o.Order_Id = ol.Order_Id " &
        "JOIN PRODUCT_t p ON ol.Product_Id = p.Product_Id " &
        "GROUP BY c.Customer_Id, c.Customer_Name"

        Dim dtPremium As DataTable = CreateSegmentTable()
        Dim dtHighValue As DataTable = CreateSegmentTable()
        Dim dtFrequent As DataTable = CreateSegmentTable()
        Dim dtCasual As DataTable = CreateSegmentTable()

        Dim con As New SqlConnection(connectionString)
        Dim cmd As New SqlCommand(query, con)
        Dim reader As SqlDataReader = Nothing

        Try

```

```

con.Open()
reader = cmd.ExecuteReader()
Dim totalCount As Integer = 0

While reader.Read()
    totalCount += 1
    Dim name As String = reader("Name").ToString()
    Dim orders As Integer = Convert.ToInt32(reader("TotalOrders"))
    Dim spend As Decimal = Convert.ToDecimal(reader("TotalSpend"))
    Dim segment As String = reader("Segment").ToString()

    Select Case segment
        Case "Premium"
            dtPremium.Rows.Add(name, orders, spend)
        Case "HighValue"
            dtHighValue.Rows.Add(name, orders, spend)
        Case "Frequent"
            dtFrequent.Rows.Add(name, orders, spend)
        Case Else
            dtCasual.Rows.Add(name, orders, spend)
    End Select
End While

If totalCount > 0 Then
    gvPremium.DataSource = dtPremium
    gvPremium.DataBind()
    gvHighValue.DataSource = dtHighValue
    gvHighValue.DataBind()
    gvFrequent.DataSource = dtFrequent
    gvFrequent.DataBind()
    gvCasual.DataSource = dtCasual
    gvCasual.DataBind()

    pnlQuadrants.Visible = True
    lblMessage.ForeColor = System.Drawing.Color.Green
    lblMessage.Text = "Segmentation completed successfully."
Else
    pnlQuadrants.Visible = False
    lblMessage.ForeColor = System.Drawing.Color.Red
    lblMessage.Text = "No data found."
End If

Catch ex As Exception
    lblMessage.ForeColor = System.Drawing.Color.Red
    lblMessage.Text = "Error: " & ex.Message
Finally
    If reader IsNot Nothing Then
        reader.Close()
    End If
    con.Close()
End Try
End Sub

Protected Sub btnPremiumPromo_Click(sender As Object, e As EventArgs) Handles
btnPremiumPromo.Click
    lblMessage.ForeColor = System.Drawing.Color.Blue
    lblMessage.Text = "System Notification: VIP Gifts dispatched to Premium
Customers!"
End Sub
End Class

```

pvcstyles.css

```
body {
  font-family: 'Segoe UI', Tahoma, Geneva, Verdana, sans-serif;
  background-color: #f4f7f6;
  margin: 0;
  padding: 0;
  color: #333;
  text-align: center;
}

/* Navigation Menu */
.navbar {
  background-color: #2c3e50;
  padding: 15px 0;
  box-shadow: 0 2px 5px rgba(0,0,0,0.1);
}

.navbar a {
  color: white;
  text-decoration: none;
  padding: 12px 25px;
  font-size: 16px;
  margin: 0 5px;
  border-radius: 4px;
  transition: background-color 0.3s;
}

.navbar a:hover {
  background-color: #34495e;
}

/* Main Content Box */
.container {
  width: 70%;
  margin: 40px auto;
  background-color: white;
  padding: 30px;
  border-radius: 10px;
  box-shadow: 0 4px 15px rgba(0,0,0,0.1);
  min-height: 500px;
}

h1, h2, h3 {
  color: #2c3e50;
  margin-bottom: 25px;
  border-bottom: 2px solid #eee;
  padding-bottom: 10px;
  display: inline-block;
}

/* Forms */
form {
  display: inline-block;
  text-align: left;
  background-color: #fff;
  padding: 20px 40px;
  border: 1px solid #e0e0e0;
  border-radius: 8px;
}
```

```

label {
  font-weight: 600;
  color: #555;
  margin-top: 15px;
  display: block;
}

input, select {
  width: 100%;
  max-width: 300px;
  padding: 10px;
  margin-top: 5px;
  border: 1px solid #ccc;
  border-radius: 5px;
  font-size: 14px;
  box-sizing: border-box;
}

input:focus {
  border-color: #3498db;
  outline: none;
}

/* Buttons */
button, .btn {
  background-color: #3498db;
  color: white;
  border: none;
  padding: 10px 20px;
  border-radius: 5px;
  font-size: 16px;
  cursor: pointer;
  margin-top: 15px;
  transition: background-color 0.3s;
}

button:hover, .btn:hover {
  background-color: #2980b9;
}

/* Secondary Button (for Cancel/Back) */
button.secondary {
  background-color: #95a5a6;
}

/* Product Cards (For Search Page) */
.product-grid {
  display: flex;
  justify-content: center;
  gap: 30px;
  flex-wrap: wrap;
  margin-top: 20px;
}

.card {
  background: white;
  border: 1px solid #eee;
  border-radius: 8px;
  padding: 20px;
  width: 220px;
}

```

```

    text-align: center;
    box-shadow: 0 2px 5px rgba(0,0,0,0.05);
    transition: transform 0.2s;
}

.card:hover {
    transform: translateY(-5px);
    box-shadow: 0 5px 15px rgba(0,0,0,0.1);
}

.card img-placeholder {
    display: block;
    height: 120px;
    background-color: #ecf0f1;
    margin-bottom: 15px;
    border-radius: 4px;
    line-height: 120px;
    color: #bdc3c7;
}

/* Tables */
table {
    width: 100%;
    max-width: 800px;
    margin: 20px auto;
    border-collapse: collapse;
    background: white;
}

th, td {
    padding: 12px 15px;
    border-bottom: 1px solid #ddd;
    text-align: center;
}

th {
    background-color: #f8f9fa;
    font-weight: bold;
    color: #2c3e50;
}

tr:hover {
    background-color: #f1f1f1;
}

/* Ensure the body takes up the full screen height */
body {
    min-height: 100vh;
    display: flex;
    flex-direction: column;
}

.page-wrapper {
    flex: 1;
    display: flex;
    justify-content: center;
    align-items: center;
    width: 100%;
}

/* Styling for the Centered Form Container */
.login-container {

```

```
background: white;
padding: 40px;
border-radius: 10px;
box-shadow: 0 5px 20px rgba(0,0,0,0.1);
width: 100%;
max-width: 400px;
text-align: center;
border: 1px solid #e0e0e0;
}

.login-container h1 {
margin-top: 0;
font-size: 24px;
color: #333;
}

.login-container input {
width: 100%;
margin-bottom: 15px;
}

.login-container button {
width: 100%;
padding: 12px;
font-size: 16px;
background-color: #3498db;
color: white;
border: none;
border-radius: 5px;
cursor: pointer;
}

.login-container button:hover {
background-color: #2980b9;
}
```