

Problem 1:**Problem1.aspx file:**

```
<%@ Page Language="VB" AutoEventWireup="true" CodeFile="Problem1.aspx.vb"
Inherits="Problem1" %>
```

```
<!DOCTYPE html>
```

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

```
<head runat="server">
```

```
<title>Customer Registration</title>
```

```
<style>
```

```
body{
```

```
    font-family: 'Segoe UI', Arial, sans-serif;
```

```
    background-color: #f5f5f5;
```

```
    margin: 0;
```

```
    padding: 20px;
```

```
}
```

```
.registration-container {
```

```
    max-width: 600px;
```

```
    margin: 30px auto;
```

```
    padding: 30px;
```

```
    background: white;
```

```
    border-radius: 8px;
```

```
    box-shadow: 0 0 20px rgba(0,0,0,0.1);
```

```
}
```

```
h2{
```

```
    color: #2c3e50;
```

```
        text-align: center;
        margin-bottom: 25px;
    }
    .form-group {
        margin-bottom: 20px;
    }
    label {
        display: block;
        margin-bottom: 8px;
        font-weight: 600;
        color: #34495e;
    }
    .form-control {
        width: 100%;
        padding: 10px;
        border: 1px solid #ddd;
        border-radius: 4px;
        font-size: 16px;
        box-sizing: border-box;
    }
    .btn-register {
        background-color: #3498db;
        color: white;
        border: none;
        padding: 12px 20px;
        font-size: 16px;
```

```
border-radius: 4px;

cursor: pointer;

width: 100%;

transition: background-color 0.3s;
}

.btn-register:hover {

background-color: #2980b9;
}

.message {

margin-top: 20px;

padding: 10px;

border-radius: 4px;

text-align: center;

display: none;
}

.success {

background-color: #d4edda;

color: #155724;

display: block;
}

.error {

background-color: #f8d7da;

color: #721c24;

display: block;
}

.validation-error {
```

```
        color: #dc3545;

        font-size: 14px;

        margin-top: 5px;

    }
</style>
</head>
<body>

    <form id="form1" runat="server">

        <div class="registration-container">

            <h2>Customer Registration</h2>

            <div class="form-group">

                <label for="txtID">Customer ID</label>

                <asp:TextBox ID="txtID" runat="server" CssClass="form-control"
TextMode="Number"></asp:TextBox>

                <asp:RequiredFieldValidator ID="rfvID" runat="server" ControlToValidate="txtID"
                ErrorMessage="Customer ID is required" CssClass="validation-error"
Display="Dynamic"></asp:RequiredFieldValidator>

                <asp:CompareValidator ID="cvID" runat="server" ControlToValidate="txtID"
                Operator="DataTypeCheck" Type="Integer" ErrorMessage="Must be a whole
number"
                CssClass="validation-error" Display="Dynamic"></asp:CompareValidator>

            </div>

            <div class="form-group">

                <label for="txtName">Full Name</label>
```

```
<asp:TextBox ID="txtName" runat="server" CssClass="form-control"></asp:TextBox>
```

```
<asp:RequiredFieldValidator ID="rfvName" runat="server"
ControlToValidate="txtName"
```

```
ErrorMessage="Name is required" CssClass="validation-error"
Display="Dynamic"></asp:RequiredFieldValidator>
```

```
</div>
```

```
<div class="form-group">
```

```
<label for="txtEmail">Email Address</label>
```

```
<asp:TextBox ID="txtEmail" runat="server" TextMode="Email" CssClass="form-control"></asp:TextBox>
```

```
<asp:RequiredFieldValidator ID="rfvEmail" runat="server"
ControlToValidate="txtEmail"
```

```
ErrorMessage="Email is required" CssClass="validation-error"
Display="Dynamic"></asp:RequiredFieldValidator>
```

```
<asp:RegularExpressionValidator ID="revEmail" runat="server"
ControlToValidate="txtEmail"
```

```
ValidationExpression="^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$"
```

```
ErrorMessage="Invalid email format" CssClass="validation-error"
Display="Dynamic"></asp:RegularExpressionValidator>
```

```
</div>
```

```
<div class="form-group">
```

```
<label for="txtPhone">Phone Number</label>
```

```
<asp:TextBox ID="txtPhone" runat="server" TextMode="Phone" CssClass="form-control"></asp:TextBox>
```

```
<asp:RequiredFieldValidator ID="rfvPhone" runat="server"
ControlToValidate="txtPhone"
```

```
        ErrorMessage="Phone number is required" CssClass="validation-error"
Display="Dynamic"></asp:RequiredFieldValidator>

</div>

<asp:Button ID="btnRegister" runat="server" Text="Register"

    CssClass="btn-register" OnClick="btnRegister_Click" />

<asp:Label ID="lblMessage" runat="server" CssClass="message" />

</div>

</form>

</body>

</html>
```

Problem1.aspx.vb file:

```
Imports System.Data.SqlClient
```

```
Partial Class Problem1
```

```
    Inherits System.Web.UI.Page
```

```
    Protected Sub btnRegister_Click(sender As Object, e As EventArgs) Handles
btnRegister.Click
```

```
        If Not Page.IsValid Then
```

```
            lblMessage.Text = "Please correct the validation errors"
```

```
            lblMessage.CssClass = "message error"
```

```
            Return
```

```
        End If
```

Try

```
Dim id As Integer = Integer.Parse(txtID.Text)
```

```
Dim name As String = txtName.Text.Trim()
```

```
Dim email As String = txtEmail.Text.Trim()
```

```
Dim phone As String = txtPhone.Text.Trim()
```

```
Dim connectionString As String = "Data Source=DESKTOP-S4E7U71;Initial  
Catalog=InventoryManagementSystem;Integrated Security=True"
```

```
Using conn As New SqlConnection(connectionString)
```

```
Dim checkQuery As String = "SELECT COUNT(*) FROM Customer WHERE  
CustomerID = @ID"
```

```
Using checkCmd As New SqlCommand(checkQuery, conn)
```

```
checkCmd.Parameters.AddWithValue("@ID", id)
```

```
conn.Open()
```

```
Dim count As Integer = CInt(checkCmd.ExecuteScalar())
```

```
If count > 0 Then
```

```
lblMessage.Text = "Customer ID already exists!"
```

```
lblMessage.CssClass = "message error"
```

```
Return
```

```
End If
```

```
End Using
```

```
Dim insertQuery As String = "INSERT INTO Customer (CustomerID,  
CustomerName, CustomerEmail, CustomerPhoneNumber) VALUES (@ID, @Name,  
@Email, @Phone)"
```

```
Using insertCmd As New SqlCommand(insertQuery, conn)
```

```
    insertCmd.Parameters.AddWithValue("@ID", id)
```

```
    insertCmd.Parameters.AddWithValue("@Name", name)
```

```
    insertCmd.Parameters.AddWithValue("@Email", email)
```

```
    insertCmd.Parameters.AddWithValue("@Phone", phone)
```

```
    insertCmd.ExecuteNonQuery()
```

```
End Using
```

```
End Using
```

```
lblMessage.Text = "Customer registered successfully!"
```

```
lblMessage.CssClass = "message success"
```

```
txtID.Text = ""
```

```
txtName.Text = ""
```

```
txtEmail.Text = ""
```

```
txtPhone.Text = ""
```

```
Catch ex As SqlException When ex.Number = 2627 ' Primary key violation
```

```
    lblMessage.Text = "Error: Customer ID already exists!"
```

```
    lblMessage.CssClass = "message error"
```

```
Catch ex As SqlException
```

```
    lblMessage.Text = "Database error: " & ex.Message
```

```
    lblMessage.CssClass = "message error"
```

```
Catch ex As Exception
```

```
    lblMessage.Text = "Error: " & ex.Message
```

```
    lblMessage.CssClass = "message error"
```

```
End Try
```

```
End Sub
```

```
End Class
```

Problem 2:**Search.aspx file:**

```
<%@ Page Language="VB" AutoEventWireup="true" CodeFile="Search.aspx.vb"
Inherits="Search" %>
```

```
<!DOCTYPE html>
```

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

```
<head runat="server">
```

```
<title>Product Search</title>
```

```
<style>
```

```
body{
```

```
    font-family: 'Segoe UI', Arial, sans-serif;
```

```
    background-color: #f5f5f5;
```

```
    margin: 0;
```

```
    padding: 20px;
```

```
}
```

```
.search-container {
```

```
    max-width: 800px;
```

```
    margin: 30px auto;
```

```
    padding: 30px;
```

```
    background: white;
```

```
    border-radius: 8px;
```

```
    box-shadow: 0 0 20px rgba(0,0,0,0.1);
```

```
}
```

```
h2 {
```

```
    color: #2c3e50;
```

```
    text-align: center;
    margin-bottom: 25px;
}
.search-form {
    display: flex;
    gap: 10px;
    margin-bottom: 20px;
}
.search-input {
    flex: 1;
    padding: 10px;
    border: 1px solid #ddd;
    border-radius: 4px;
    font-size: 16px;
}
.search-button {
    background-color: #3498db;
    color: white;
    border: none;
    padding: 10px 20px;
    font-size: 16px;
    border-radius: 4px;
    cursor: pointer;
    transition: background-color 0.3s;
}
.search-button:hover {
```

```
        background-color: #2980b9;
    }
    .results-grid {
        width: 100%;
        border-collapse: collapse;
        margin-top: 20px;
    }
    .results-grid th {
        background-color: #3498db;
        color: white;
        padding: 12px;
        text-align: left;
    }
    .results-grid td {
        padding: 10px;
        border-bottom: 1px solid #ddd;
    }
    .results-grid tr:nth-child(even) {
        background-color: #f9f9f9;
    }
    .results-grid tr:hover {
        background-color: #f1f1f1;
    }
    .price-column {
        text-align: right;
        font-family: monospace;
```

```
}  
.no-results {  
    text-align: center;  
    padding: 20px;  
    color: #666;  
}  
</style>  
</head>  
<body>  
    <form id="form1" runat="server">  
        <div class="search-container">  
            <h2>Product Search</h2>  
  
            <div class="search-form">  
                <asp:TextBox ID="txtSearch" runat="server" CssClass="search-input"  
                    placeholder="Enter product name..."></asp:TextBox>  
                <asp:Button ID="btnSearch" runat="server" Text="Search"  
                    CssClass="search-button" OnClick="btnSearch_Click" />  
            </div>  
  
            <asp:Panel ID="pnlResults" runat="server" Visible="false">  
                <asp:GridView ID="gvResults" runat="server" AutoGenerateColumns="False"  
                    CssClass="results-grid" GridLines="None" EmptyDataText="No products found  
matching your search criteria.">  
                    <Columns>  
                        <asp:BoundField DataField="ProductName" HeaderText="Product Name" />
```

```
<asp:BoundField DataField="Category" HeaderText="Category" />
<asp:BoundField DataField="Price" HeaderText="Price"
DataFormatString="{0:N2}"
ItemStyle-CssClass="price-column" />
</Columns>
<EmptyDataRowStyle CssClass="no-results" />
</asp:GridView>
</asp:Panel>
</div>
</form>
</body>
</html>
```

Search.aspx.vb file:

Imports System.Data

Imports System.Data.SqlClient

Partial Class Search

Inherits System.Web.UI.Page

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

If Not String.IsNullOrEmpty(txtSearch.Text) Then

SearchProducts(txtSearch.Text.Trim())

pnlResults.Visible = True

Else

pnlResults.Visible = False

End If

End Sub

Private Sub SearchProducts(keyword As String)

Dim connectionString As String = "Data Source=DESKTOP-S4E7U71;Initial
Catalog=InventoryManagementSystem;Integrated Security=True"

Using conn As New SqlConnection(connectionString)

Try

Dim query As String = "SELECT ProductName, Category, Price FROM Product " &
"WHERE ProductName LIKE @Keyword ORDER BY ProductName"

Using cmd As New SqlCommand(query, conn)

```
cmd.Parameters.AddWithValue("@Keyword", "%" & keyword & "%")

Dim adapter As New SqlDataAdapter(cmd)

Dim dt As New DataTable()

adapter.Fill(dt)

gvResults.DataSource = dt

gvResults.DataBind()

End Using

Catch ex As Exception

End Try

End Using

End Sub

End Class
```