

Milestone 5 – Inventory Manager Application

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Problem / Question

Create a visually appealing, functionally superior inventory management application for any chosen business using C#.Net and Visual Studio

Hypothesis

- Create C# classes and forms to handle data storage, model, logic, and visual representations for inventory. Utilize advanced techniques in C# to store/retrieve persistent data; Utilize libraries to create spreadsheet reports.
- Design processes incrementally – confirming results in stages

Project Overview

- Develop application logic and flesh it out in a wireframe
- Design Classes to model data and logic
- Create UML documents and define dependencies / relationships
- Create Flowcharts, initial logic; updated version with classes
- Write C# code – confirm that it follows flowchart logic
- Create videos to demonstrate effective progress in each step
- Modify code to final stage to produce visually appealing product
- Modify UML diagram to more accurately represent final product
- Produce a poster that highlights the process

Classes / Research

Model Classes

InventoryItem
InventoryManager

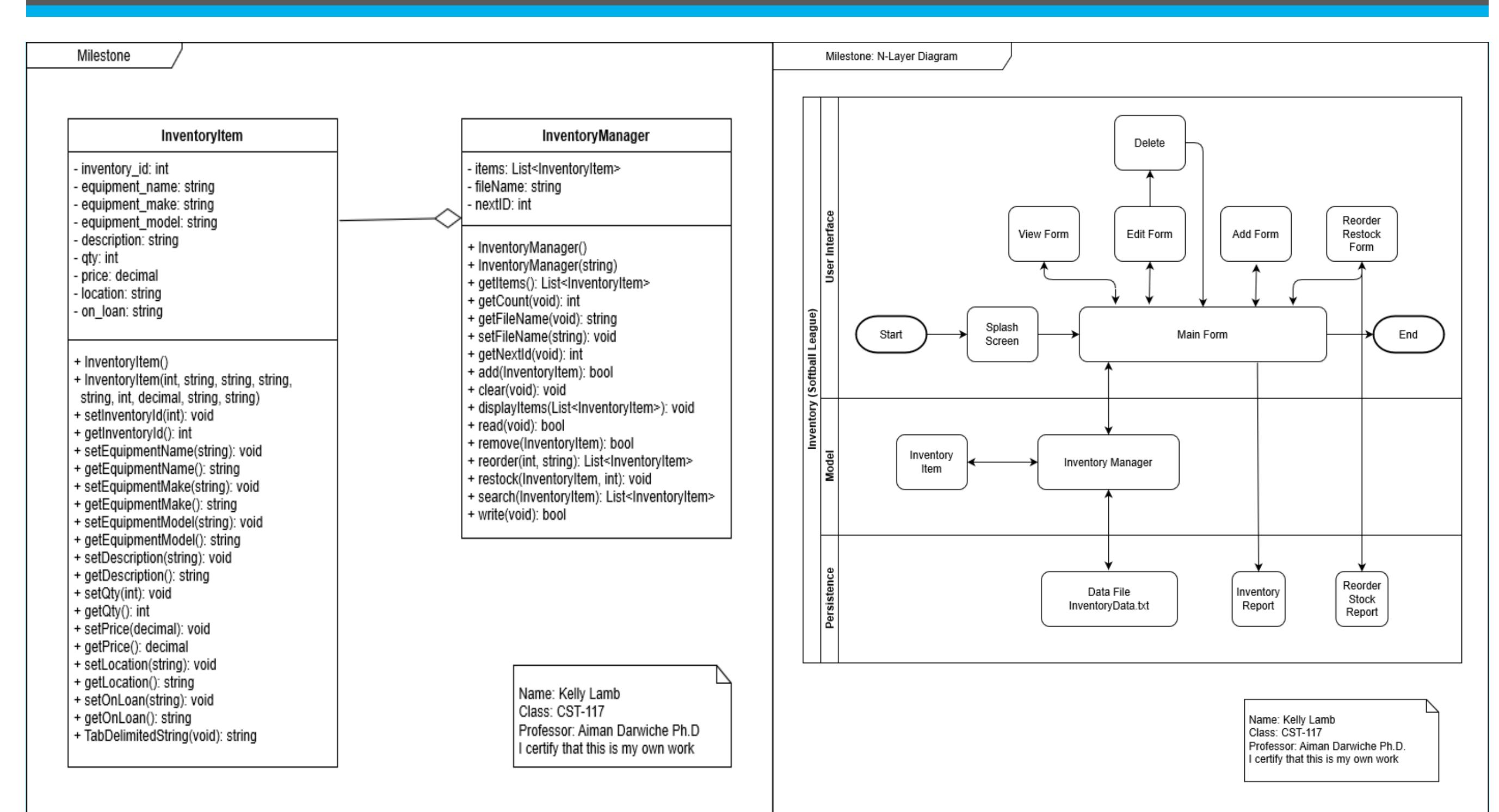
Data Access Classes

InventoryManager
InventoryData
EPPlus.dll

Visual Classes

AddForm
EditForm
MainForm
Program
ReorderForm
SplashScreen
ViewForm

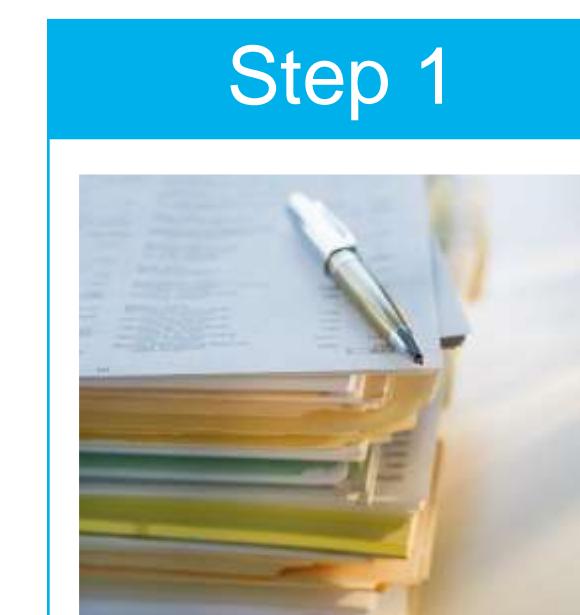
Flow Chart / UML



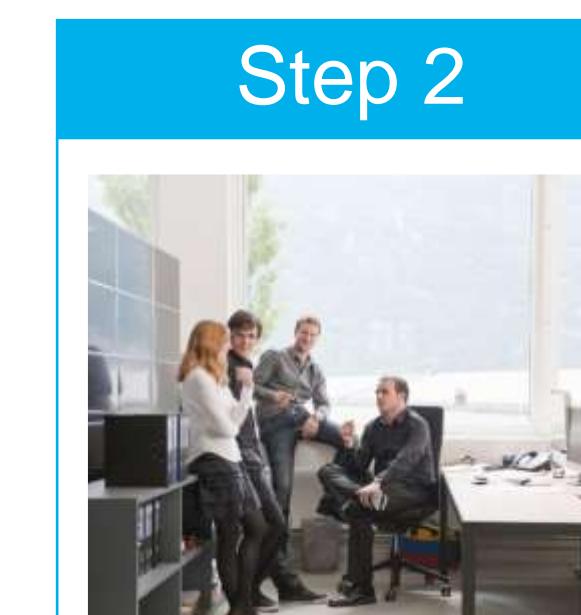
Results - Screenshots



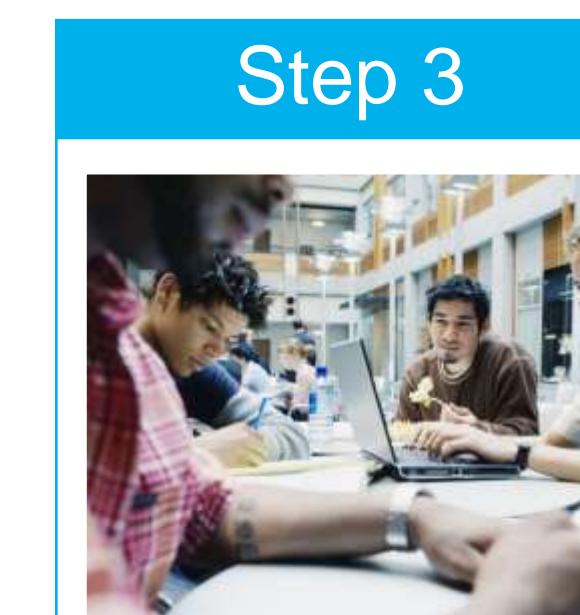
Procedure - Milestones



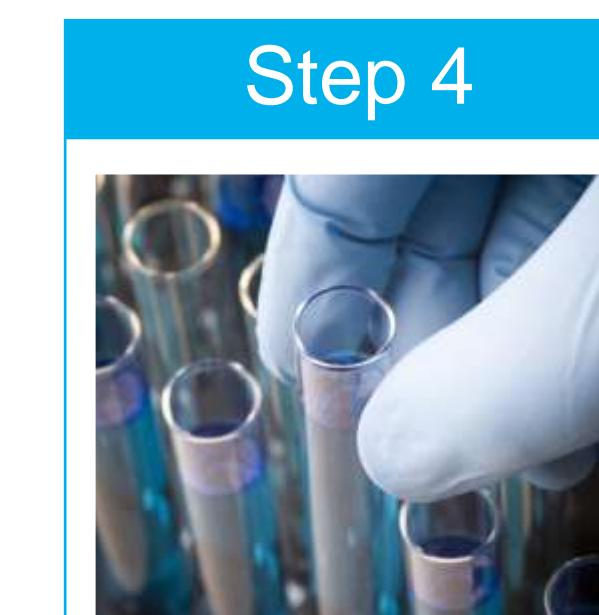
Design initial logic flowchart, mockups, wireframes



Design Data Model - ADT, UML, Wireframe, N-Layer



Incremental Design, Write, Test, Research C#.Net



Create Visual classes and merge with data model

- Application initializes, loads data, handles all process requirements
- Screenshots: Represents all implemented functionality
- Logo, Inventory Listing, Add, Edit, View, Reorder Stock
- Spreadsheet Reporting – Excel Inventory / Reorder (not shown)
- Number of classes: 7 (excluding form designer)
- Number of form layouts: 5
- Number of lines: C# code: 2,838

Conclusion

- Softball Equipment Manager – Surprisingly intuitively easy to code but provided strong logic requirements, decisions, and learning C# and Visual Studio.
- Flowchart, UML, Wireframe, and N-Layer Diagrams are great tools to help in the design process
- Visual Studio offers a robust graphics programming platform but required significant research and understanding – many tutorials online.
- Very satisfying outcome watching everything work together.

Works Cited

- Starting Out With Visual C# 4e T. Gaddis
- docs.microsoft.com
- docs.microsoft.com/en-us/dotnet/csharp
- www.stackoverflow.com
- csharp.net-tutorials.com
- www.tutorialspoint.com
- www.c-sharpcorner.com
- www.youtube.com
- www.bitbucket.com

```

InventoryManager.cs
InventoryItem.cs
MainForm.cs
Address.cs
EditForm.cs

```

```

public partial class MainForm : Form
{
    // Define Variables
    private List<InventoryItem> items;
    private string filter = "";
    private int needID = 1;

    // Define Constructors
    public MainForm()
    {
        InitializeComponent();
        items = new List<InventoryItem>();
        filter = "All";
        price = 0.00;
        location = "All";
        onloan = "All";
    }

    // Define Properties - Accessors & Mutators
    public int Count
    {
        get { return items.Count; }
    }

    public string Filter
    {
        get { return filter; }
        set { filter = value; }
    }

    public List<InventoryItem> Items
    {
        get { return items; }
    }

    public void LoadData(string filter)
    {
        items = new List<InventoryItem>();
        foreach (string item in filter)
        {
            if (item == "All")
            {
                items = InventoryData.GetInventoryData();
            }
            else
            {
                items = InventoryData.GetInventoryData(item);
            }
        }
        foreach (InventoryItem item in items)
        {
            if (item.QTY <= 0)
            {
                item.OnLoan = true;
            }
            else
            {
                item.OnLoan = false;
            }
        }
        this.dataGridView1.DataSource = items;
    }

    private void button1_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button2_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button3_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button4_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button5_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button6_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button7_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button8_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button9_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button10_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button11_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button12_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button13_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button14_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button15_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button16_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button17_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button18_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button19_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button20_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button21_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button22_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button23_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button24_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button25_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button26_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button27_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button28_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button29_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button30_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button31_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button32_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button33_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button34_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button35_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button36_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button37_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button38_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button39_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button40_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button41_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button42_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button43_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button44_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button45_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button46_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button47_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button48_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button49_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox.Show("Please select All");
            return;
        }
        if (needID == 1)
        {
            AddForm addForm = new AddForm();
            addForm.ShowDialog();
            needID++;
        }
        else
        {
            EditForm editForm = new EditForm();
            editForm.ShowDialog();
            needID++;
        }
    }

    private void button50_Click(object sender, EventArgs e)
    {
        if (filter != "All")
        {
            MessageBox
```