

Activity 10

Dalton J Danz

CST-150

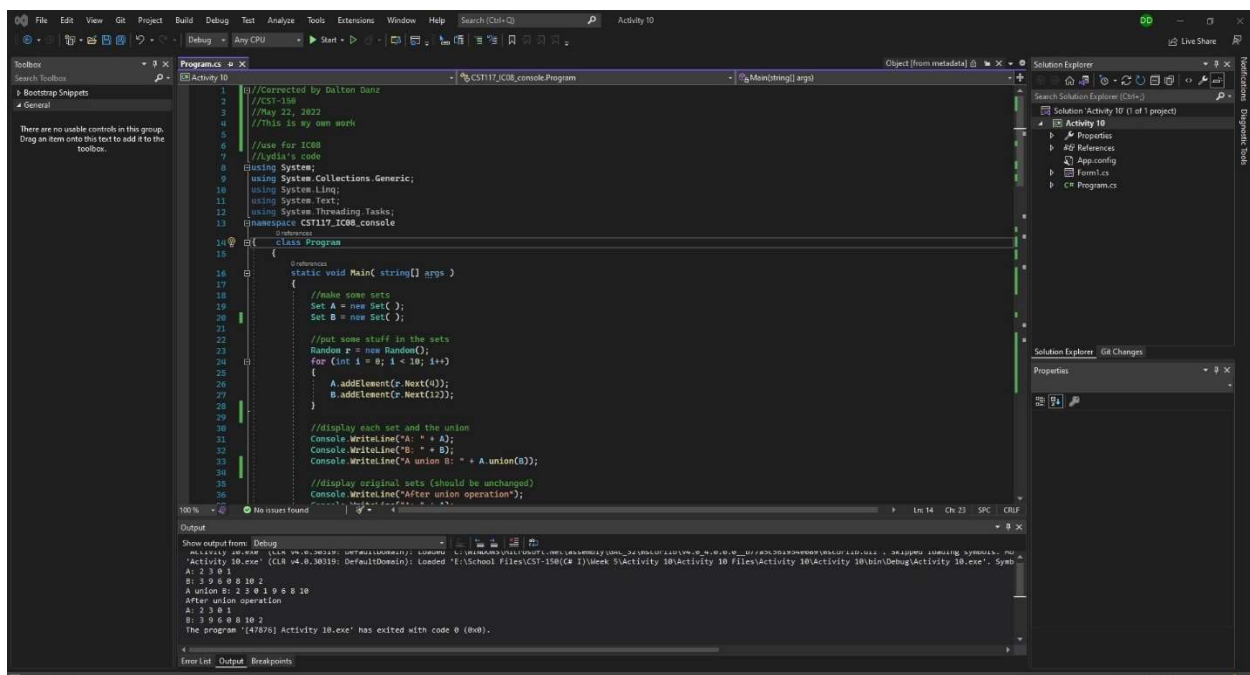
Prof. Mark Smithers

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Link to files:

<https://github.com/Naralla/CST-150-Submissions/tree/main/Activity%2010%20Submission>

This program uses the C# language. The goal of this assignment was to correct the errors in already produced code. The original program's goal was to generate two lists of integers then display those lists. Additionally, they will then display the union of the two sets. Then the program would list the original two lists unaltered. This program could be improved through the use of a third set to hold the union values.



```
//Corrected by Dalton Ganz
//CST-150
//May 22, 2022
//This is my own work

//use for IC88
//Lydia's code
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace CST117_IC88_console
{
    class Program
    {
        static void Main(string[] args)
        {
            //make some sets
            Set A = new Set();
            Set B = new Set();

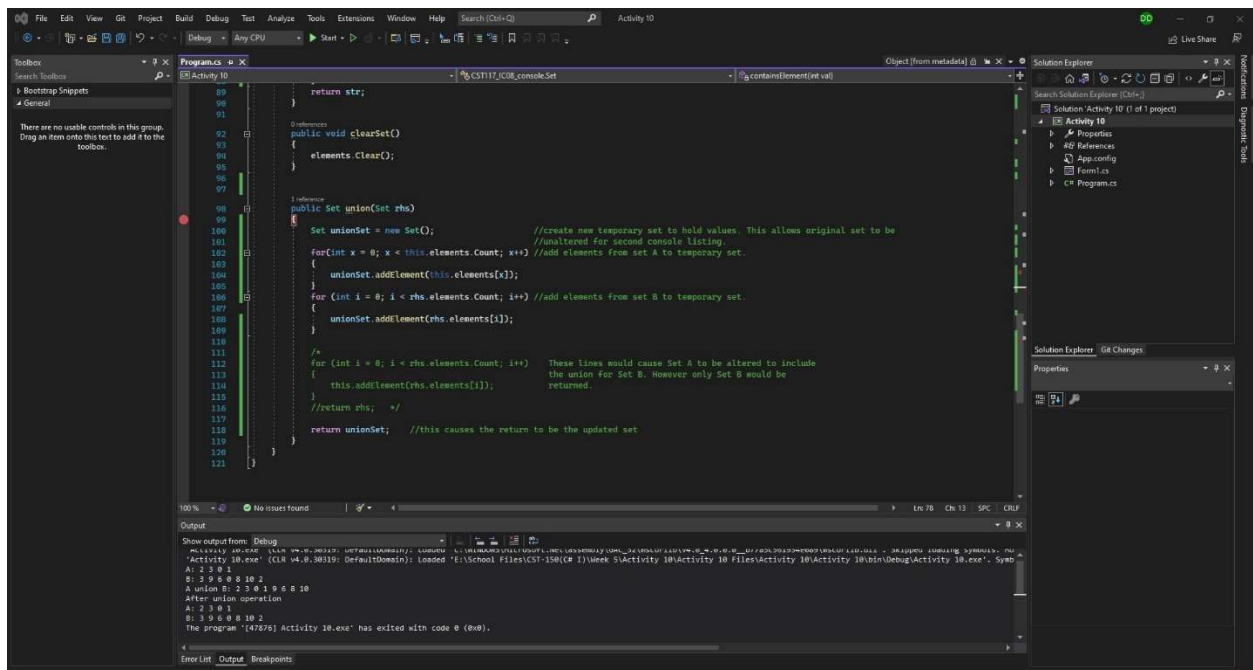
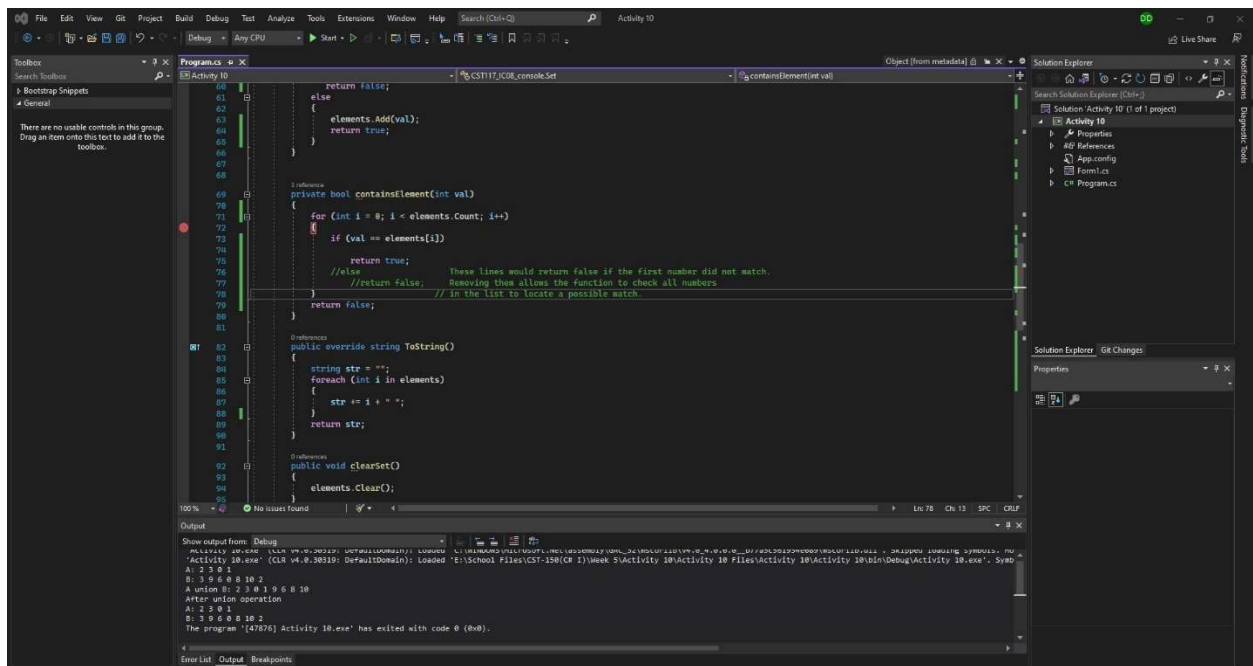
            //put some stuff in the sets
            Random r = new Random();
            for (int i = 0; i < 10; i++)
            {
                A.addElement(r.Next(4));
                B.addElement(r.Next(12));
            }

            //display each set and the union
            Console.WriteLine("A: " + A);
            Console.WriteLine("B: " + B);
            Console.WriteLine("A union B: " + A.union(B));

            //display original sets (should be unchanged)
            Console.WriteLine("After union operation");
        }
    }
}
```

Output

```
Activity 10.exe (CLR v4.8.30319: DefaultDomain): Loaded 'E:\School Files\CST-150(C# I)\Week 9\Activity 10\Activity 10\bin\Debug\Activity 10.exe'. Symbol
A: 2 3 0 1
B: 3 9 6 8 10 2
A union B: 2 3 0 1 9 6 8 10
After union operation
A: 2 3 0 1
B: 3 9 6 8 10 2
The program '147876\Activity 10.exe' has exited with code 0 (0x0).
```



Visual Studio Code interface showing a C# program with a debugger. The code defines a `Set` class with methods `addElement`, `containsElement`, and `ToString`. The debugger is active, showing the `containsElement` method being executed. The `Locals` window shows the current state of variables: `this` (type `CS1117_IC08_console.Set`), `val` (type `int`), and `i` (type `int`). The `Call Stack` window shows the current call stack, including the `containsElement` method and the `Program.Main` method.

```
elements = new List<int>();

public bool addElement(int val)
{
    if (containsElement(val))
        return false;
    else
    {
        elements.Add(val);
        return true;
    }
}

private bool containsElement(int val)
{
    for (int i = 0; i < elements.Count; i++)
    {
        if (val == elements[i])
        {
            return true;
        }
        //else // These lines would return false if the first number did not match.
        //return false; // Removing these allows the function to check all numbers
        // in the list to locate a possible match.
    }
    return false;
}

public override string ToString()
{
    string str = "";
    foreach (int i in elements)
    {
        str += i + " ";
    }
    return str;
}
```

Locals

Name	Value	Type
this		CS1117_IC08_console.Set
val	0	int
i	0	int

Call Stack

Name	Lang
Activity 10.exe\CS1117_IC08_console.Set.containsElement(int val) Line 72	C#
Activity 10.exe\CS1117_IC08_console.Set.addElement(int val) Line 59	C#
Activity 10.exe\CS1117_IC08_console.Program.Main(string[] args) Line 26	C#

Visual Studio Code interface showing the same C# program, but now with a `union` method. The debugger is active, showing the `union` method being executed. The `Locals` window shows the current state of variables: `this` (type `CS1117_IC08_console.Set`), `rhs` (type `CS1117_IC08_console.Set`), `unionSet` (type `CS1117_IC08_console.Set`), and `x` (type `int`). The `Call Stack` window shows the current call stack, including the `union` method and the `Program.Main` method.

```
string str = "";
foreach (int i in elements)
{
    str += i + " ";
}
return str;

public void clearSet()
{
    elements.Clear();
}

public Set union(Set rhs)
{
    //create new temporary set to hold values. This allows original set to be
    //unaltered for second console listing.
    for (int x = 0; x < this.elements.Count; x++) //add elements from set A to temporary set.
    {
        unionSet.addElement(this.elements[x]);
    }
    for (int i = 0; i < rhs.elements.Count; i++) //add elements from set B to temporary set.
    {
        unionSet.addElement(rhs.elements[i]);
    }
    //return rhs; // These lines would cause Set A to be altered to include
    //this.addElement(rhs.elements[i]); the union for Set B. However only Set B would be
    //return rhs; // returned.
    return unionSet; //this causes the return to be the updated set.
}
```

Locals

Name	Value	Type
this	(0332)	CS1117_IC08_console.Set
rhs	(758103911)	CS1117_IC08_console.Set
unionSet	(0)	CS1117_IC08_console.Set
x	0	int

Call Stack

Name	Lang
Activity 10.exe\CS1117_IC08_console.Set.union(CS1117_IC08_console.Set rhs) Line 102	C#
Activity 10.exe\CS1117_IC08_console.Program.Main(string[] args) Line 33	C#

```
100% No issues found | Ln: 99 Ch: 9 SPC CRLF
Output
Show output from: Debug
'Activity 10.exe' (CLR v4.0.30319: DefaultDomain): Loaded 'C:\WINDOWS\Microsoft.Net\assembly\GAC_32\mscorlib\v4.0.4.0.0__b77a5c561934e089\mscorlib.dll'. Skipped loading symbols. Mo
'Activity 10.exe' (CLR v4.0.30319: DefaultDomain): Loaded 'E:\School Files\CST-150(C# I)\Week 5\Activity 10\Activity 10 Files\Activity 10\Activity 10\bin\Debug\Activity 10.exe'. Symb
A: 1 0 2 3
B: 5 1 7 0 3 4
A union B: 1 0 2 3 5 7 4
After union operation
A: 1 0 2 3
B: 5 1 7 0 3 4
The program '[41268] Activity 10.exe' has exited with code 0 (0x0).
```

Error List Output Breakpoints