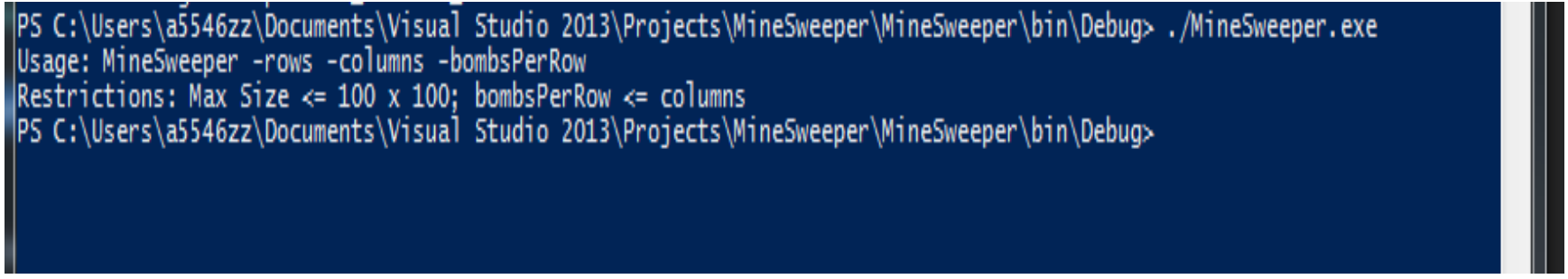
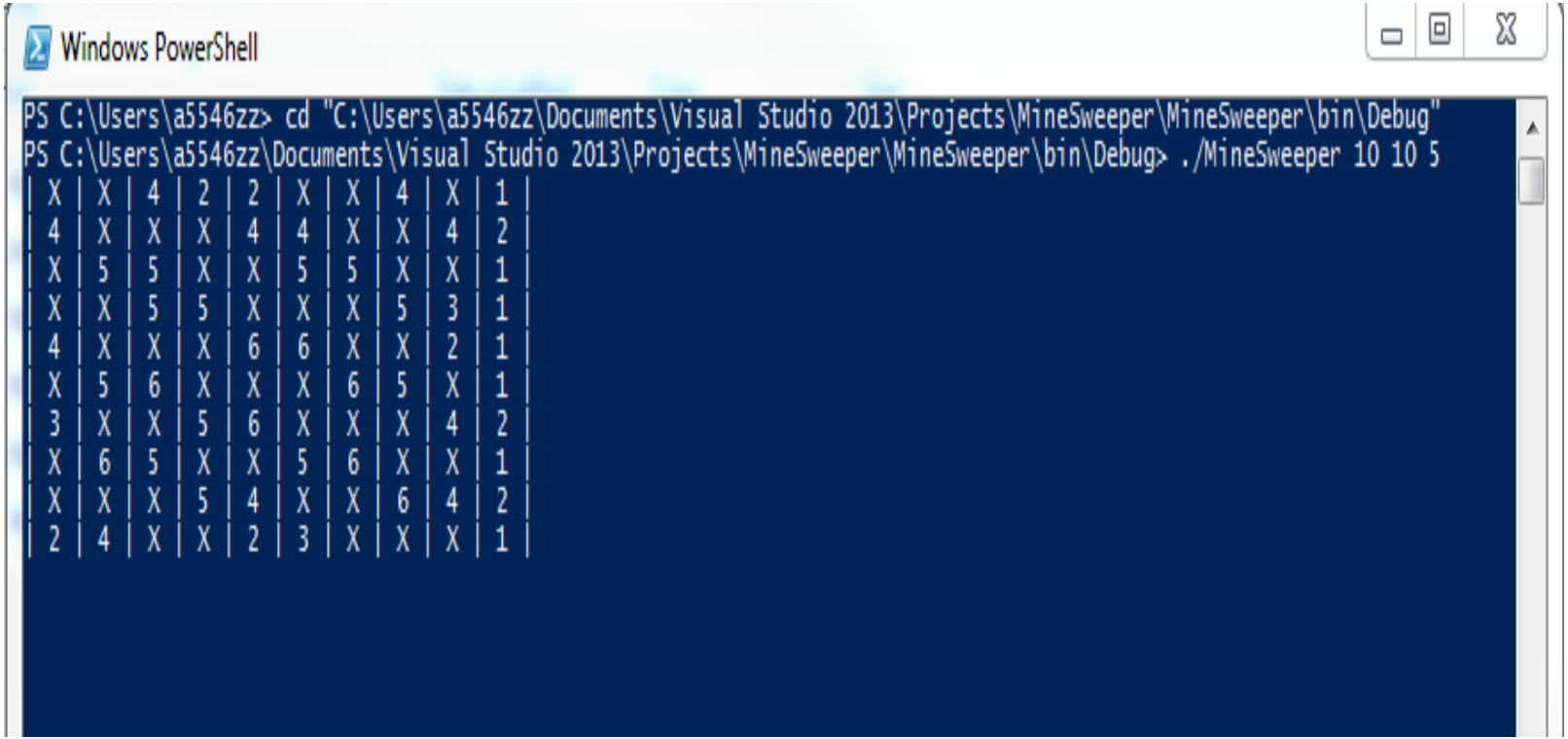
MineSweeper

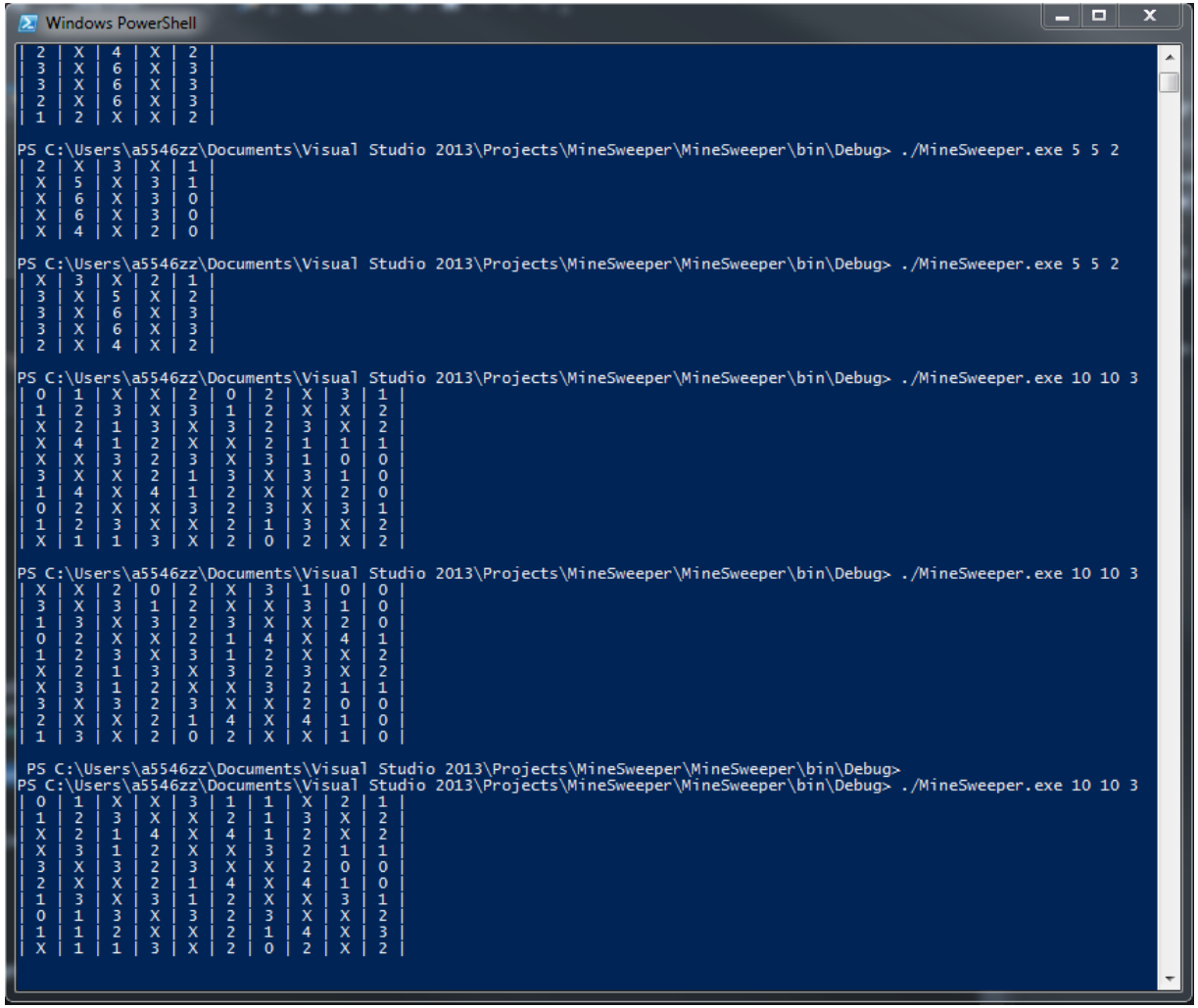
To use the command-line application, navigate to the bin\Debug (or bin\Release) directory and call the binary passing parameters for the number of rows, columns, and boms-per-row.

If any of the paramters is incorrect, a usage message will display and the program will terminate. The following restrictions apply, presently.

- All three parameters must be valid.
- Rows and columns are restricted to the range { 1:100 }
- The value of bombsPerRow paramger is limited to the range { 0 : number_of_rows }

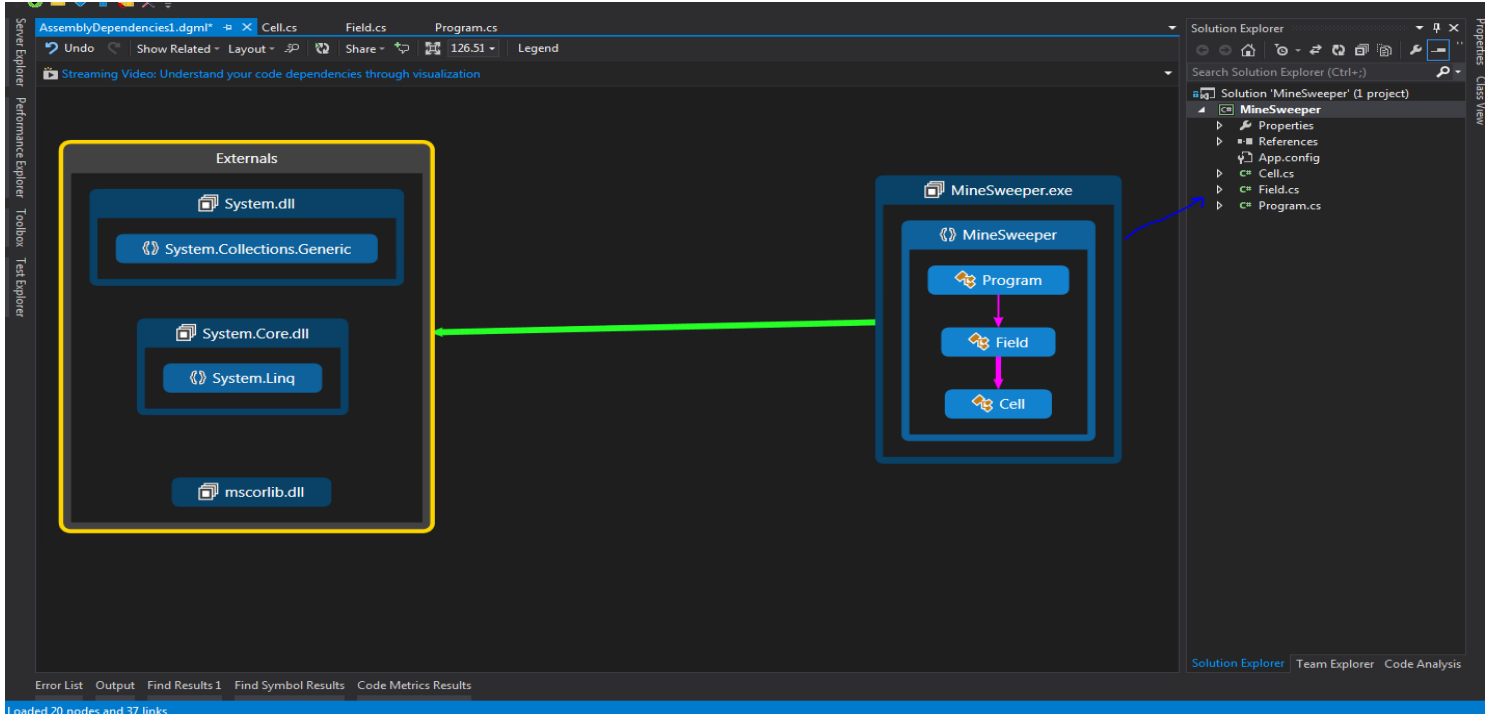


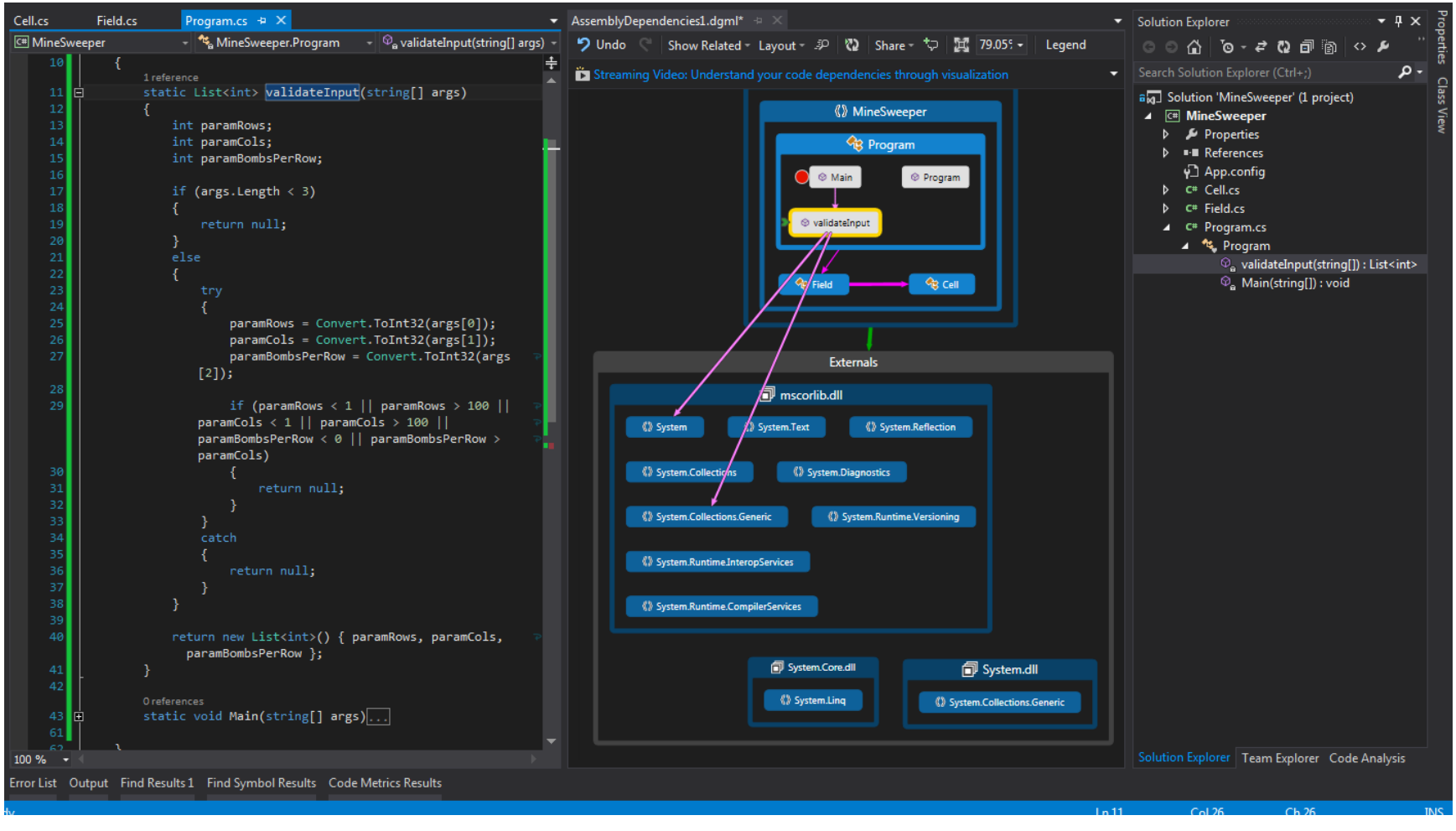

Windows PowerShell
PS C:\Users\a5546zz> cd "C:\Users\a5546zz\Documents\Visual Studio 2013\Projects\MineSweeper\MineSweeper\bin\Debug"
PS C:\Users\a5546zz\Documents\Visual Studio 2013\Projects\MineSweeper\MineSweeper\bin\Debug> ./MineSweeper 10 10 5
X	X	4	2	2	X	X	4	X	1
4	X	X	X	4	4	X	X	4	2
X	5	5	X	X	5	5	X	X	1
X	X	5	5	X	X	X	5	3	1
4	X	X	X	6	6	X	X	2	1
X	5	6	X	X	X	6	5	X	1
3	X	X	5	6	X	X	X	4	2
X	6	5	X	X	5	6	X	X	1
X	X	X	5	4	X	X	6	4	2
2	4	X	X	2	3	X	X	X	1

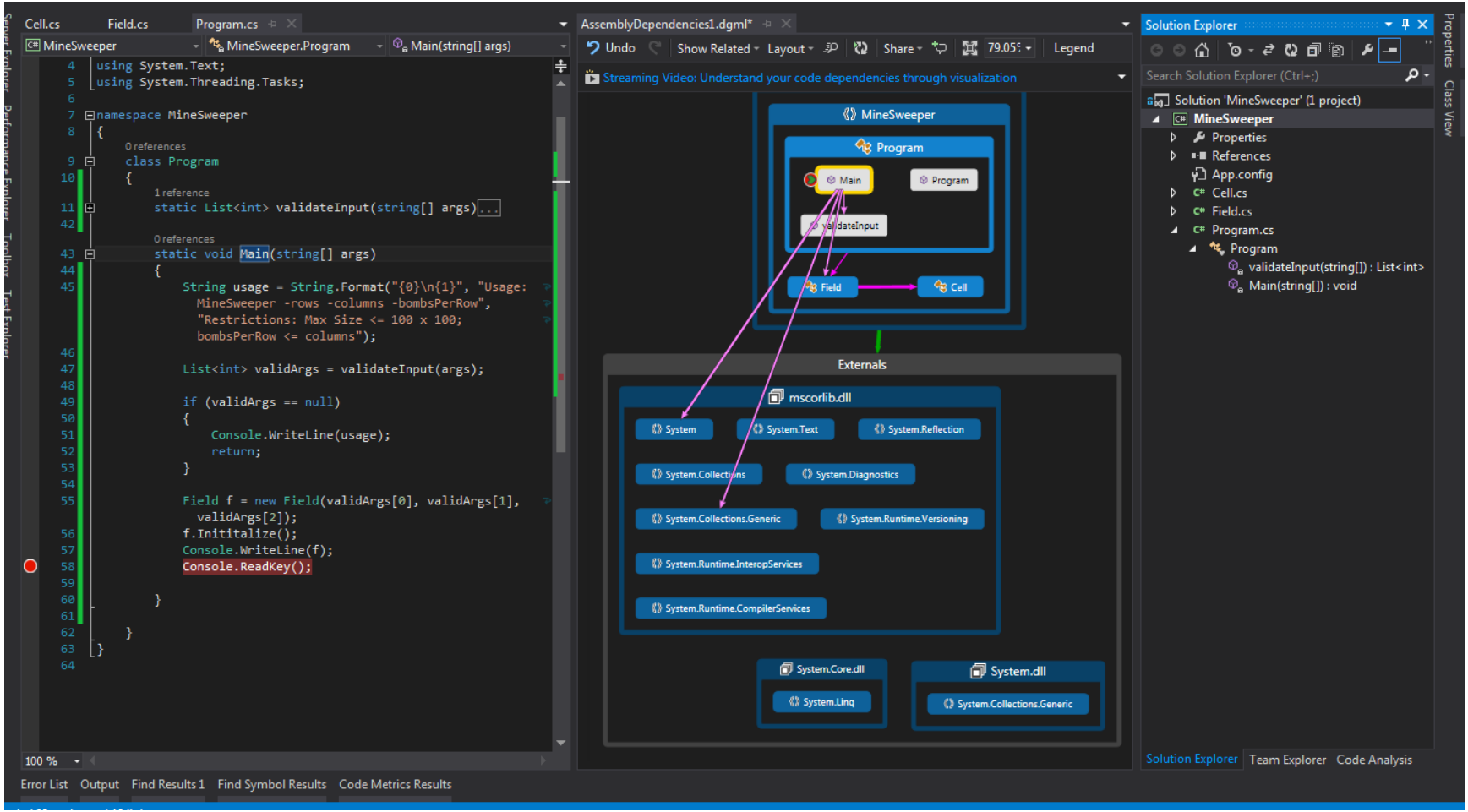

Windows PowerShell
2	X	4	X	2
3	X	6	X	3
3	X	6	X	3
2	X	6	X	3
1	2	X	X	2
PS C:\Users\a5546zz\Documents\Visual Studio 2013\Projects\MineSweeper\MineSweeper\bin\Debug> ./MineSweeper.exe 5 5 2
2	X	3	X	1
X	5	X	3	1
X	6	X	3	0
X	6	X	3	0
X	4	X	2	0
PS C:\Users\a5546zz\Documents\Visual Studio 2013\Projects\MineSweeper\MineSweeper\bin\Debug> ./MineSweeper.exe 5 5 2
X	3	X	2	1
3	X	5	X	2
3	X	6	X	3
3	X	6	X	3
2	X	4	X	2
PS C:\Users\a5546zz\Documents\Visual Studio 2013\Projects\MineSweeper\MineSweeper\bin\Debug> ./MineSweeper.exe 10 10 3
0	1	X	X	2	0	2	X	3	1
1	2	3	X	3	1	2	X	X	2
X	2	1	3	X	3	2	3	X	2
X	4	1	2	X	X	2	1	1	1
X	X	3	2	3	X	3	1	0	0
3	X	X	2	1	3	X	3	1	0
1	4	X	4	1	2	X	X	2	0
0	2	X	X	3	2	3	X	3	1
1	2	3	X	X	2	1	3	X	2
X	1	1	3	X	2	0	2	X	2
PS C:\Users\a5546zz\Documents\Visual Studio 2013\Projects\MineSweeper\MineSweeper\bin\Debug> ./MineSweeper.exe 10 10 3
X	X	2	0	2	X	3	1	0	0
3	X	3	1	2	X	X	3	1	0
1	3	X	3	2	3	X	X	2	0
0	2	X	X	2	1	4	X	4	1
1	2	3	X	3	1	2	X	X	2
X	2	1	3	X	3	2	3	X	2
X	3	1	2	X	X	3	2	1	1
3	X	3	2	3	X	X	2	0	0
2	X	X	2	1	4	X	4	1	0
1	3	X	3	1	2	X	X	3	1
PS C:\Users\a5546zz\Documents\Visual Studio 2013\Projects\MineSweeper\MineSweeper\bin\Debug>
PS C:\Users\a5546zz\Documents\Visual Studio 2013\Projects\MineSweeper\MineSweeper\bin\Debug> ./MineSweeper.exe 10 10 3
0	1	X	X	3	1	1	X	2	1
1	2	3	X	X	2	1	3	X	2
X	2	1	4	X	4	1	2	X	2
X	3	1	2	X	X	3	2	1	1
3	X	3	2	3	X	X	2	0	0
2	X	X	2	1	4	X	4	1	0
1	3	X	3	1	2	X	X	3	1
0	1	3	X	3	2	3	X	X	2
1	1	2	X	X	2	1	4	X	3
X	1	1	3	X	2	0	2	X	2

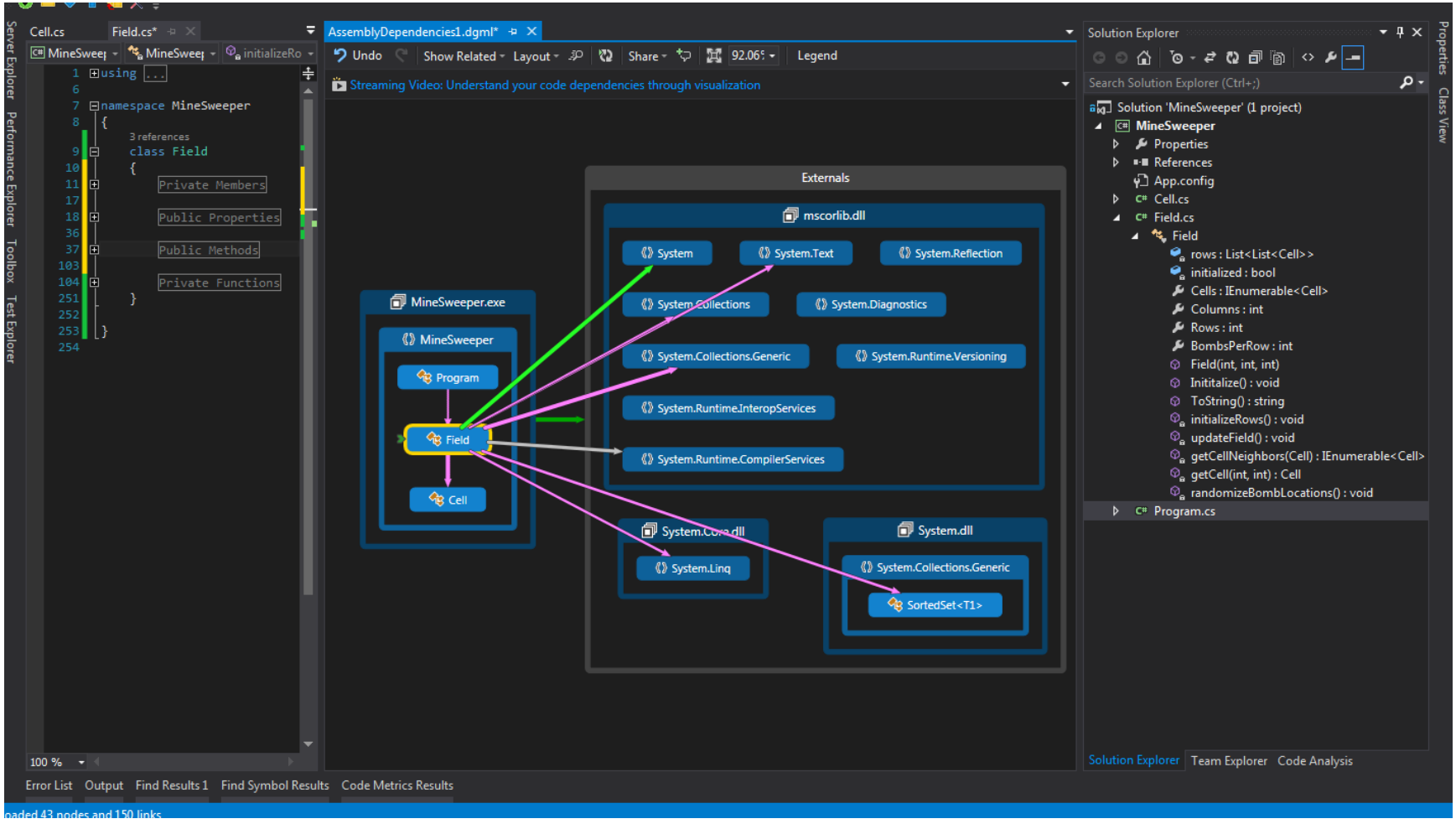
Architecture

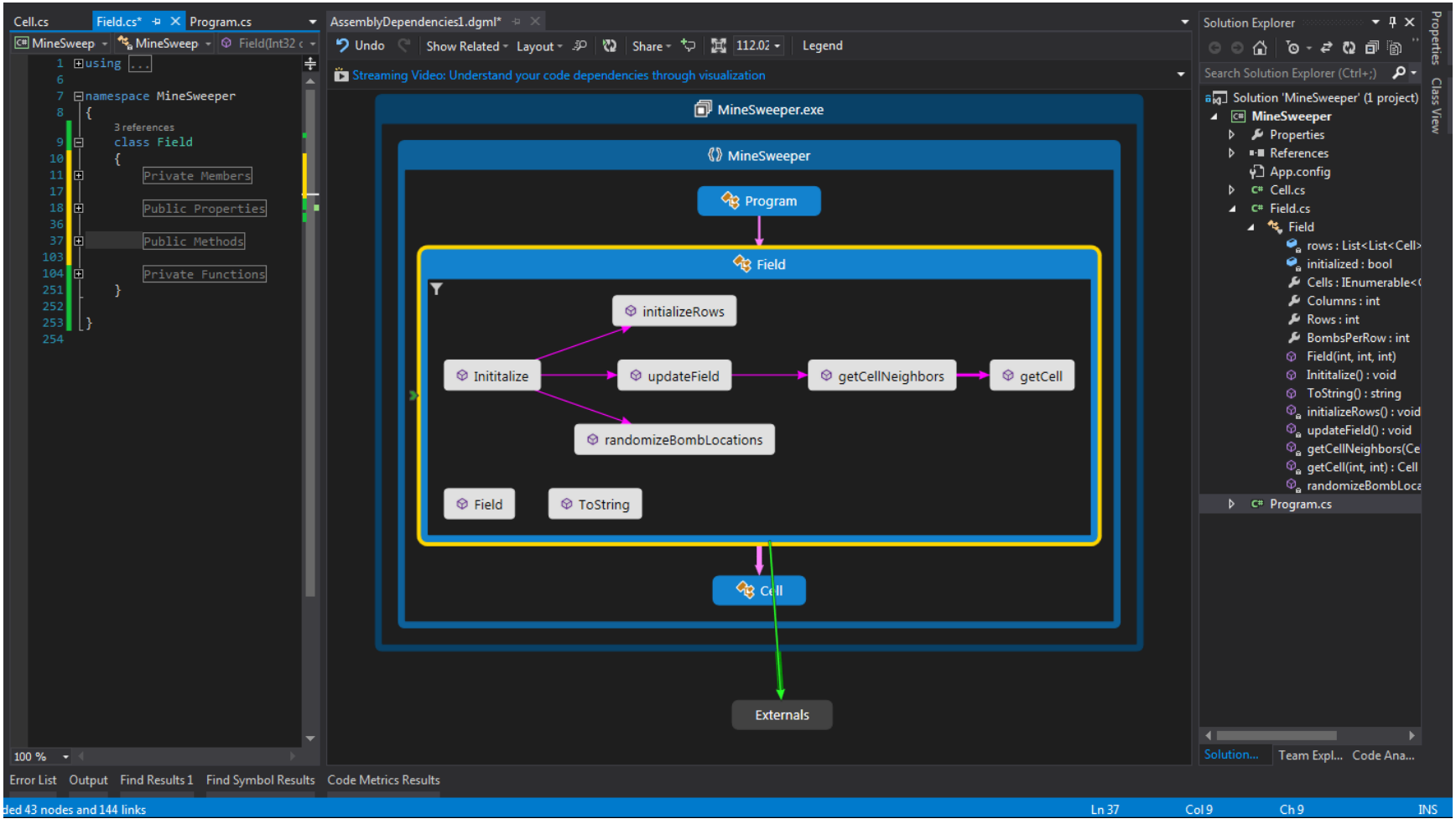
The solution has three classes, `Cell` (represents a cell in the game field), `Field` (represents the game field), `Program` (validates input and consumes the public interface of `Field` to generate and display a MineSweeper field).

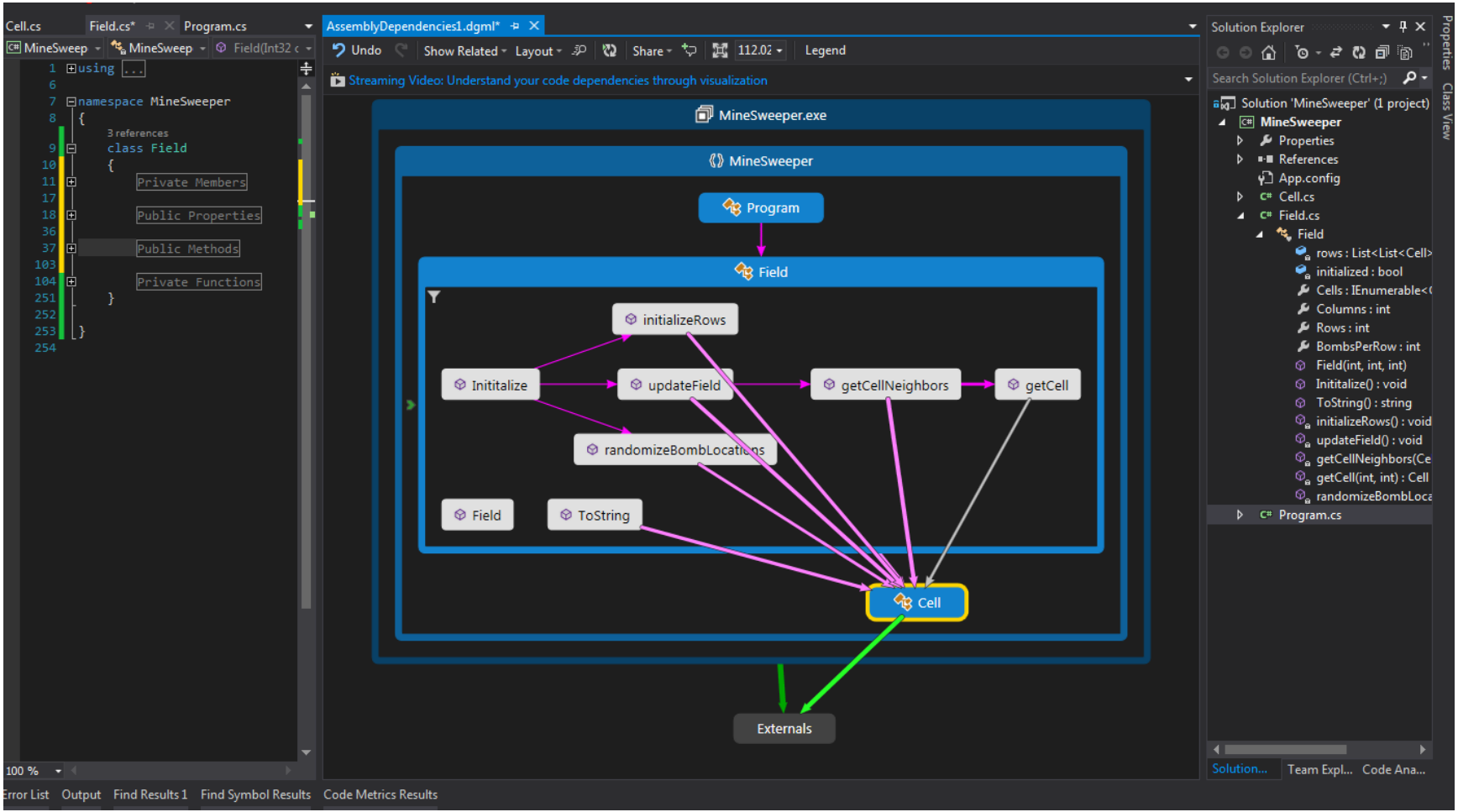


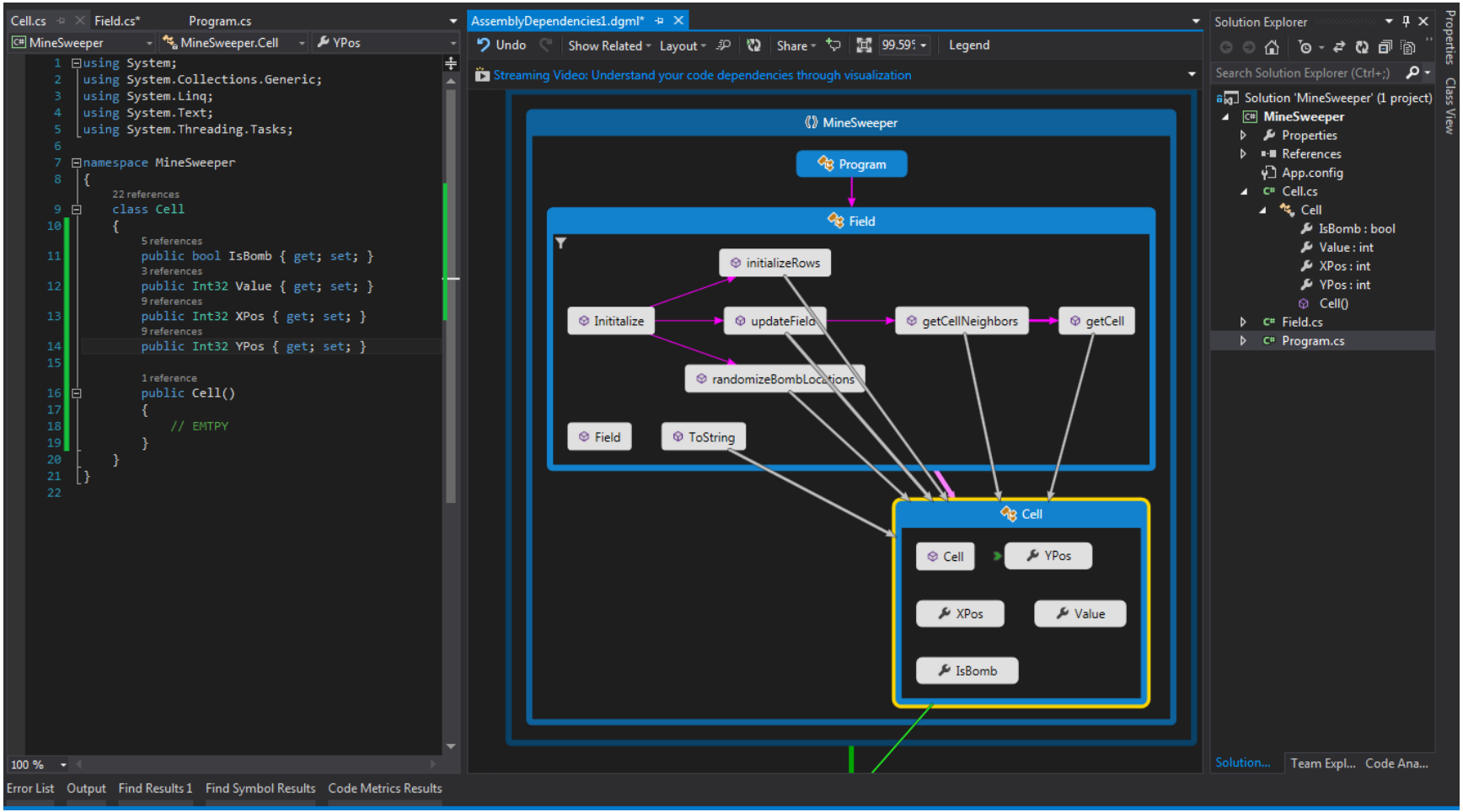

Cell.cs
Field.cs
Program.cs
MineSweeper
MineSweeper.Program
validateInput(string[] args)
1 reference
static List<int> validateInput(string[] args)
{
int paramRows;
int paramCols;
int paramBombsPerRow;
if (args.Length < 3)
{
return null;
}
else
{
try
{
paramRows = Convert.ToInt32(args[0]);
paramCols = Convert.ToInt32(args[1]);
paramBombsPerRow = Convert.ToInt32(args[2]);
if (paramRows < 1 || paramRows > 100 || paramCols < 1 || paramCols > 100 || paramBombsPerRow < 0 || paramBombsPerRow > paramCols)
{
return null;
}
}
catch
{
return null;
}
}
return new List<int>() { paramRows, paramCols, paramBombsPerRow };
}
0 references
static void Main(string[] args)...
100 %
Error List
Output
Find Results 1
Find Symbol Results
Code Metrics Results
AssemblyDependencies1.dgml*
Undo
Show Related
Layout
Share
79.05%
Legend
Streaming Video: Understand your code dependencies through visualization
MineSweeper
Program
Main
Program
validateInput
Field
Cell
Externals
mscorlib.dll
System
System.Text
System.Reflection
System.Collections
System.Diagnostics
System.Collections.Generic
System.Runtime.Versioning
System.Runtime.InteropServices
System.Runtime.CompilerServices
System.Core.dll
System.Linq
System.dll
System.Collections.Generic
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'MineSweeper' (1 project)
MineSweeper
Properties
References
App.config
Cell.cs
Field.cs
Program.cs
Program
validateInput(string[]) : List<int>
Main(string[]) : void
Solution Explorer
Team Explorer
Code Analysis
Properties
Class View


Cell.cs
Field.cs
Program.cs
MineSweeper
MineSweeper.Program
Main(string[] args)
using System.Text;
using System.Threading.Tasks;
namespace MineSweeper
{
0 references
class Program
{
1 reference
static List<int> validateInput(string[] args)...
0 references
static void Main(string[] args)
{
String usage = String.Format("{0}\n{1}", "Usage:
MineSweeper -rows -columns -bombsPerRow",
"Restrictions: Max Size <= 100 x 100;
bombsPerRow <= columns");
List<int> validArgs = validateInput(args);
if (validArgs == null)
{
Console.WriteLine(usage);
return;
}
Field f = new Field(validArgs[0], validArgs[1],
validArgs[2]);
f.Inititalize();
Console.WriteLine(f);
Console.ReadKey();
}
}
}
100 %
AssemblyDependencies1.dgml*
Undo
Show Related
Layout
Share
Legend
Streaming Video: Understand your code dependencies through visualization
MineSweeper
Program
Main
Program
validateInput
Field
Cell
Externals
mscorlib.dll
System
System.Text
System.Reflection
System.Collections
System.Diagnostics
System.Collections.Generic
System.Runtime.Versioning
System.Runtime.InteropServices
System.Runtime.CompilerServices
System.Core.dll
System.Linq
System.dll
System.Collections.Generic
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'MineSweeper' (1 project)
MineSweeper
Properties
References
App.config
Cell.cs
Field.cs
Program.cs
Program
validateInput(string[]) : List<int>
Main(string[]) : void
Solution Explorer
Team Explorer
Code Analysis
Properties
Class View
Server Explorer
Performance Explorer
Toolbox
Test Explorer
Error List
Output
Find Results 1
Find Symbol Results
Code Metrics Results


Cell.cs
Field.cs*
AssemblyDependencies1.dgml*
Undo
Show Related
Layout
Share
Legend
Streaming Video: Understand your code dependencies through visualization
using ...
namespace MineSweeper
{
3 references
class Field
{
Private Members
Public Properties
Public Methods
Private Functions
}
}
Externals
mscorlib.dll
System
System.Text
System.Reflection
System.Collections
System.Diagnostics
System.Collections.Generic
System.Runtime.Versioning
System.Runtime.InteropServices
System.Runtime.CompilerServices
MineSweeper.exe
MineSweeper
Program
Field
Cell
System.Linq
System.dll
System.Collections.Generic
SortedSet<T1>
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'MineSweeper' (1 project)
MineSweeper
Properties
References
App.config
Cell.cs
Field.cs
Field
rows : List<List<Cell>>
initialized : bool
Cells : IEnumerable<Cell>
Columns : int
Rows : int
BombsPerRow : int
Field(int, int, int)
Initialize() : void
ToString() : string
initializeRows() : void
updateField() : void
getCellNeighbors(Cell) : IEnumerable<Cell>
getCell(int, int) : Cell
randomizeBombLocations() : void
Program.cs
Solution Explorer
Team Explorer
Code Analysis
Error List
Output
Find Results 1
Find Symbol Results
Code Metrics Results
Server Explorer
Performance Explorer
Toolbox
Test Explorer
Properties
Class View


Cell.cs
Field.cs*
Program.cs
MineSweep
MineSweep
Field(Int32 c
using ...
namespace MineSweeper
{
3 references
class Field
{
Private Members
Public Properties
Public Methods
Private Functions
}
}
100 %
AssemblyDependencies1.dgml*
Undo
Show Related
Layout
Share
112.02
Legend
Streaming Video: Understand your code dependencies through visualization
MineSweeper.exe
MineSweeper
Program
Field
initializeRows
Inititalize
updateField
getCellNeighbors
getCell
randomizeBombLocations
Field
ToString
Cell
Externals
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'MineSweeper' (1 project)
MineSweeper
Properties
References
App.config
Cell.cs
Field.cs
Field
rows : List<List<Cell>
initialized : bool
Cells : IEnumerable<(
Columns : int
Rows : int
BombsPerRow : int
Field(int, int, int)
Inititalize() : void
ToString() : string
initializeRows() : void
updateField() : void
getCellNeighbors(Ce
getCell(int, int) : Cell
randomizeBombLoca
Program.cs
Solution...
Team Expl...
Code Ana...
Properties
Class View
Error List
Output
Find Results 1
Find Symbol Results
Code Metrics Results
ded 43 nodes and 144 links
Ln 37
Col 9
Ch 9
INS


Cell.cs
Field.cs*
Program.cs
MineSweep
MineSweep
Field(Int32 c
using ...
namespace MineSweeper
{
3 references
class Field
{
Private Members
Public Properties
Public Methods
Private Functions
}
}
100 %
AssemblyDependencies1.dgml*
Undo
Show Related
Layout
Share
112.02
Legend
Streaming Video: Understand your code dependencies through visualization
MineSweeper.exe
MineSweeper
Program
Field
initializeRows
Inititalize
updateField
getCellNeighbors
getCell
randomizeBombLocations
Field
ToString
Cell
Externals
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'MineSweeper' (1 project)
MineSweeper
Properties
References
App.config
Cell.cs
Field.cs
Field
rows : List<List<Cell>
initialized : bool
Cells : IEnumerable<
Columns : int
Rows : int
BombsPerRow : int
Field(int, int, int)
Inititalize() : void
ToString() : string
initializeRows() : void
updateField() : void
getCellNeighbors(Ce
getCell(int, int) : Cell
randomizeBombLoca
Program.cs
Solution...
Team Expl...
Code Ana...
Properties
Class View
Error List
Output
Find Results 1
Find Symbol Results
Code Metrics Results


Cell.cs
Field.cs*
Program.cs
MineSweeper
MineSweeper.Cell
YPos
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace MineSweeper
{
22 references
class Cell
{
5 references
public bool IsBomb { get; set; }
3 references
public Int32 Value { get; set; }
9 references
public Int32 XPos { get; set; }
9 references
public Int32 YPos { get; set; }
1 reference
public Cell()
{
// EMTPY
}
}
}
100 %
AssemblyDependencies1.dgml*
Undo
Show Related
Layout
Share
99.59%
Legend
Streaming Video: Understand your code dependencies through visualization
MineSweeper
Program
Field
initializeRows
Initialize
updateField
getCellNeighbors
getCell
randomizeBombLocations
Field
ToString
Cell
Cell
YPos
XPos
Value
IsBomb
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'MineSweeper' (1 project)
MineSweeper
Properties
References
App.config
Cell.cs
Cell
IsBomb : bool
Value : int
XPos : int
YPos : int
Cell()
Field.cs
Program.cs
Solution...
Team Expl...
Code Ana...
Properties
Class View
Error List
Output
Find Results 1
Find Symbol Results
Code Metrics Results