

# Façade Code

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CSE776 – Design Patterns

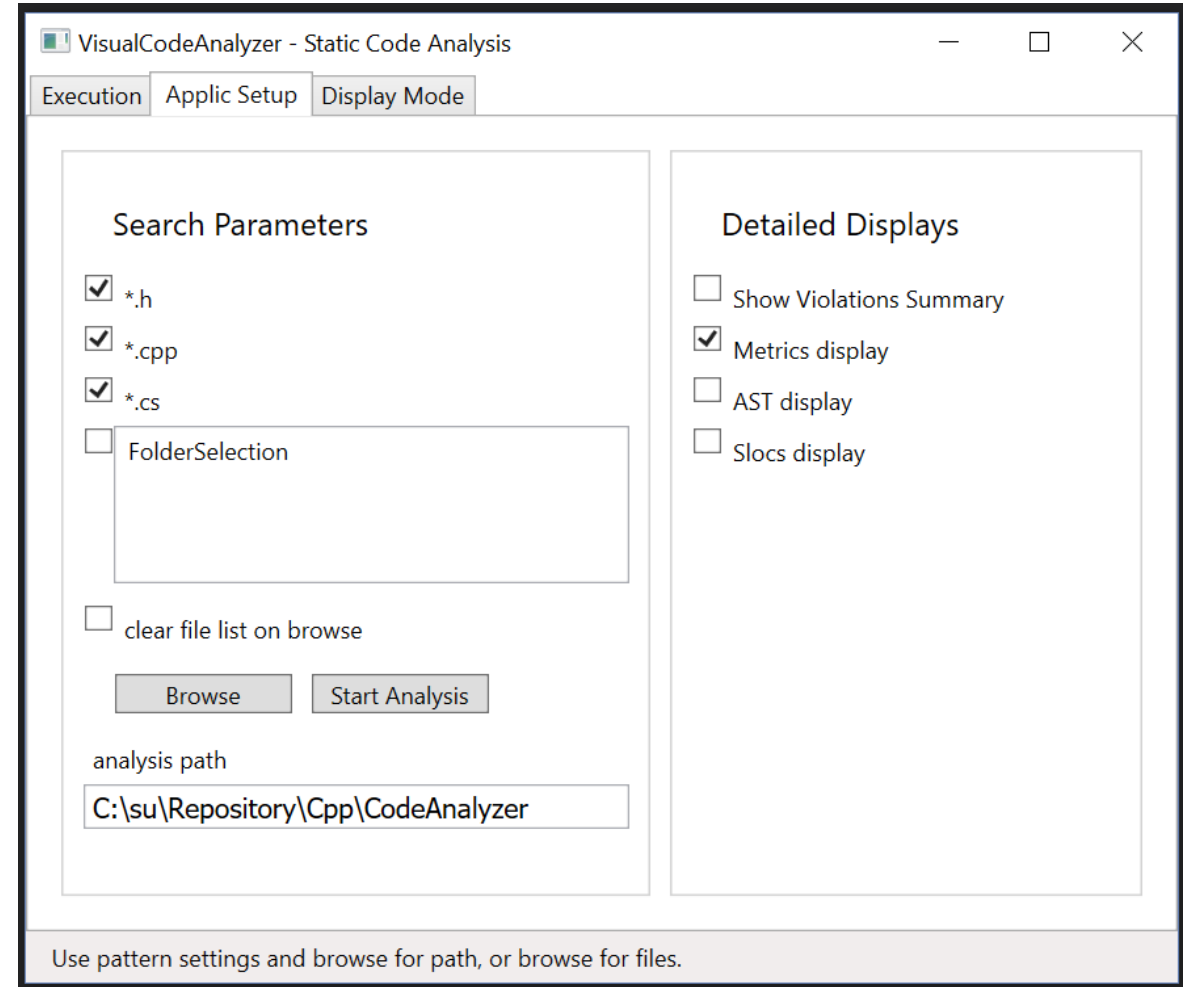
Fall 2018

# CodeAnalyzer Facade

Code Analysis tool based on parser

# Façade Example – Code Analyzer

- Analyzer
  - Console application with many modes and options, provided on the command line.
  - Need to provide path to folder containing files to analyze.
- Façade – VisualCodeAnalyzer, a WPF application
  - Supports browsing for path
  - Supplies command line arguments from checkbox inputs
  - Spawns console analyzer, using .Net Process class and supplies it with command line arguments.

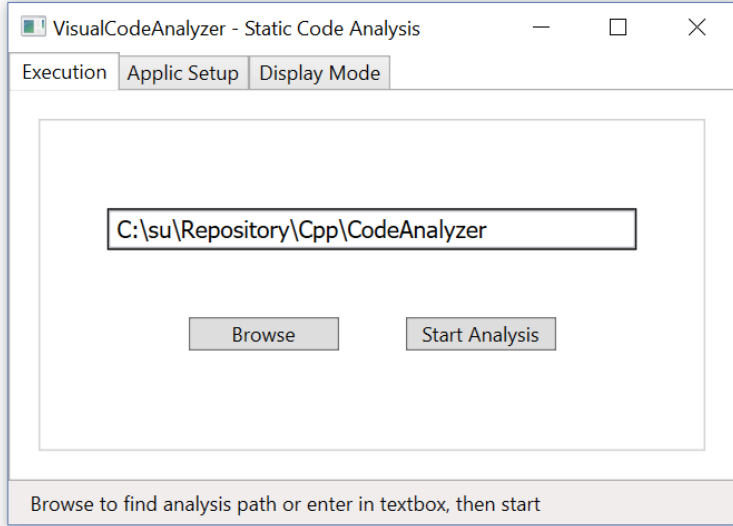


# Code Analyzer Facade

```
C:\WINDOWS\system32\cmd.exe

CodeAnalysis - Version 1.8

-----
Tue Sep 25 13:22:47 2018
Path: "C:\su\Repository\Cpp\CodeAnalyzer"
Args: *.h, *.cpp, *.cs, /m, /r, /f, /p
Processing file: AbstrSynTree.h
Processing file: Executive.h
Processing file: Cpp11-BlockingQueue.h
Processing file: Cpp11-BlockingQueue.h
Processing file: Logger.h
Processing file: Message.h
Processing file: Comm.h
Processing file: Sockets.h
Processing file: Utilities.h
Processing file: WindowsHelpers.h
Processing file: Cpp11-BlockingQueue.h
Processing file: FileMgr.h
Processing file: IFileMgr.h
Processing file: FileSystem.h
Processing file: CopyOfUnitTest.h
Processing file: UnitTest.h
Processing file: GrammarHelpers.h
Processing file: Window.h
Processing file: Logger.h
Processing file: AbstrSynTree.h
Processing file: Executive.h
```



# Code Analyzer Façade

```
C:\WINDOWS\system32\cmd.exe
```

file name	type	name	line	size	cplx
WindowsHelpers.h	namespace	WindowsHelpers	42	5	1
WindowsHelpers.h	namespace	WindowsHelpers	42	5	1

file name	type	name	line	size	cplx
WindowsHelpers.cpp	function	wstringToString	26	7	1
WindowsHelpers.cpp	function	stringToWideString	35	7	1
WindowsHelpers.cpp	function	GetLastMsg	45	32	1
WindowsHelpers.cpp	function	main	81	3	1
WindowsHelpers.cpp	function	wstringToString	26	7	1
WindowsHelpers.cpp	function	stringToWideString	35	7	1
WindowsHelpers.cpp	function	GetLastMsg	45	32	1
WindowsHelpers.cpp	function	main	81	3	1

file name	type	name	line	size	cplx
itokcollection.h	namespace				
itokcollection.h	struct				
itokcollection.h	function				
itokcollection.h	namespace				
itokcollection.h	struct				
itokcollection.h	function				

searched 317 dirs  
processed 120 files

Code Analysis completed

VisualCodeAnalyzer - Static Code Analysis

Execution | Applic Setup | Display Mode

C:\su\Repository\Cpp\CodeAnalyzer

Browse Start Analysis

Browse to find analysis path or enter in textbox, then start

# VisualCodeAnalyzer Code to Execute Analysis

```
//-----< execute Analyzer.exe as a separate process >-----0
```

```
void WPFcppCliDemo::doExecute()
{
    Console::Clear();
    ProcessStartInfo^ psi = gcnew ProcessStartInfo();
    psi->UseShellExecute = false;
    /*
    * Look for Analyzer executable in directory where GUI was started.
    */
    String^ analyzerPath =
        Path::GetFullPath(Assembly::GetExecutingAssembly()->Location);
    analyzerPath = Path::GetDirectoryName(analyzerPath);
    if (!System::IO::Directory::Exists(analyzerPath))
    {
        throw gcnew Exception("invalid analyzer path");
    }
    analyzerPath += "\\CodeAnalyzer.exe";
```

```
try {
    analyzerPath = System::IO::Path::GetFullPath(analyzerPath);
    psi->FileName = analyzerPath;
    setCmdLineArgs();
    psi->Arguments = cmdLine_;
    Process^ p = Process::Start(psi);
}
catch (Exception^ ex)
{
    // we get here if file spec is invalid
    Console::Write("\n{0} = {1}", ex->Message, analyzerPath);
    Console::Write("\n{0}\n", "try rebuilding CodeAnalyzer");
}
saveUserSettings();
}
//-----< event handler for Start Analysis Button >-----

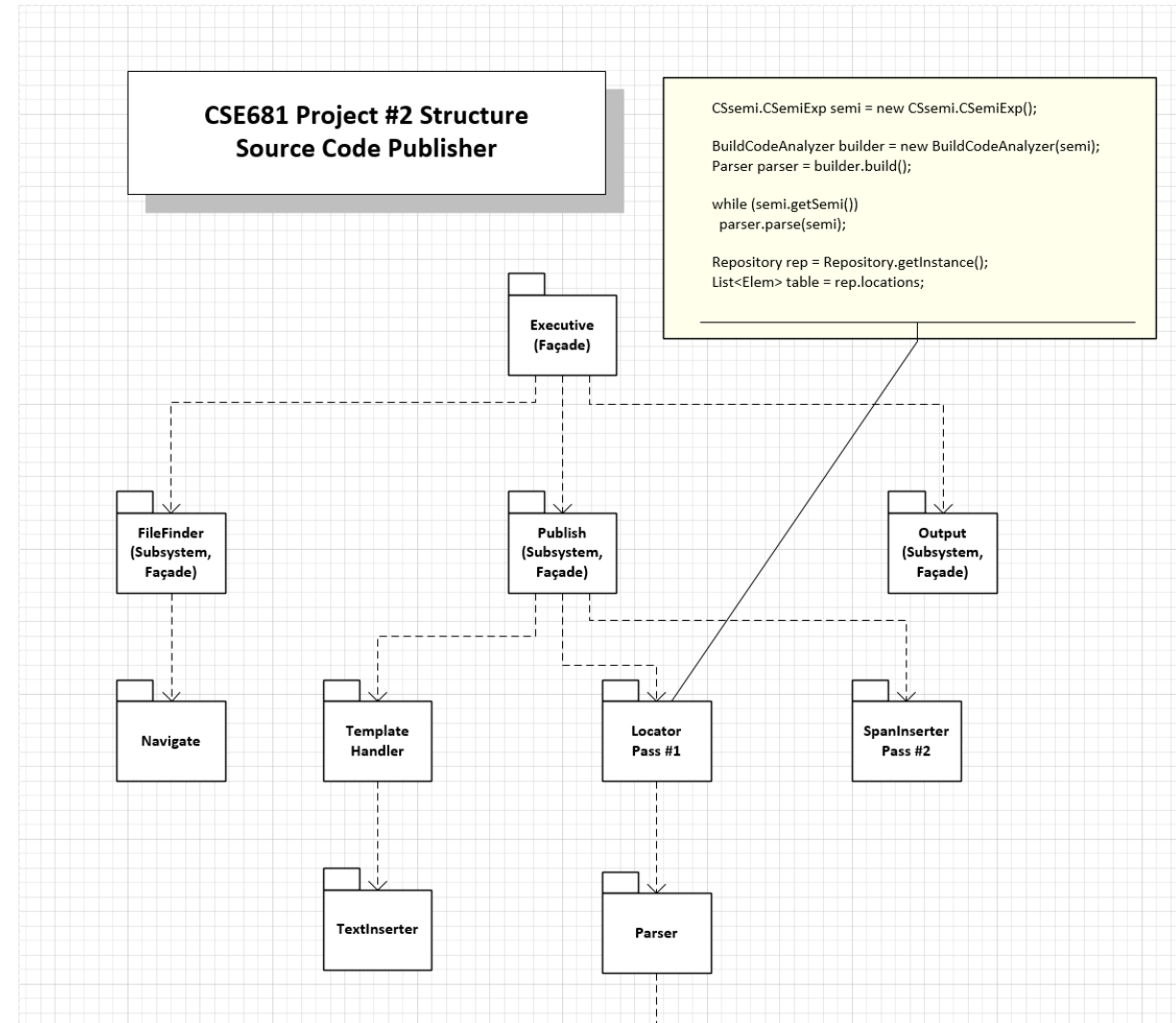
void WPFcppCliDemo::execute(Object^ sender, RoutedEventArgs^ args)
{
    setCmdLineArgs();
    doExecute();
}
```

# Code Publisher Facade

Transforms source code into web pages

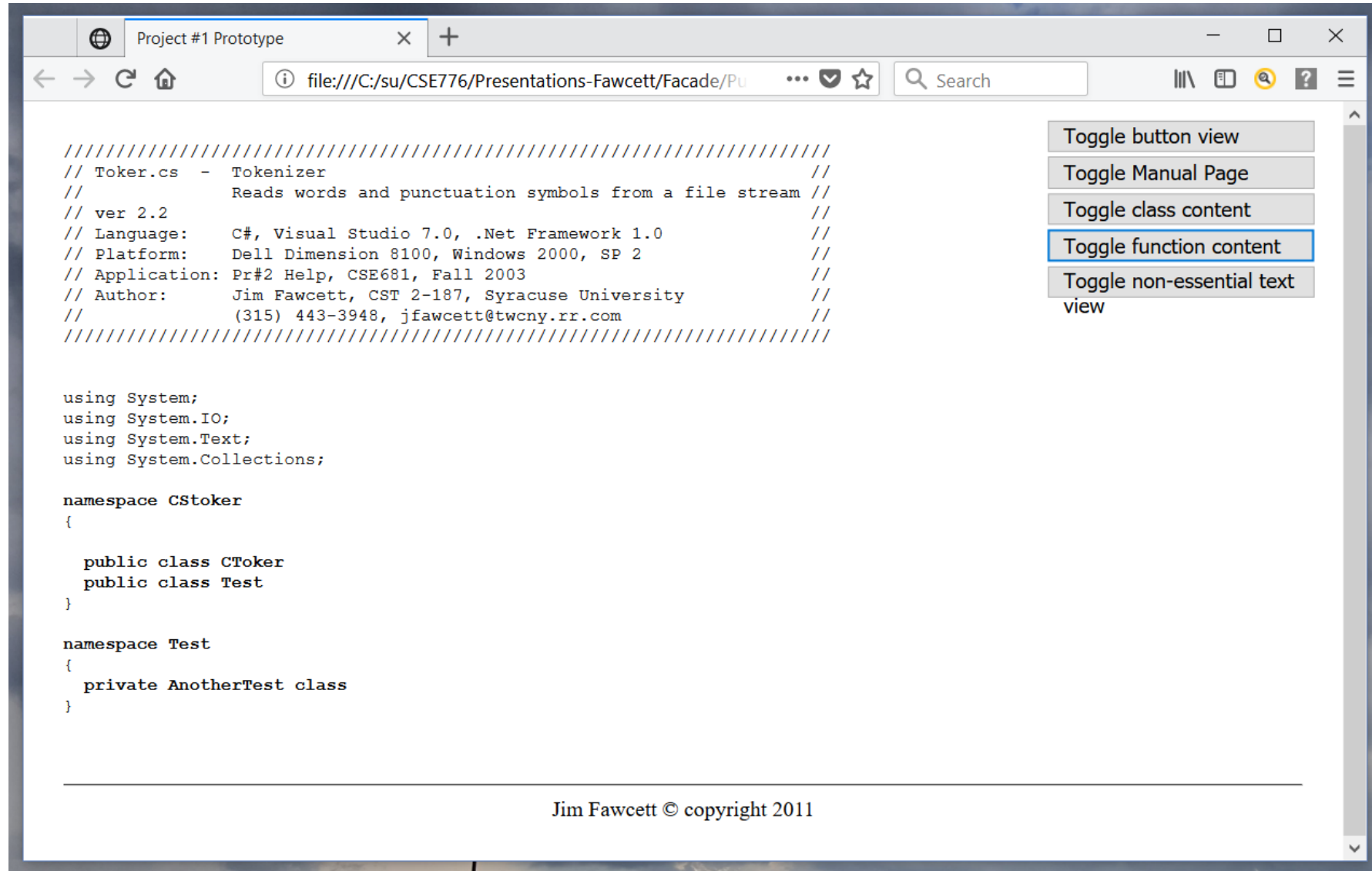
# Publisher Package Diagram

- Source Code Publisher
  - Analyzes all packages in a project folder
  - Converts source files to web pages:
    - Inserts code into HTML page between `<pre>` and `</pre>` markup.
    - Converts any markup characters in the code to escape sequences, e.g., converts `"<"` to `"&lt;"`
- Each top-level package:
  - Executive, FileFinder, Publish, and Outputare Facades.





# Publisher Output



Project #1 Prototype

file:///C:/su/CSE776/Presentations-Fawcett/Facade/Pu

```
////////////////////////////////////  
// Toker.cs - Tokenizer //  
// Reads words and punctuation symbols from a file stream //  
// ver 2.2 //  
// Language: C#, Visual Studio 7.0, .Net Framework 1.0 //  
// Platform: Dell Dimension 8100, Windows 2000, SP 2 //  
// Application: Pr#2 Help, CSE681, Fall 2003 //  
// Author: Jim Fawcett, CST 2-187, Syracuse University //  
// (315) 443-3948, jfawcett@twcny.rr.com //  
////////////////////////////////////  
  
using System;  
using System.IO;  
using System.Text;  
using System.Collections;  
  
namespace CStoker  
{  
  
    public class CTokener  
    public class Test  
}  
  
namespace Test  
{  
    private AnotherTest class  
}
```

Toggle button view

Toggle Manual Page

Toggle class content

Toggle function content

Toggle non-essential text view

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# Upper-level Packages are Facades

- Package Facades
  - Provide languages for Executive
  - Nav – get sources
  - Publish – make pages
  - Results – make links to dependent packages

```
// extract file references

Navigate nav = new Navigate();
nav.go(path, "*.cs");
List<string> files = nav.getSources(); // fully qualified filenames

// publish files

Publish pub = new Publish();
pub.setPubDir("./publish");
pub.setTemplate("../Template.htm");
Exec exec = new Exec();
foreach (string file in files)
{
    string filename = Path.GetFileName(file);
    if (exec.filter(filename))
        continue;
    Console.WriteLine("\n Processing {0}", filename);
    pub.makePage(file);
}

// make Directory of links to files
Results results = new Results();
results.makeLinks();
```

# That's all Folks!

## Other Facades:

- My-Slice
- All Office Products
- Visual Studio
- Our Website

