STUDENT ACTIVITY 3.1: UNDERSTAND THE FUNDAMENTALS OF MICROSOFT INTERMEDIATE LANGUAGE (MSIL) AND COMMON LANGUAGE INFRASTRUCTURE (CLI)

MTA Course: 10754 Microsoft .NET Fundamentals
Topic: Understand the fundamentals of Microsoft Intermediate Language (MSIL) and Common Language Infrastructure (CLI)
File name: 10754_Msft.NET_SA_3.1

Lesson Objective

3.1: Understand the fundamentals of Microsoft® Intermediate Language (MSIL) and Common Language Infrastructure (CLI). *This objective may include but is not limited to*: understanding what MSIL is, what the CLI is, how source code is compiled into MSIL, and how code is Just-in-Time (JIT) compiled.

Resources, software, and additional files needed for this lesson:

- Microsoft Visual Studio® 2010; students may also use Microsoft Visual C#® 2010 Express or Microsoft Visual Basic® 2010 Express, available free at *http://www.microsoft.com/express/Windows/,*

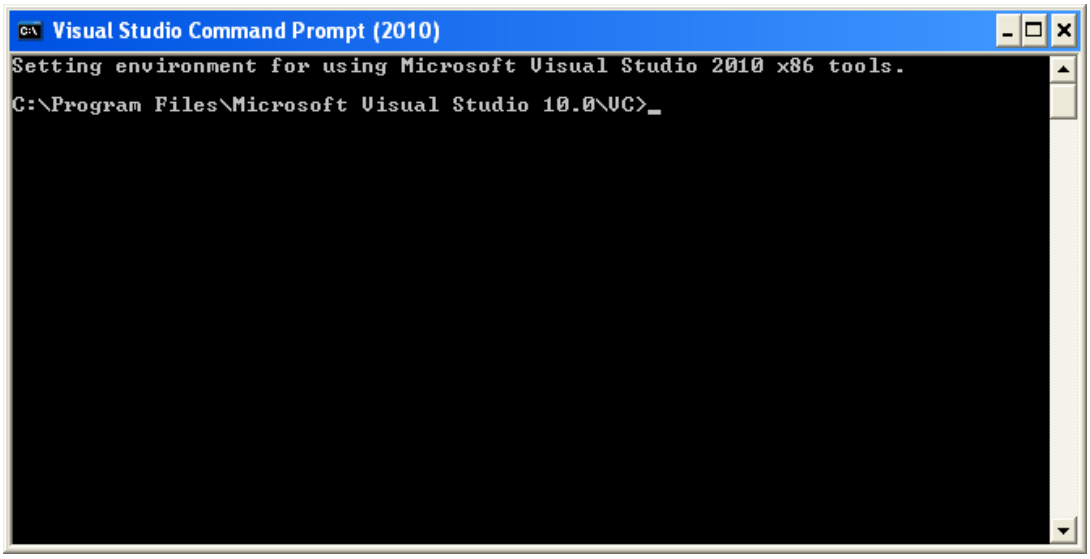
MSIL Disassembly Activity

Directions to the student:

Complete the following steps to disassemble a portable executable (PE) file into a text file with MSIL code.

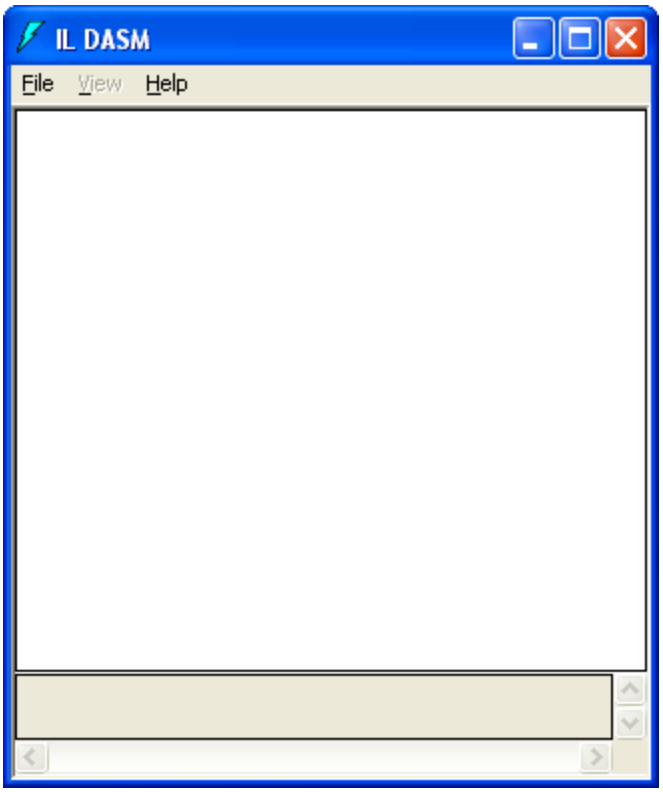
1. Open and build a Visual C# or Visual Basic project in Visual Studio (or create a simple application, as directed by your teacher).

2. Open the command prompt in Visual Studio (on the taskbar, click Start, All Programs, Visual Studio, and then Visual Studio Tools). The Visual Studio Command Prompt window will look similar to the image shown here:



3. Load the MSIL Disassembler by entering **ildasm** at the command prompt.

4. This causes the Ildasm.exe window to appear, as shown here.



5. From the File menu, select Open; navigate to the Bin\Debug folder in the application folder that you want to view. Select the .exe file (but *not* the .vshost.exe file).

6. From the File menu, select Dump; in the Dump Options dialog box, click OK.
7. In the Save As dialog box that appears, enter **msil** as the file name and save the file to an easy-to-find location, such as the Desktop.
8. Close the MSIL Disassembler.
9. Navigate to the location of the msil file that you saved. Double-click the msil.il file to open the file in Notepad. Note that the Disassembler creates other files as well.
10. Scan through the MSIL instructions, noting any identifiers (names of classes, properties, controls, and so on)

Written response:

1. What impressions do you have of the nature of MSIL code?
2. Are you able to recognize anything from the source code that you entered?
3. Do you recognize any rules or patterns ("syntax") in the MSIL instructions?