ITE 365 Lab01: Saying hello to the world

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1 Objectives

1. Gain some exposure to working with Visual Studio.
2. Go through the steps required to build a console application in C#

2 Background

Visual Studio is the Swiss Army knife of developer tools - it can do almost anything but figuring out how to use it can be daunting. In this lab, we will do the traditional thing people do when starting to learn a new language: write the "Hello World!" application.

Along the way, we will look at supporting files that VS uses for managing projects, learn the workflow for creating and debugging a C# program, and look at the use of the Visual Studio debugger.

2.1 IDE version

The labs and assignments in this course have been developed using Visual Studio 2012. However, any version of Visual Studio from 2012 on-wards can be used in this class. Note that there are the multiple levels of support for different features; all examples and labs in this class will be done using either the Professional or Enterprise versions of Visual Studio.

2.2 Acquiring Visual Studio

Athens State is a member of the Microsoft Academic Alliance. As such, students have access to free versions of Micorsoft's operating systems and developer tools through the Microsoft Image website. Access instructions will be provided to you through your Athens State e-mail account.

3 Instructions

First thing that we need to do is to start Visual Studio.

Once you have Visual Studio started:

1. Select "New Project" or select *File>New>Project*
2. Select "Visual C#" in the templates menu
3. Select "Console Application" from the list of Project types
4. Set the project name to "HelloWorldApp"
5. Adjust the project location to where you want to store this project on your machine
6. Select "OK"

The IDE will grind for a few moments and then present you with a newly created project. Visual Studio works with "Solutions" and "Projects" and you can see the contents of the Solution in the "Solution Explorer" windows. By default, VS creates a C# *namespace* with a name that matches your solution name and a class named "Program" with a **main()** function. I like to rename this to something more appropriate for the project:

1. Select the file "Program.cs" in the Solution Explorer.

2. Right-click and select "Rename" from the context menu. Rename the file to something more appropriate such as "HelloWorldClass.cs". Note that VS will also change the name of the class in the source file.

Now we can actually start writing some code. Add the following line in the **main()** function:

```
Console.WriteLine("Hello, everybody!");
```

Now select *Project>Build Solution* from the Project menu. This will compile and link your program. Now select "*Debug>Start Without Debugging*" from the Debug menu. This will run your program.

The real power of working with Visual Studio comes from the tools you have to assist in debugging and diagnosing problems. To make things interesting, modify your code in **main()** to print 10 times:

```
for (int i = 0; i < 10; i++) {
    Console.WriteLine("Hello, everybody!");
}
```

Note how Visual Studio is a firm believer in making you do what it thinks to be right as it re-formats your code to match VS's code formatting conventions.

Double-click in the gutter of the edit window at the line containing the **WriteLine()** function. This will set a "breakpoint" in your code. If you now select "*Debug>Start with debugging*", the system will pause at the point where it encounters the breakpoint. You can now examine the state of variables, single step through code, or animate it to see what may be happening as the code executes.

4 Submission instructions

Combine a copy of your source code and a screen-shot of your program into a PDF file (you can use Microsoft Word to do this) and attach it to the assignment on Blackboard.