

Lab 3: C# Arrays, Files, Functions, and Strings

In this lab, you will be writing console-mode applications in C#, containing arrays, helper methods, string manipulation, and reading from files.

Prelab

Read Modules 4 and 5 in the "C# for Beginners" guide (pp. 12-17). Watch all associated videos on the MVA "C# for Absolute Beginners" online course.

Refer to the following pages on the Microsoft Developer Network (MSDN) web site as reference material:

<https://msdn.microsoft.com/en-us/library/system.string%28v=vs.110%29.aspx>

<https://msdn.microsoft.com/en-us/library/system.array%28v=vs.110%29.aspx>

[https://msdn.microsoft.com/en-us/library/system.io.streamreader\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.io.streamreader(v=vs.110).aspx)

Create a **lab3** folder. Use one of your previous programs as a template.

Instructions

Solve the following programming problems. Each program should be in the form of a separate Visual Studio project (and folder). Each program should also have a comment block at the top (see notes for details.)

1. "Shopping Cart" lab (on pp. 13 and 14) include all of the suggestions for improvement.
2. Write a subroutine to take a numeric value from 1 to 9 as an argument and return the English name (such as `one`, `two`, or `nine`). If the value is out of range, return the original number as the name instead. Test it with some input data; you will have to write some sort of Main program to call the subroutine, for example, using a `for` loop.

3. Write a program to take two numbers and add them together, displaying the result as (for example): `Two plus two equals four.` (Don't forget to capitalize the initial word!)

Use your subroutine from 2.

4. Extend the subroutine from 2 to return `negative nine through negative one and zero.` Copy and modify program 2 to test it.
5. Copy and extend 3 to allow addition, subtraction, multiplication or division with the subroutine from 4. NOTE: Catch any user attempts to divide by zero and display an error message in that case (instead of allowing a run-time error to occur.)

Due Date

All programs should be completed and submitted by end-of-day, Monday, April 17th, 2017.

The Final Exam (on April 18/21) will cover all of these concepts.