CS 1400 Lab #8: Algorithm Design

Objectives:

After completing this lab you should be familiar with the process used to analyze simple problems problems and be able to design algorithms for simple programs.

Study Material

In order to do this exercise, you should go back through this week's set of on Program Design. Study the example shown in the slides thoroughly. Be sure that you understand the steps required to develop a program.

Make a copy of the Algorithm Design Worksheet located here. Use this worksheet to develop a solution to the programming exercise below. As you work through the solution to the exercise, fill in the requested areas on the worksheet. This is not a time to be lazy! Good programmers spend a significant part of their time making sure that they understand the problem that they are trying to solve, and doing the hard design work. **Do not** try to write the program for this problem at this point.

The Pseudo-code Programming Process

The Pseudo-code Programming Process was developed by Steve McConnell, and is explained in detail in his book *"Code Complete*" by Microsoft Press.

Before proceeding, you should have worked through the solution to the Farmer John problem using the Algorithm Design Worksheet. In this exercise, you will begin the process of writing the program for solving this problem. Carefully follow these steps:

1. Create a folder for lab #8.
2. Start Visual Studio and start a new Console project.
3. From your algorithm design worksheet copy the line by line description that you wrote for solving this problem. We call this line by line description **Pseudo-code**. It should accurately reflect the steps that your program will take, expressed in short English phrases. Note that it is insufficient to say things like "Calculate the area of the circle". Your descriptions should explain how each calculation is done.

   Now paste this pseudo-code into your program as shown below:

```
// File Prologue
// CS 1400-X01
// Mary Coder
// Lab #8
// May 2013
// I did not copy any code except that provided by
the instructor
//-----------------------------------------------
--------------

using System;

class Program
{
   static void Main()
   {
      // paste your pseudo-code here

      Console.ReadLine();
   }
}
```

4. Place slashes // in front of each line of code, so that they appear as comments
5. **Do not** try to write any other code at this point. Save your project.

Programming Exercise

- Farmer John

File(s) to Submit:

Place a copy of your completed source code in a zip file and name the zip file lab_08_your-initials_V1.0.zip. For example, I would name my file lab_08_RKD_V1.0.zip. Submit this assignment as lab #8 on Canvas. Please do not include any other files in your submission.

Grading Guidelines

Description	**Points possible**
Assignment has been properly submitted to Canvas.	2
Source code file contains pseudo-code that accurately describes the problem to be solved.	3
Total	5