CS 3420 – Assignment #3
Word Grid

Introduction

Among the games I'm terrible at is Boggle. Boggle is a game where a bunch of letters are randomly arranged in a grid and the objective is to find as many words as you can in some amount of time. The person with the most words wins; I usually find the least. I was thinking, maybe I could write a program that performs a dictionary search for words in the grid. The first step in this program is to write a searching technique that can take any word and find it in the grid, if it exists...that is your assignment.

Assignment

Write a class named WordGrid with the following public methods:

```csharp
public WordGrid(string[] grid)
public bool Search(string word, ref char[][] highlight)
```

The constructor will take a reference to the grid to be searched and save it. The Search method will accept a word to look for in the grid and a reference to a “highlight” grid in which the word, if found, will be highlighted. If the search is successful true is returned, false otherwise.

You will need to use recursion to solve the word searching problem. I recommend breaking down the coding into small sections, rather than trying to do everything at once. In particular, work on finding the word first and then think about how you will highlight the word in the result array.

I have provided a set of methods you should use in your driver program to demonstrate that your program works. You should provide additional test cases, one of which should included multiple words/fragments and searches.

The screen shot on the last page demonstrates the kind of output I expect from your program.
public static string[] GetGrid1()
{
    string[] grid = new string[10];
    grid[0] = "aaaaaaaaaaaaaaaaaaaaaa";
    grid[1] = "aaaaaaaaaaaaaaaaaaaaaaa";
    grid[2] = "aagaaaaaaaaaaaaaaaaaa";
    grid[3] = "aao aaaaaaaaaaaaaaa";
    grid[4] = "aabigaaaaaaaaaaaaaaaa";
    grid[5] = "aaaaa aaaaaaaaaaaaaa";
    grid[6] = "aaaaablue!aaaaaaaaaa";
    grid[7] = "aaaaalaaaaaaaaaaaaaa";
    grid[8] = "aaaaaaucaaaaaaaaaaaaa";
    grid[9] = "aaaaaaaaaaaaaaaaaaaaa";
    return grid;
}

public static string[] GetGrid2()
{
    string[] grid = new string[10];
    grid[0] = "aaaaaaaaaaaaaaaaaaaaaa";
    grid[1] = "aaaaaaaaaaaaahtaaaaaaaaa";
    grid[2] = "aaaaaaaaaaaaapataaaaaa";
    grid[3] = "aao aaaaaaaaaaaaaaa";
    grid[4] = "aabigaaaaaaaaaaaaaaaa";
    grid[5] = "aaaaa aaaaaaaaaaaaaa";
    grid[6] = "aaaaablue!aaaaaaaaaa";
    grid[7] = "aaaaalaaaaaaaaaaaaaa";
    grid[8] = "aaaaaaucaaaaaaaaaaaaa";
    grid[9] = "aaaaaaaaaaaaaaaaaaaaa";
    return grid;
}

public static string[] GetGrid3()
{
    string[] grid = new string[10];
    grid[0] = "aaaaaaaaaaaaaaaaaaaaaa";
    grid[1] = "aao aaaaaaaaaaaaaaa";
    grid[2] = "aaaaaaapataaaaaa";
    grid[3] = "aao aaaaaaaaaaaaaaa";
    grid[4] = "aabigaaaaaaaaaaaaaaaa";
    grid[5] = "aaaaa aaaaaaaaaaaaaa";
    grid[6] = "aaaaablue!aaaaaaaaaa";
    grid[7] = "aaaaalaaaaaaaaaaaaaa";
    grid[8] = "aaaaaaucaaaaaaaaaaaaa";
    grid[9] = "aaaaaaaaaaaaaaaaaaaaa";
    return grid;
}
NOTES:

- Due: Monday, February 5th
- Include the heading required by your section at the top of your program
- Follow the style guidelines
- When complete submit your entire Visual Studio solution directory
- Submit through Eagle