**Bluebeam Software, Inc.**

**Engineering Technical Exercise**

Description:

You are asked to write a command line program in C# that takes a maze image as input and solves the maze and writes it to an output image. Please see the attached sample maze inputs. Note that the samples do not represent all types of mazes that your solution if expected to solve. The syntax of the program must be:

maze.exe “source.[bmp,png,jpg]” “destination.[bmp,png,jpg]”

Rules:

1. Start at Red
2. Finish at Blue
3. All walls are black
4. Maze is completely surrounded by black walls
5. Draw the solution on the image in green

Considerations:

We will be looking for the following in your solution:

* Code that is fully original
* Code that is in accordance with SOLID principals considering testability and extensibility in your choice of code organization and design patterns.  Some examples of unit testing should be provided.
* Code that is efficient in both memory and CPU utilization
* Code that is easy to understand and maintainable
* Code that handles various real-world scenarios (non-orthogonal mazes, bad files, etc.).

Deliverables:

E-mail a .zip file containing the full source directory of the program including the project and solution files to me ([ctanous@bluebeam.com](mailto:laura.marks@bluebeam.com)).

Notes:

There is a freely available Community version of Visual Studio 2015 available at [https://www.visualstudio.com/post-download-vs?sku=community](https://www.visualstudio.com/post-download-vs?sku=community&clcid=0x409&downloadrename=true)

Also, if you are less familiar with Visual Studio, feel free to use <http://monodevelop.com/> to assist with the exercise.