**Scientific Computing Project**

Goal: Create a program that will solve the Poisson equation

The domain of interest is the rectangle:

And the boundary conditions:

Since we are working with second derivative elements, we will use the five point approximation:

We will use the commonly used special case where , so:



Website help:

Youtube: Solving 2D poisson equation in Matlab



TO DO:

* Decide the discretization length

Notes

* Create 5 vectors LD (lower diagonal), D (Diagonal), UP (Upper diagonal), two subdiagonals
* Choose discretization length

Trial One

Set up a simple 2d poisson problem with simple Dirichlet boundary conditions

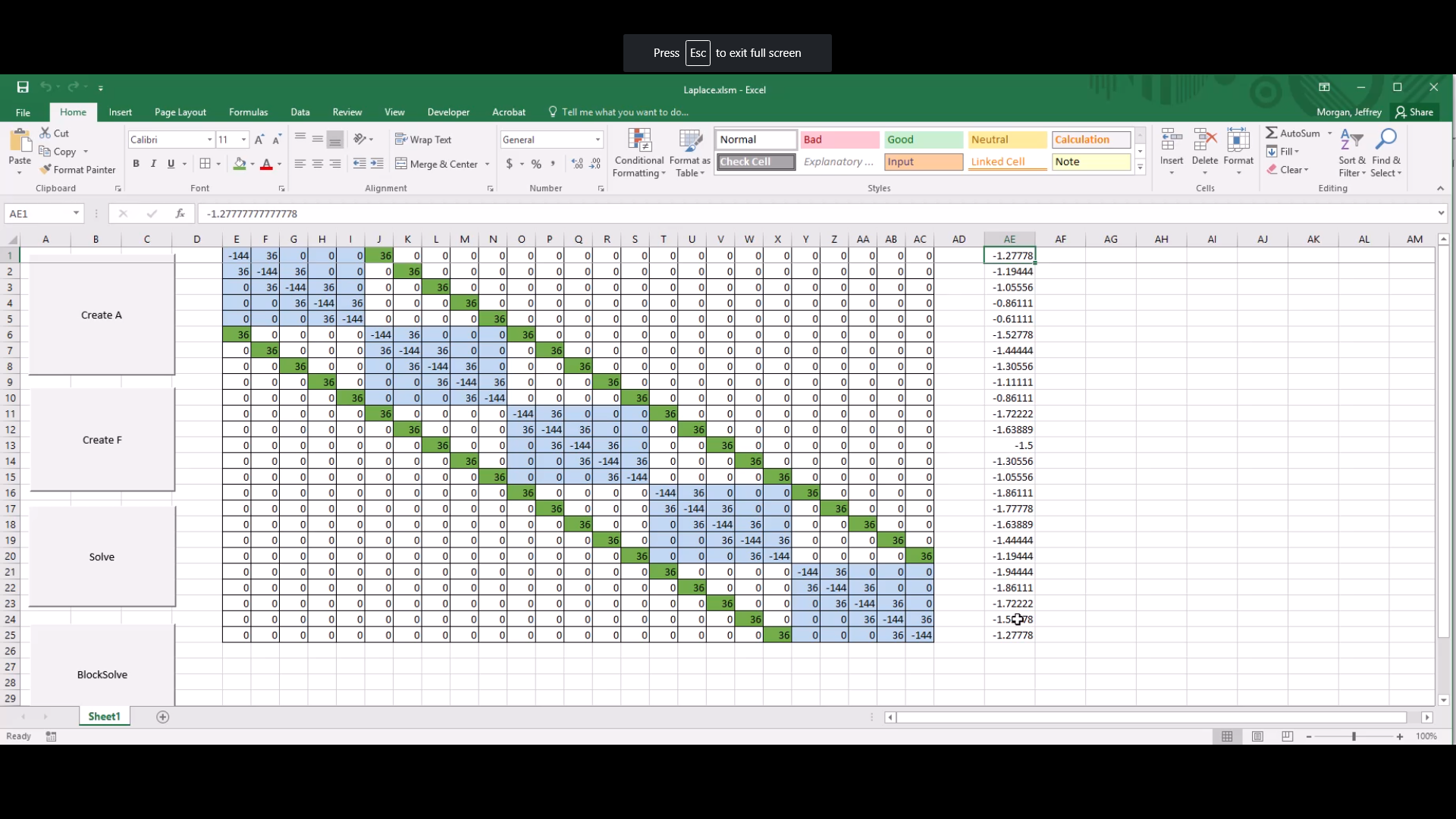
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Optimize by forming the inner matrix and then adding to whole matrix.

Also store green diagonal values and add them to whole matrix