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IPython 7.4.0 -- An enhanced Interactive Python.

In [1]:

```
runfile('/Users/maged/Documents/GitHub/PossonSolver2D-/PossionSolver2D.py',
wdir='/Users/maged/Documents/GitHub/PossonSolver2D-')
```

The Stiffness Matrix(A) =

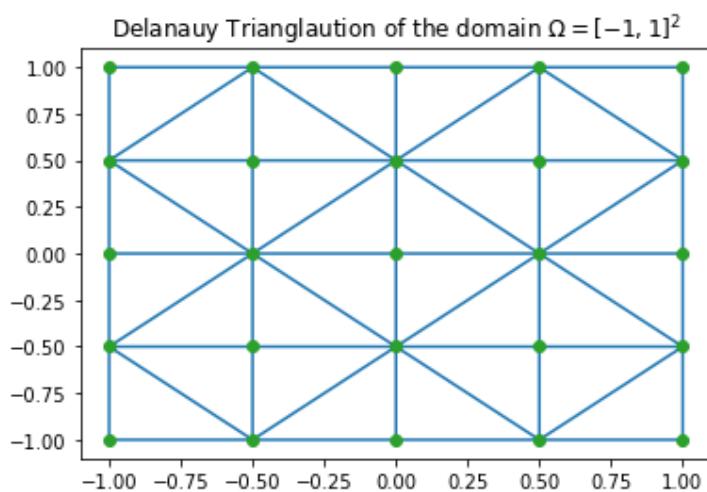
[	1.	-0.5	0.	0.	0.	-0.5	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.]			
[-0.5	2.	-0.5	0.	0.	0.	0.	-1.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.]			
[	0.	-0.5	2.	-0.5	0.	0.	0.	-1.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.]			
[	0.	0.	-0.5	2.	-0.5	0.	0.	0.	-1.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.]			
[	0.	0.	0.	-0.5	1.	0.	0.	0.	0.	-0.5	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.]			
[-0.5	0.	0.	0.	0.	0.	2.	-1.	0.	0.	0.	-0.5	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.]			
[	0.	-1.	0.	0.	0.	-1.	4.5	-1.	0.	0.	0.	-1.5	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.]			
[	0.	0.	-1.	0.	0.	0.	-1.	3.5	-1.	0.	0.	0.	-0.5
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.]			
[	0.	0.	0.	-1.	0.	0.	0.	-1.	4.	-1.	0.	0.	-1.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.]			
[	0.	0.	0.	0.	-0.5	0.	0.	0.	-1.	2.	0.	0.	0.
	-0.5	0.	0.	0.	0.	0.	0.	0.	0.	0.]			
[	0.	0.	0.	0.	0.	-0.5	0.	0.	0.	0.	2.	-1.	0.
	0.	-0.5	0.	0.	0.	0.	0.	0.	0.	0.]			
[	0.	0.	0.	0.	0.	0.	-1.5	0.	0.	0.	-1.	4.5	-1.
	0.	0.	-1.	0.	0.	0.	0.	0.	0.	0.]			
[	0.	0.	0.	0.	0.	0.	0.	-0.5	0.	0.	0.	-1.	3.5
	0.	0.	0.	-1.	0.	0.	0.	0.	0.	0.]			
[	0.	0.	0.	0.	0.	0.	0.	0.	-1.	0.	0.	0.	-1.
	-1.	0.	0.	0.	-1.	0.	0.	0.	0.	0.]			
[	0.	0.	0.	0.	0.	0.	0.	0.	0.	-0.5	0.	0.	-1.
	2.	0.	0.	0.	0.	-0.5	0.	0.	0.	0.]			
[	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	-0.5	0.	0.
	0.	2.	-1.	0.	0.	0.	-0.5	0.	0.	0.]			
[	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	-1.	0.
	0.	-1.	4.	-1.	0.	0.	0.	-1.	0.	0.]			
[	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	-1.
	0.	0.	-1.	4.	-1.	0.	0.	0.	-1.	0.]			
[	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	-1.
	0.	0.	0.	-1.	4.	-1.	0.	0.	0.	0.]			
[	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	-0.5	0.	0.	0.	-1.	2.	0.	0.	0.	0.]			
[	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	-0.5	0.	0.	0.	0.	1.	-0.5	0.	0.]			
[	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	-1.	0.	0.	0.	-0.5	2.	-0.5	0.]			
[	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	-1.	0.	0.	0.	-0.5	2.	-0.5]			
[	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	-1.	0.	0.	0.	-0.5	2.]			

The total number of nodes = 25
The total number of elements = 32

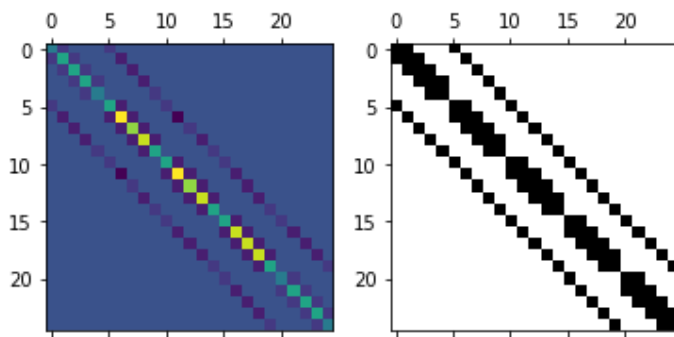
=====

the solution $u(x)=$

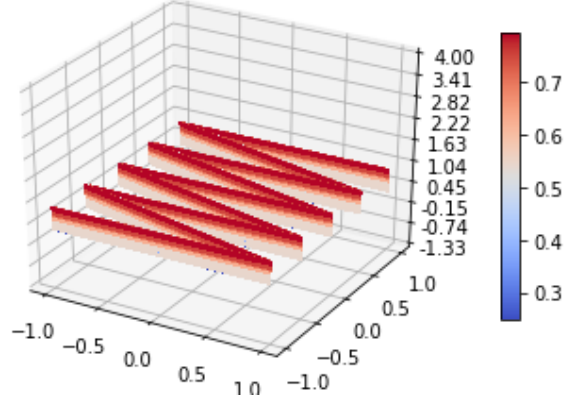
[0.84129809]
[0.74792449]
[0.50907033]
[0.26501986]
[0.23050492]
[0.85564429]
[0.6444924]
[0.42446982]
[0.28379866]
[0.28639057]
[0.80542845]
[0.59946885]
[0.43230481]
[0.32670233]
[0.34746005]
[0.62792944]
[0.55985367]
[0.46678185]
[0.40032017]
[0.38799966]
[0.58658198]
[0.54523452]
[0.47464877]
[0.41979684]
[0.40389825]]



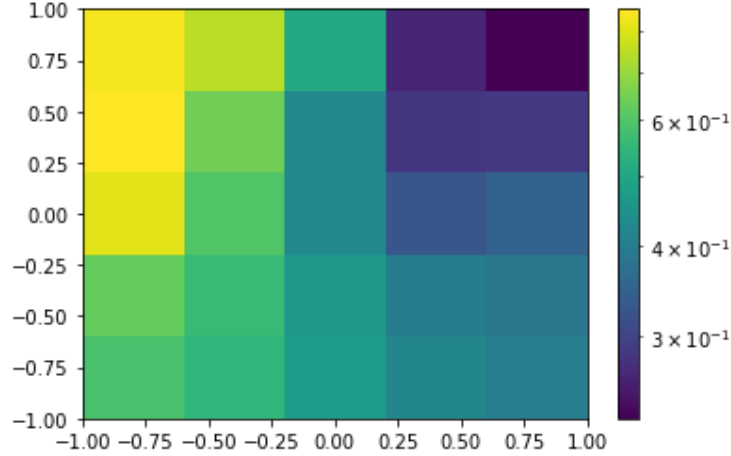
The Stiffness Matrix



The solution u



The solution u



In [2]: