

Enter the dimension of the square matrix : 3

Enter the entries of the matrix (row-wise) : [3 0 0; -4 6 2; 16 -15 -5]

Enter an initial guess (as a column vector) : [1 ; .5; .25]

Enter the tolerance : 10^{-6}

Enter the maximum number of iterations : 10

The given matrix is:

3	0	0
-4	6	2
16	-15	-5

The iterations for eigen vector are given as:

1.000000	0.413793	0.467532	0.488688	0.496172	0.498717	0.499572	0.499857	0.499952	0.499984	0.499995
0.500000	-0.068966	-0.025974	-0.009050	-0.003063	-0.001026	-0.000343	-0.000114	-0.000038	-0.000013	-0.000004
0.250000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

The iterations for eigen value are given as:

3.000000	2.655172	2.870130	2.954751	2.984686	2.994869	2.998287	2.999429	2.999809	2.999936
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An approximation of the dominant eigen value is: 3.00

An eigen vector corresponding to the dominant eigen value is:

0.5000
-0.0000
1.0000

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