

```
(base) zahid@zahid lab15 % ./main.exe
Input N: 8
```

Original Matrix:

A =

7.592e-01,	3.725e-01,	5.280e-02,	3.510e-01,	6.410e-01,	4.740e-01,	9.202e-01,	6.624e-01
3.725e-01,	2.932e-01,	9.697e-01,	7.886e-01,	6.584e-01,	6.526e-01,	4.466e-01,	2.182e-01
5.280e-02,	9.697e-01,	1.313e-01,	3.535e-01,	6.914e-01,	5.484e-01,	8.761e-01,	7.765e-01
3.510e-01,	7.886e-01,	3.535e-01,	5.524e-01,	5.390e-01,	2.605e-01,	7.929e-01,	5.620e-02
6.410e-01,	6.584e-01,	6.914e-01,	5.390e-01,	3.557e-01,	5.944e-01,	7.770e-02,	1.229e-01
4.740e-01,	6.526e-01,	5.484e-01,	2.605e-01,	5.944e-01,	1.183e-01,	1.981e-01,	6.392e-01
9.202e-01,	4.466e-01,	8.761e-01,	7.929e-01,	7.770e-02,	1.981e-01,	8.822e-01,	2.679e-01
6.624e-01,	2.182e-01,	7.765e-01,	5.620e-02,	1.229e-01,	6.392e-01,	2.679e-01,	9.639e-01

### Reduction to Tridiagonal Form:

$$T =$$

7.592000e-01,	-1.478460e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,
-1.478460e+00,	2.382254e+00,	1.891031e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,
0.000000e+00,	1.891031e+00,	3.779841e-01,	-5.527548e-01,	0.000000e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,
0.000000e+00,	0.000000e+00,	-5.527548e-01,	-3.179759e-02,	-6.977721e-01,	0.000000e+00,	0.000000e+00,	0.000000e+00,
0.000000e+00,	0.000000e+00,	0.000000e+00,	-6.977721e-01,	9.756096e-02,	-2.145521e-01,	0.000000e+00,	0.000000e+00,
0.000000e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,	-2.145521e-01,	7.383090e-01,	-5.371010e-01,	0.000000e+00,
0.000000e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,	-5.371010e-01,	2.251460e-03,	-1.708953e-01,
0.000000e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,	0.000000e+00,	-1.708953e-01,	-2.695617e-01,

Rayleigh quotient's eigenvalue:  $-0.420639$

**After QR Algorithm:**

$$T =$$
[illegible]