**Jacobi Method for Eigenvalues**

1. Generate a random NXN matrix B.



1. Generate the coefficient matrix A by: 
2. Compute the eigenvalues and eigenvectors of A by using Jacobian method.
3. Stop the iteration when .
4. Compute the condition number of A.
5. Try N=3, 5, 10, 15, 20 and 25. Record the numbers of iteration for each case. Draw a figure to show the time complexity.
6. Are the numbers of iteration equal to or less than?
7. Hand-in the results, including the eigenvalues, eigenvectors and the time complexity figure.
8. Please write down some comments about Jacobian method and the eigenvectors. Are the computed eigenvectors orthogonal? Are the eigenvalues positive?
9. Due day: two weeks later.