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Course: B.Sc(H) Physics Sem-5

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Aim:To find the smallest eigenvalue and corresponding eigenvector of a given vmatrix

Source Code:

clc

clear

A=input("Input matrix A=")

disp(A,"Matrix A")

A= inv(A)

disp(A,"Inverse of the Matrix A")

X=input("Input elements of estimation matrix=")

disp(X,"Initial Guess")

a=input("Enter the Accuracy a=")

d=1; t=0; n=0

while d>a

B=A\*X

c=max(B)

X=B/c

d=abs(c-t)

t=c

n=n+1

end

disp(n,"Number of iterations")

disp(1/c,"smallest Eigen value")

disp(X,"Corresponding Eigenvector")

Output:

Input matrix A=[0 11 -5; -2 17 -7; -4 26 -10]

Matrix A

0. 11. -5.

-2. 17. -7.

-4. 26. -10.

Inverse of the Matrix A

1.5 -2.5 1.

1. -2.5 1.25

2. -5.5 2.75

Input elements of estimation matrix=[1; 1; 0]

Initial Guess

1.

1.

0.

Enter the Accuracy a=0.0001

Number of iterations

16.

smallest Eigen value

1.000061

Corresponding Eigenvector

0.4999847

0.5

1.