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Aim

To find Eigen values and Eigen vectors of a square matrix.

Experiment - 3

APPLIED MATHEMATICS LAB

# **EXPERIMENT – 3**

## **Aim:**

To find Eigen values and Eigen vectors of a square matrix.

**Source Code:**

clc;

printf('\n\n Name - Syeda Reeha Quasar \n Enrolment No. - 14114802719 \n Group - C7 \n\n');

disp("Enter the matrix row wise");

for i = 1:2

for j = 1:2

A(i,j) = input('/');

end

end

trce = A(1, 1) + A(2, 2);

determinant = A(1, 1) \* A(2, 2) - A(1, 2) \* A(2, 1);

disp("The Characterstic Equation is: ");

disp(['e^2 + ' + string(-trce) + '\*e + ' + string(determinant) + ' = 0']);

e1 = (trce + sqrt(trce^2 - 4 \* determinant))/2;

e2 = (trce - sqrt(trce^2 - 4 \* determinant))/2;

if A(1, 2) ~= 0 then

v1 = [A(1, 2); e1 - A(1, 1)];

v2 = [A(1, 2); e2 - A(1, 1)];

elseif A(2, 1) ~= 0 then

v1 = [e1 - A(2, 2); A(2, 1)];

v2 = [e2 - A(2, 2); A(2, 1)];

else

v1 = [1; 0];

v2 = [0; 1];

end

disp("First Eigen value is: ", e1);

disp("First Eigen vector is: ", v1);

disp("Second Eigen value is: ", e2);

disp("Second Eigen vector is: ", v2);

# **Output:**



