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| **Experiment No.** | 8 | | |

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| **AIM:** | To find the eigen values and eigen vectors |
| **PROBLEM** | |
| **CODE:** | printf("\n")  A=input("Enter the matrix: ")  [x,R]=spec(A)  [x1,y1]=size(A)  b=zeros(x1,1)  printf("The eigen values are\n")  for i=1:x1  printf(" %d, ",R(i,i))  end  [m,n]=size(R)  function **x**=calAM(**R**, **x1**)  occ=zeros(**x1**,1)  for i=1:**x1**  for j=1:**x1**  if **R**(i,i) == **R**(j,j)  occ(i,1)=occ(i,1)+1  end  end  end  for i=1:**x1**  for j=1:**x1**  if occ(i,1)>occ(j,1)  **x** =occ(i,1)  end  end  end  endfunction  for i=1:m  eigenVal=R(i,i);  [X, n1] = linsolve(A - R(i,i)\*eye(m,m),b)  printf("\n\nEigen vectors for eigen value %d",eigenVal)  disp(n1)  [row, col] = size(n1)  printf("\nGeometric multiplicity is: %d\n", col)  c=calAM(R,x1)  printf("Algebraic multiplicity is: %d\n",c )  if col == c  printf("Matrix is Diagonisable")  else  printf("Matrix is Non Diagonisable")  end  end |
| **OUTPUT TABLE:** |  |
| **RESULT:** Learnt about eigen values and eigen vectors, also learnt how to find the values using the spec function. Learnt how to find the eigen vectors using the linsolve functions and also found out the algebraic and geometric multiplicity of the eigen values. | |