```
%{
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Subject: Assignment2 Q2
 %}

clear all % Clear stored variables
clc % Clear the screen
close all % Close all previously created plots

% The given matrix
A = [3 2 2 1; 2 3 1 2; -1 1 2 0; 2 4 3 5]

%Part 1
% Function eig gives matrix D of eigenvalues and matrix V as columns
 are
% corresponding right eigenvectors
[V,D] = eig(A);

% Gives the dimensions of matrix A
[m,n] = size(A);

% Saving each norm in variable n
for i = 1:m
    n(i,1) = norm(V(:,i));
end

% Prints the norm of each eigen value after normalizing
'Norm of each eigenvalue is'
n

% Part 2
% Matrix A as symbolic variable
' Matrix A using symbolic function sym'
S = sym(A)

'Exact Solution for the eigenspace using fumction sym'
[v,d] = eig(A)


A =

     3     2     2     1
     2     3     1     2
    -1     1     2     0
     2     4     3     5


ans =

Norm of each eigenvalue is
```

```
n =

    1.0000
    1.0000
    1.0000
    1.0000


ans =

 Matrix A using symbolic function sym


S =

[  3, 2, 2, 1]
[  2, 3, 1, 2]
[ -1, 1, 2, 0]
[  2, 4, 3, 5]


ans =

Exact Solution for the eigenspace using fumction sym


v =

   0.3446 + 0.0000i  -0.1195 - 0.3317i  -0.1195 + 0.3317i  -0.5000 +
 0.0000i
   0.4569 + 0.0000i  -0.5295 + 0.2518i  -0.5295 - 0.2518i  -0.5000 +
 0.0000i
   0.0183 + 0.0000i   0.7213 + 0.0000i   0.7213 + 0.0000i   0.5000 +
 0.0000i
   0.8198 + 0.0000i   0.0723 - 0.0799i   0.0723 + 0.0799i   0.5000 +
 0.0000i


d =

   8.1370 + 0.0000i   0.0000 + 0.0000i   0.0000 + 0.0000i   0.0000 +
 0.0000i
   0.0000 + 0.0000i   1.4315 + 0.8090i   0.0000 + 0.0000i   0.0000 +
 0.0000i
   0.0000 + 0.0000i   0.0000 + 0.0000i   1.4315 - 0.8090i   0.0000 +
 0.0000i
   0.0000 + 0.0000i   0.0000 + 0.0000i   0.0000 + 0.0000i   2.0000 +
 0.0000i
```

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