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EIGENVALUES-AND-EIGENVECTORS

Aim:

To write a python program to find the Eigenvalues and Eigen Vectors

Equipment's required:

1. Hardware – PCs
2. Anaconda – Python 3.7 Installation / Moodle-Code Runner

Algorithm:

Step1 : Import numpy module to use the built-in-functions for calculation.

Step 2: Prepare the lists from each linear equations and assign in np.array.

Step 3: Using the `np.linalg.eig()`, we get two results (first is eigenvalue and second is eigenvector) of the given matrix.

Step 4: End the program.

Program:

```
#Program to find the eigen values and eigen vectors. #Developed by: Thanushree.M  
#RegisterNumber:24900590
```

```
import numpy as np matrix=np.array([[2,2,-3],[2,1,-6],[-1,-2,0]]) e_values,e_vectors=np.linalg.eig(matrix)  
print("Eigen values are {} and Eigen Vectors are {}".format(e_values,e_vectors))
```

Output:

Question 1

Correct

Mark 100.00 out of 100.00

Flag question

Write a program to find the eigenvalues and associated eigenvectors for the matrix

`[-2,2,-3],[2,1,-6],[-1,-2,0]`

For example:

Result

Eigen values are `[-3. 5. -3.]` and Eigen Vectors are `[[-0.95257934 0.40824829 -0.02296692]`
`[0.27216553 0.81649658 0.83534731]`
`[-0.13608276 -0.40824829 0.54924256]]`

Answer: (penalty regime: 0 %)

Reset answer

```
1 #Program to find the eigen values and eigen vectors.  
2 #Developed by: Thanushree.M  
3 #RegisterNumber:24900590  
4 import numpy as np  
5 matrix=np.array([[2,2,-3],[2,1,-6],[-1,-2,0]])  
6 e_values,e_vectors=np.linalg.eig(matrix)  
7 print("Eigen values are {} and Eigen Vectors are {}".format(e_values,e_vectors))
```

	Expected	Got
✓	Eigen values are <code>[-3. 5. -3.]</code> and Eigen Vectors are <code>[[-0.95257934 0.40824829 -0.02296692]</code> <code>[0.27216553 0.81649658 0.83534731]</code> <code>[-0.13608276 -0.40824829 0.54924256]]</code>	Eigen values are <code>[-3. 5. -3.]</code> and Eigen Vectors are <code>[[-0.</code> <code>[0.27216553 0.81649658 0.83534731]</code> <code>[-0.13608276 -0.40824829 0.54924256]]</code>

Passed all tests! ✓

Show/hide question author's solution (Python3)

Correct

Marks for this submission: 100.00/100.00.

Result:

Thus the Eigenvalue and Eigenvector is successfully solved using python program

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