Eigenvalues&Eigenvectors

- Introduction
- Description
- Steps for coding
- Result

C: > Users > dell > OneDrive > Desktop > Math-Project > EigenValues&Vectors Code.py > a

```python
a=int(input('plz entr n1 :'))
b=int(input('plz entr n2 :'))
c=int(input('plz entr n3 :'))
d=int(input('plz entr n4 :'))
e=int(input('plz entr n5 :'))
f=int(input('plz entr n6 :'))
g=int(input('plz entr n7 :'))
h=int(input('plz entr n8 :'))
i=int(input('plz entr n9 :'))
j=int(input('plz entr n10 :'))
k=int(input('plz entr n11 :'))
l=int(input('plz entr n12:'))
m=int(input('plz entr n13:'))
n=int(input('plz entr n14:'))
o=int(input('plz entr n15:'))
p=int(input('plz entr n16 :'))
q=int(input('plz entr n17 :'))
r=int(input('plz entr n18 :'))
s=int(input('plz entr n19 :'))
t=int(input('plz entr n20 :'))
u=int(input('plz entr n21 :'))
v=int(input('plz entr n22 :'))
w=int(input('plz entr n23 :'))
x=int(input('plz entr n24 :'))
y=int(input('plz entr n25 :'))

import numpy as np
A=np.mat([[a,b,c,d,e],[f,g,h,i,j],[k,l,m,n,o],[p,q,r,s,t],[u,v,w,x,y]])
print('\n',A)
val,vec=np.linalg.eig(A)
print('\nur eigen values is : ',val)
print('\nur eigen vactors is : ',vec,'\n\n\n\n')
```

Description

Steps for coding

Take all elements of matrix from user inputs

Import numpy library and make apprevation as np

Recall a mat function to make a matrix and print it

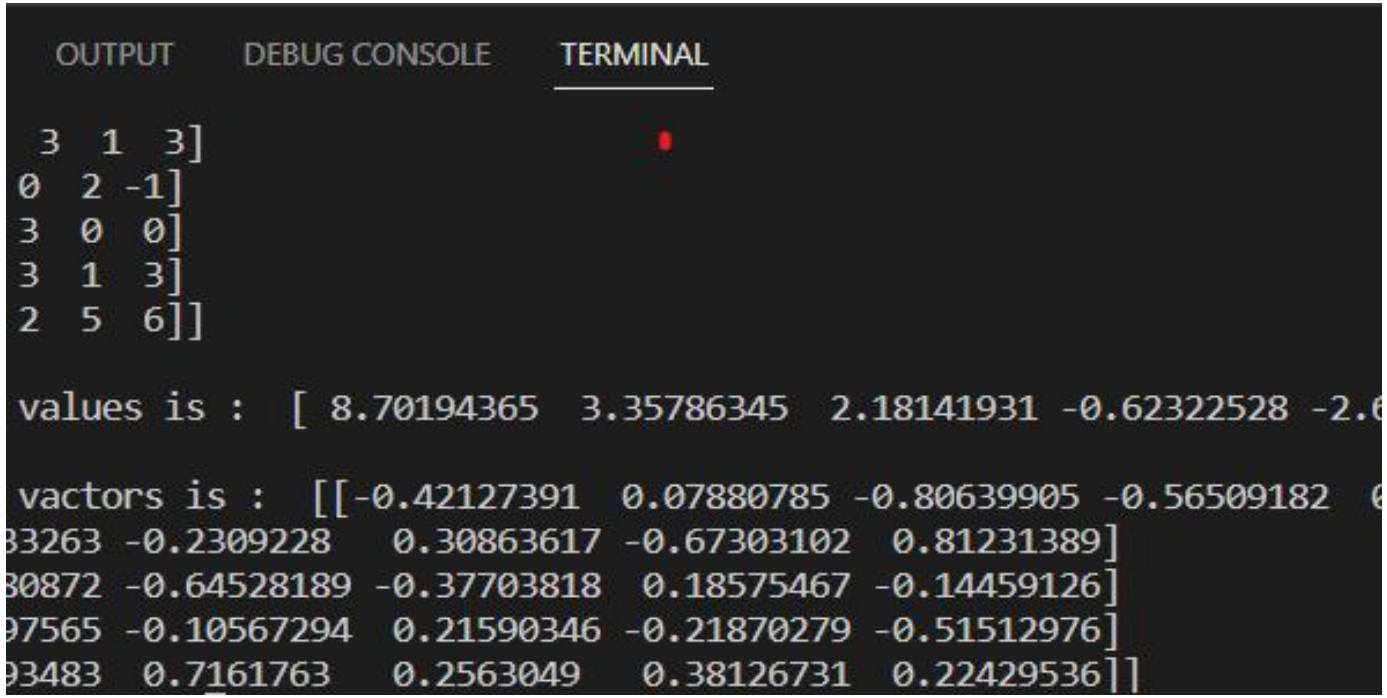
Make 2 variables called val and vector then recall a function called linalg.eig to calculate eigenvalue &eigen vector

C: > Users > dell > OneDrive > Desktop > Math-Project > EigenValues&Vectors Code.py > a

```
a=int(input('plz entr n1 :'))
b=int(input('plz entr n2 :'))
c=int(input('plz entr n3 :'))
d=int(input('plz entr n4 :'))
e=int(input('plz entr n5 :'))
f=int(input('plz entr n6 :'))
g=int(input('plz entr n7 :'))
h=int(input('plz entr n8 :'))
i=int(input('plz entr n9 :'))
j=int(input('plz entr n10 :'))
k=int(input('plz entr n11 :'))
l=int(input('plz entr n12:'))
m=int(input('plz entr n13:'))
n=int(input('plz entr n14:'))
o=int(input('plz entr n15:'))
p=int(input('plz entr n16 :'))
q=int(input('plz entr n17 :'))
r=int(input('plz entr n18 :'))
s=int(input('plz entr n19 :'))
t=int(input('plz entr n20 :'))
u=int(input('plz entr n21 :'))
v=int(input('plz entr n22 :'))
w=int(input('plz entr n23 :'))
x=int(input('plz entr n24 :'))
y=int(input('plz entr n25 :'))

import numpy as np
A=np.mat([[a,b,c,d,e],[f,g,h,i,j],[k,l,m,n,o],[p,q,r,s,t],[u,v,w,x,y]])
print('\n',A)
val,vec=np.linalg.eig(A)
print('\nur eigen values is : ',val)
print('\nur eigen vactors is : ',vec,'\n\n\n\n')
```

Result


OUTPUT
DEBUG CONSOLE
TERMINAL
3 1 3]
0 2 -1]
3 0 0]
3 1 3]
2 5 6]]
values is : [8.70194365 3.35786345 2.18141931 -0.62322528 -2.6
vactors is : [[-0.42127391 0.07880785 -0.80639905 -0.56509182 0
33263 -0.2309228 0.30863617 -0.67303102 0.81231389]
30872 -0.64528189 -0.37703818 0.18575467 -0.14459126]
97565 -0.10567294 0.21590346 -0.21870279 -0.51512976]
93483 0.7161763 0.2563049 0.38126731 0.22429536]]

Thank you

- **Moahamed Mahmoud Farg** 622910
- **Karim Mohamed Al-Najjar** 622913
- **Yassin Barakat Hasanin** 622908
- **Eslam Ahmed Hassan** 622909
- **Yousef Mohamed Zaky** 622917