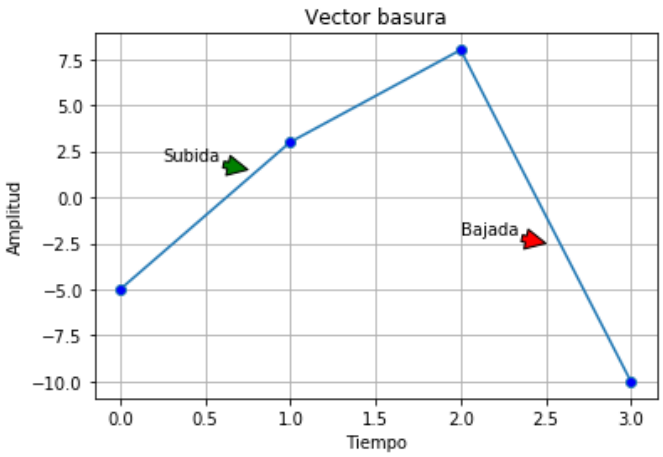
Actividad 1

```
In [5]: import numpy as np
   ...: import matplotlib.pyplot as plt

In [6]: x = np.array([-5, 3, 8, -10])

In [7]: fig = plt.figure()
   ...: ax = fig.add_subplot(1,1,1)
   ...: ax.set_title('Vector basura')
   ...: ax.set_xlabel('Tiempo')
   ...: ax.set_ylabel('Amplitud')
   ...: ax.annotate('Subida', xy=(0.75, 1.5),
   ...:                       xytext=(0.25, 2),
   ...:                       arrowprops={'facecolor' : 'green'})
   ...: ax.annotate('Bajada', xy=(2.5, -2.5),
   ...:                       xytext=(2, -2),
   ...:                       arrowprops={'facecolor' : 'red'})
   ...: plt.plot(x, markerfacecolor='blue', marker='o')
   ...: plt.grid(axis='both')
   ...: plt.show()
```



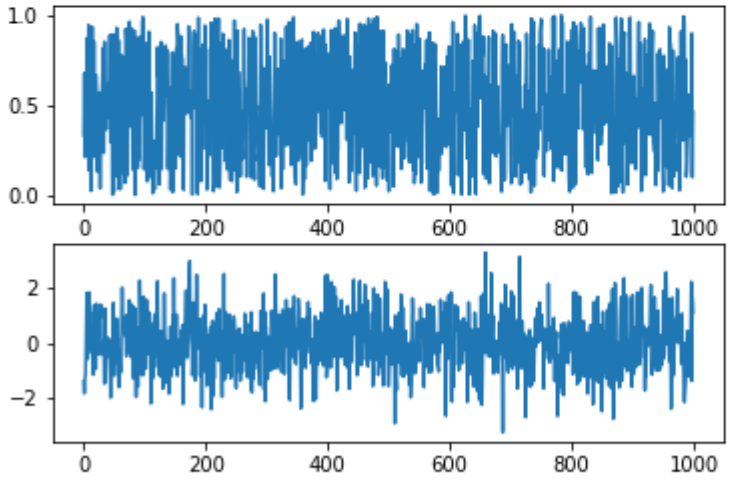
Actividad 2

```
In [2]: import numpy as np

In [3]: A=np.array([[1,3,-2],
   ...:             [4,5,0],
   ...:             [-1,2,4]])

In [4]: print('Transpuesta de A')
   ...: np.transpose(A)
Transpuesta de A
Out[4]:
array([[ 1,  4, -1],
       [ 3,  5,  2],
       [-2,  0,  4]])

In [5]: print('Inversa de A')
   ...: np.invert(A)
Inversa de A
Out[5]:
array([[-2, -4,  1],
       [-5, -6, -1],
       [ 0, -3, -5]], dtype=int32)

In [6]: print('Determinante de A')
   ...: np.linalg.det(A)
Determinante de A
Out[6]: -54.00000000000001

In [7]: print('Traza de A')
   ...: np.trace(A)
Traza de A
Out[7]: 10
```

```
In [8]: print('Valores propios de A')
   ...: np.linalg.eigvals(A)
Valores propios de A
Out[8]: array([-1.60555128,  6.        ,  5.60555128])

In [9]: print('Vecotres propios de A')
   ...: np.linalg.eig(A)
Vecotres propios de A
Out[9]:
(array([-1.60555128,  6.        ,  5.60555128]),
 array([[ 0.81049889, -0.18490007,  0.0987837 ],
        [-0.49079864, -0.73960026,  0.65252078],
        [ 0.31970025, -0.64715023,  0.75130448]]))

In [10]: print('Resolver sistema de ecuaciones de forma Ax=b')
    ...: b=np.array([[1],
    ...:             [3],
    ...:             [0]])
    ...: np.linalg.solve(A, b)
Resolver sistema de ecuaciones de forma Ax=b
Out[10]:
array([[0.51851852],
       [0.18518519],
       [0.03703704]])

In [11]: print('Resolver sistema de ecuaciones de forma Ax=b')
    ...: b=np.array([[1],
    ...:             [3],
    ...:             [0]])
    ...: np.linalg.solve(A, b)
Resolver sistema de ecuaciones de forma Ax=b
Out[11]:
array([[0.51851852],
       [0.18518519],
       [0.03703704]])
```

Actividad 3

```
In [1]: import numpy as np
   ...: import matplotlib.pyplot as plt

In [2]: x = np.random.rand(1000)
   ...: y = np.random.randn(1000)

In [3]: plt.subplot(2, 1, 1)
   ...: plt.plot(x)
   ...: plt.subplot(2, 1, 2)
   ...: plt.plot(y)
   ...:
   ...: plt.show()
```




```
In [4]:
```