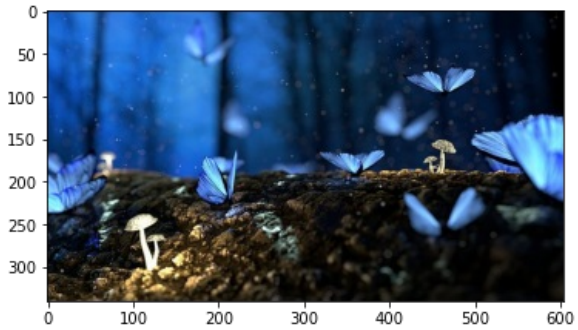
In [1]:
```
from PIL import Image
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
```

In [3]:
```
img = plt.imread("nature.jpg")
plt.imshow(img)
```

Out[3]:
```
<matplotlib.image.AxesImage at 0x26b7f45e790>
```



In [4]:
```
print(img)
```

```
[[[ 26 101 202]
  [ 26 101 202]
  [ 25 100 201]
  ...
  [  0   0   0]
  [  0   0   0]
  [  0   0   0]]

 [[ 26 101 202]
  [ 26 101 202]
  [ 25 100 201]
  ...
  [  0   0   0]
  [  0   0   0]
  [  0   0   0]]

 [[ 26 101 203]
  [ 26 101 203]
  [ 25 100 201]
  ...
  [  0   0   0]
  [  0   0   0]
  [  0   0   0]]

 ...

 [[ 78  66  52]
  [ 67  55  39]
  [ 46  34  18]
  ...
  [ 15  14  10]
  [ 15  14  10]
  [ 16  15  11]]

 [[ 61  49  35]
  [ 60  48  32]
  [ 53  41  25]
  ...
  [ 11  10   6]
  [ 11  10   6]
  [ 12  11   7]]

 [[ 42  30  16]
  [ 52  40  24]
  [ 60  48  32]
  ...
  [  8   7   3]
  [  9   8   4]
  [ 10   9   5]]]
```

In [5]:
```
img_tr = img.T
print(img_tr)
```

```
[[[ 26  26  26 ...  78  61  42]
  [ 26  26  26 ...  67  60  52]
  [ 25  25  25 ...  46  53  60]
  ...
  [  0   0   0 ...  15  11   8]
  [  0   0   0 ...  15  11   9]
  [  0   0   0 ...  16  12  10]]

 [[101 101 101 ...  66  49  30]
  [101 101 101 ...  55  48  40]
  [100 100 100 ...  34  41  48]
  ...
  [  0   0   0 ...  14  10   7]
  [  0   0   0 ...  14  10   8]
  [  0   0   0 ...  15  11   9]]

 [[202 202 203 ...  52  35  16]
  [202 202 203 ...  39  32  24]
  [201 201 201 ...  18  25  32]
  ...
  [  0   0   0 ...  10   6   3]
  [  0   0   0 ...  10   6   4]
  [  0   0   0 ...  11   7   5]]]
```

In [14]:
```
#We have a null matrix,
c = [[0,0,0],
     [0,0,0],
     [0,0,0]]
mat_c= np.array(c)
print(mat_c)
```

```
[[0 0 0]
 [0 0 0]
 [0 0 0]]
```

In [16]:
```
from numpy.linalg import norm
col=np.array([26,26,25])
#norm1
l1=norm(col,1)
print(l1)
```

```
77.0
```

In [17]:
```
#norm2
l2=norm(col)
print(l2)
```

```
44.46346815083142
```

In [ ]:
```

```