Digital Image Processing Lab 1

This is the first activity of the DIP lab. The aim is to read an image (Using Matplotlib, OpenCV or PIL), perform basic operations like RGB to Grayscale, Rotation etc. And then write this image back into the disc

In [19]:

```
import matplotlib.image as mpimg
import matplotlib.pyplot as plt
```

In [4]:

```
bird = mpimg.imread("bird.jpeg")
```

In [10]:

```
bird
```

Out[10]:

```
array([[[121, 137,  64],
        [119, 135,  62],
        [118, 134,  61],
        ...,
        [113, 142,  50],
        [112, 141,  49],
        [112, 141,  49]],

       [[126, 142,  69],
        [124, 140,  67],
        [122, 138,  65],
        ...,
        [115, 144,  52],
        [114, 143,  51],
        [112, 141,  49]],

       [[123, 139,  66],
        [121, 137,  64],
        [118, 134,  61],
        ...,
        [116, 145,  53],
        [114, 143,  51],
        [111, 140,  48]],

       ...,

       [[111, 126,  45],
        [112, 127,  46],
        [112, 127,  46],
        ...,
        [ 84,  95,  35],
        [ 83,  94,  34],
        [ 82,  94,  32]],

       [[110, 125,  44],
        [113, 128,  47],
        [111, 126,  45],
        ...,
        [ 83,  94,  34],
        [ 82,  93,  33],
        [ 81,  93,  31]],

       [[108, 123,  42],
        [113, 128,  47],
        [109, 124,  43],
        ...,
        [ 82,  93,  33],
        [ 81,  92,  32],
        [ 80,  92,  30]]], dtype=uint8)
```

In [11]:

```
bird[0]
```

Out[11]:

```
array([[121, 137,  64],
       [119, 135,  62],
       [118, 134,  61],
       ...,
       [113, 142,  50],
       [112, 141,  49],
       [112, 141,  49]], dtype=uint8)
```

In [13]:

```
type(bird[0])
```

Out[13]:

```
numpy.ndarray
```

In [14]:

```
len(bird[0])
```

Out[14]:

```
4000
```

In [15]:

```
len(bird)
```

Out[15]:

```
2662
```

In [16]:

```
2662*4000*3
```

Out[16]:

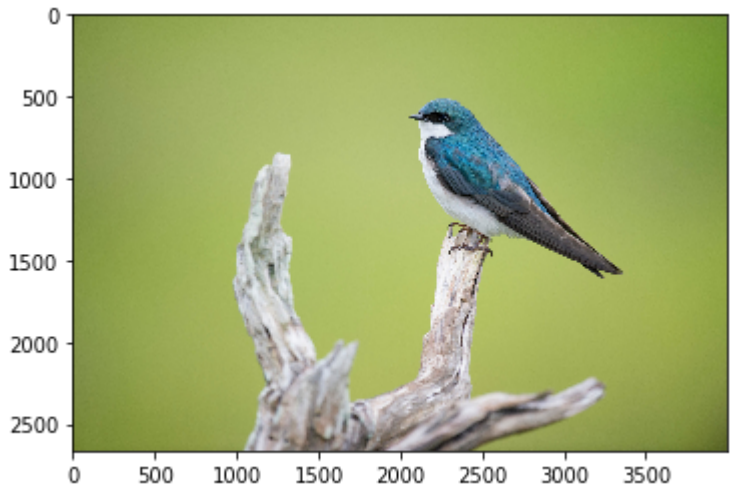
```
31944000
```

In [40]:

```
plt.imshow(bird)
```

Out[40]:

```
<matplotlib.image.AxesImage at 0x11fb16850>
```



In [60]:

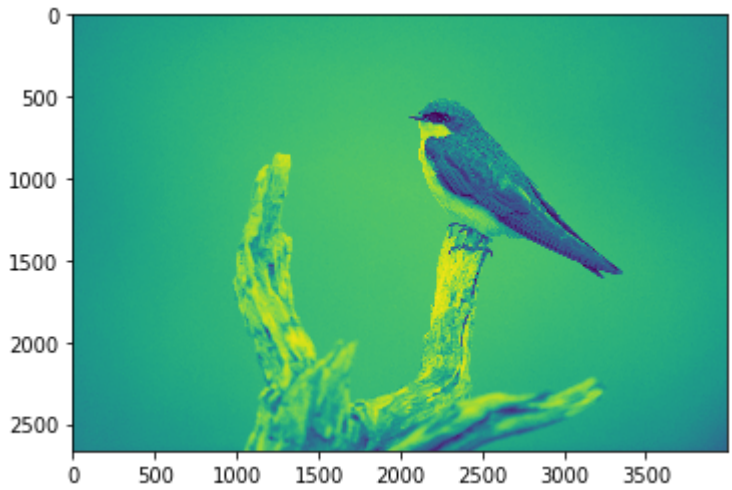
```
img = []
y = 0
for i in bird:
    temp = []
    for j in i:
        #print(j)
        m = j[0]
        n = j[1]
        o = j[2]
        y = 0.2989 * m + 0.5870*n + 0.1140*o
        y=y/181.018
        temp.append(y)
        #print(y)
    img.append(temp)
```

In [61]:

```
plt.imshow(img)
```

Out[61]:

```
<matplotlib.image.AxesImage at 0x17e111d90>
```



In [56]:

```
max(max(img))
```

Out[56]:

```
181.018
```

In [59]:

```

```

```
---------------------------------------------------------------------
-------
TypeError                                 Traceback (most recent cal
l last)
<ipython-input-59-d8eda6b6b520> in <module>
----> 1 img_grey[:] = [x/181.018 for x in img]

<ipython-input-59-d8eda6b6b520> in <listcomp>(.0)
----> 1 img_grey[:] = [x/181.018 for x in img]

TypeError: unsupported operand type(s) for /: 'list' and 'float'
```

In [ ]:

```

```