

```
In [1]: import numpy as np
```

```
In [3]: ones_arr=np.ones((5,5))
```

```
In [5]: ones_arr
```

```
Out[5]: array([[1., 1., 1., 1., 1.],
               [1., 1., 1., 1., 1.],
               [1., 1., 1., 1., 1.],
               [1., 1., 1., 1., 1.],
               [1., 1., 1., 1., 1.]])
```

```
In [7]: ones_arr=np.ones((5,5),dtype=int)
```

```
In [9]: ones_arr
```

```
Out[9]: array([[1, 1, 1, 1, 1],
               [1, 1, 1, 1, 1],
               [1, 1, 1, 1, 1],
               [1, 1, 1, 1, 1],
               [1, 1, 1, 1, 1]])
```

```
In [11]: zero_arr=np.zeros((3,3),dtype=int)
zero_arr
```

```
Out[11]: array([[0, 0, 0],
                [0, 0, 0],
                [0, 0, 0]])
```

```
In [13]: ones_arr
```

```
Out[13]: array([[1, 1, 1, 1, 1],
               [1, 1, 1, 1, 1],
               [1, 1, 1, 1, 1],
               [1, 1, 1, 1, 1],
               [1, 1, 1, 1, 1]])
```

```
In [15]: ones_arr*255
```

```
Out[15]: array([[255, 255, 255, 255, 255],
               [255, 255, 255, 255, 255],
               [255, 255, 255, 255, 255],
               [255, 255, 255, 255, 255],
               [255, 255, 255, 255, 255]])
```

```
In [17]: import matplotlib.pyplot as plt
```

```
In [19]: %matplotlib inline
```

```
In [21]: from PIL import Image #python Imaging Library
```

```
In [31]: pht_img=Image.open(r"C:\Users\rahee\Downloads\img.jpg")
pht_img
```

Out[31]:



```
In [33]: type(pht_img)
```

Out[33]: PIL.JpegImagePlugin.JpegImageFile

```
In [35]: pht_arr=np.asarray(pht_img)
pht_arr
```

```

Out[35]: array([[ 0, 35, 43],
               [ 2, 39, 47],
               [ 4, 41, 49],
               ...,
               [ 83, 63, 52],
               [108, 80, 69],
               [121, 89, 78]],

              [[ 5, 39, 48],
               [ 6, 40, 49],
               [ 5, 39, 48],
               ...,
               [ 98, 76, 62],
               [110, 84, 69],
               [110, 81, 67]],

              [[ 6, 40, 49],
               [ 6, 40, 49],
               [ 7, 41, 50],
               ...,
               [101, 72, 56],
               [ 98, 65, 48],
               [112, 77, 58]],

              ...,

              [[ 18, 61, 70],
               [ 16, 59, 68],
               [ 14, 57, 66],
               ...,
               [ 3, 7, 19],
               [ 2, 6, 17],
               [ 2, 6, 17]],

              [[ 26, 69, 78],
               [ 26, 69, 78],
               [ 28, 71, 80],
               ...,
               [ 2, 6, 18],
               [ 3, 7, 18],
               [ 3, 7, 18]],

              [[ 20, 63, 70],
               [ 22, 65, 72],
               [ 27, 70, 77],
               ...,
               [ 2, 6, 18],
               [ 3, 7, 18],
               [ 3, 7, 18]]], dtype=uint8)

```

```
In [39]: type(pht_arr)
```

```
Out[39]: numpy.ndarray
```

```
In [41]: pht_arr.shape
```

```
Out[41]: (260, 390, 3)
```

```
In [43]: plt.imshow(pht_arr)
```

Out[43]: <matplotlib.image.AxesImage at 0x19237aa67e0>



In [45]: `pht_red=pht_arr.copy()`

In [47]: `pht_red`

```

Out[47]: array([[ 0, 35, 43],
               [ 2, 39, 47],
               [ 4, 41, 49],
               ...,
               [ 83, 63, 52],
               [108, 80, 69],
               [121, 89, 78]],

               [[ 5, 39, 48],
               [ 6, 40, 49],
               [ 5, 39, 48],
               ...,
               [ 98, 76, 62],
               [110, 84, 69],
               [110, 81, 67]],

               [[ 6, 40, 49],
               [ 6, 40, 49],
               [ 7, 41, 50],
               ...,
               [101, 72, 56],
               [ 98, 65, 48],
               [112, 77, 58]],

               ...,

               [[ 18, 61, 70],
               [ 16, 59, 68],
               [ 14, 57, 66],
               ...,
               [ 3, 7, 19],
               [ 2, 6, 17],
               [ 2, 6, 17]],

               [[ 26, 69, 78],
               [ 26, 69, 78],
               [ 28, 71, 80],
               ...,
               [ 2, 6, 18],
               [ 3, 7, 18],
               [ 3, 7, 18]],

               [[ 20, 63, 70],
               [ 22, 65, 72],
               [ 27, 70, 77],
               ...,
               [ 2, 6, 18],
               [ 3, 7, 18],
               [ 3, 7, 18]]], dtype=uint8)

```

```
In [49]: pht_arr==pht_red
```

```

Out[49]: array([[ [ True,  True,  True],
                  [ True,  True,  True],
                  [ True,  True,  True],
                  ...,
                  [ True,  True,  True],
                  [ True,  True,  True],
                  [ True,  True,  True]],

                [[ [ True,  True,  True],
                  [ True,  True,  True],
                  [ True,  True,  True],
                  ...,
                  [ True,  True,  True],
                  [ True,  True,  True],
                  [ True,  True,  True]],

                [[ [ True,  True,  True],
                  [ True,  True,  True],
                  [ True,  True,  True],
                  ...,
                  [ True,  True,  True],
                  [ True,  True,  True],
                  [ True,  True,  True]],

                ...,

                [[ [ True,  True,  True],
                  [ True,  True,  True],
                  [ True,  True,  True],
                  ...,
                  [ True,  True,  True],
                  [ True,  True,  True],
                  [ True,  True,  True]],

                [[ [ True,  True,  True],
                  [ True,  True,  True],
                  [ True,  True,  True],
                  ...,
                  [ True,  True,  True],
                  [ True,  True,  True],
                  [ True,  True,  True]],

                [[ [ True,  True,  True],
                  [ True,  True,  True],
                  [ True,  True,  True],
                  ...,
                  [ True,  True,  True],
                  [ True,  True,  True],
                  [ True,  True,  True]]])

```

```

In [51]: plt.imshow(pht_red)

```

```

Out[51]: <matplotlib.image.AxesImage at 0x192376a19a0>

```

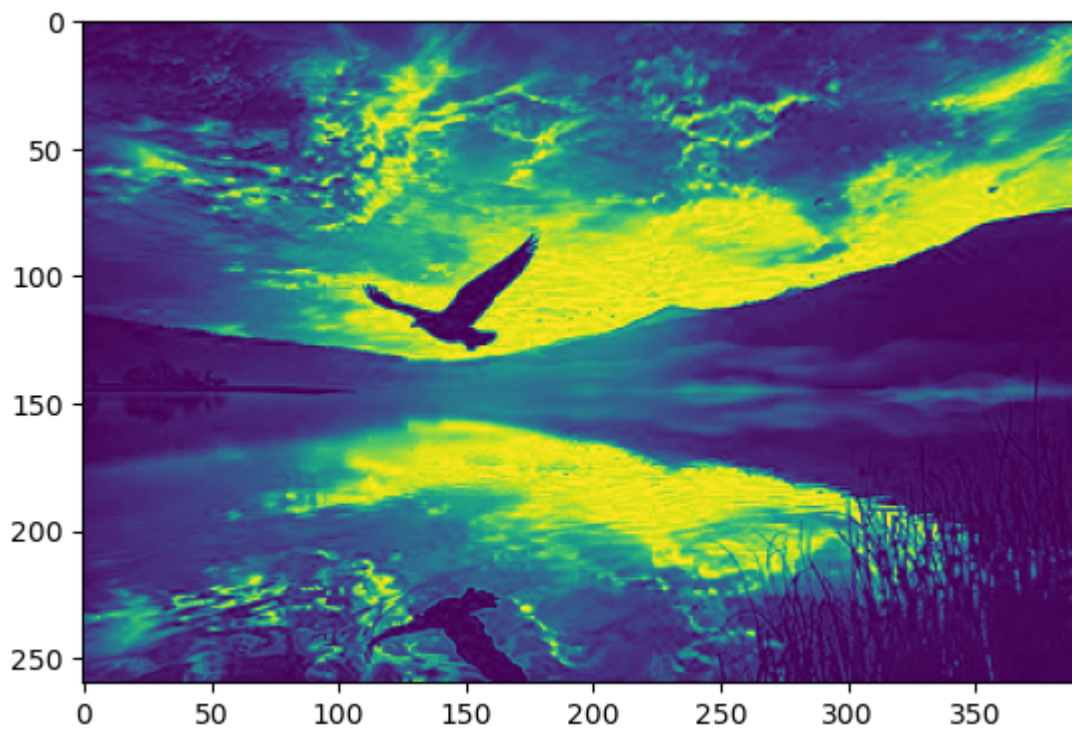


```
In [53]: pht_red.shape
```

```
Out[53]: (260, 390, 3)
```

```
In [55]: plt.imshow(pht_arr[:, :, 0])
```

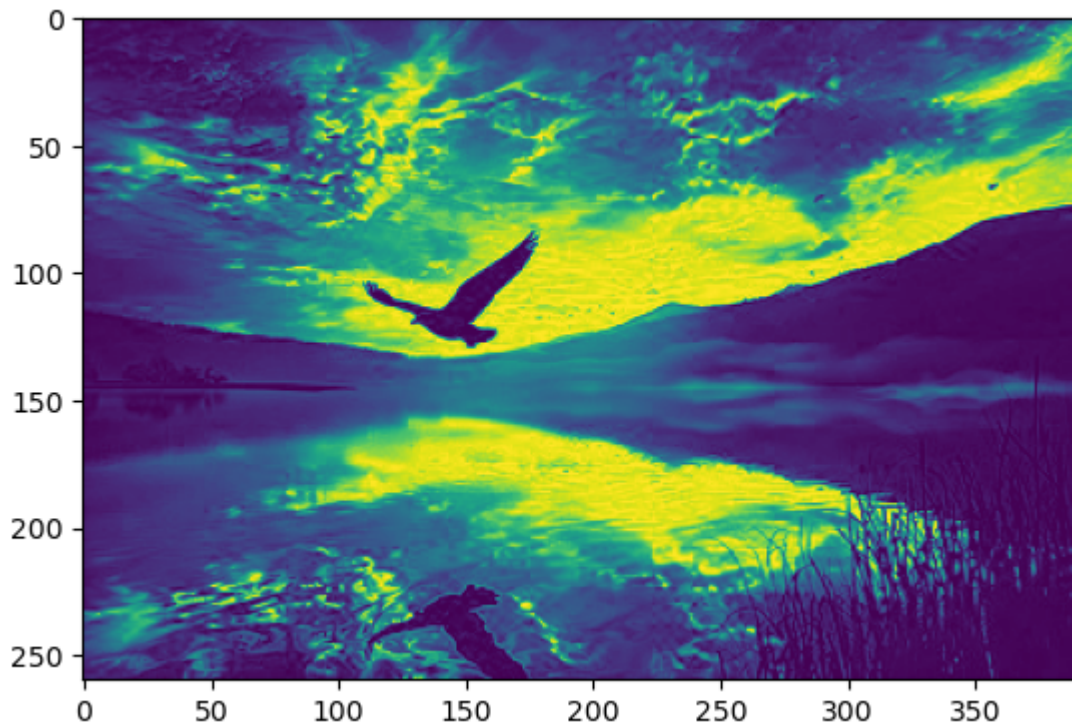
```
Out[55]: <matplotlib.image.AxesImage at 0x192377199a0>
```



```
In [57]: plt.imshow(pht_arr[:, :, 0])
pht_arr[:, :, 0]
```



```
Out[57]: array([[ 0,  2,  4, ..., 83, 108, 121],
 [ 5,  6,  5, ..., 98, 110, 110],
 [ 6,  6,  7, ..., 101, 98, 112],
 ...,
 [18, 16, 14, ...,  3,  2,  2],
 [26, 26, 28, ...,  2,  3,  3],
 [20, 22, 27, ...,  2,  3,  3]], dtype=uint8)
```



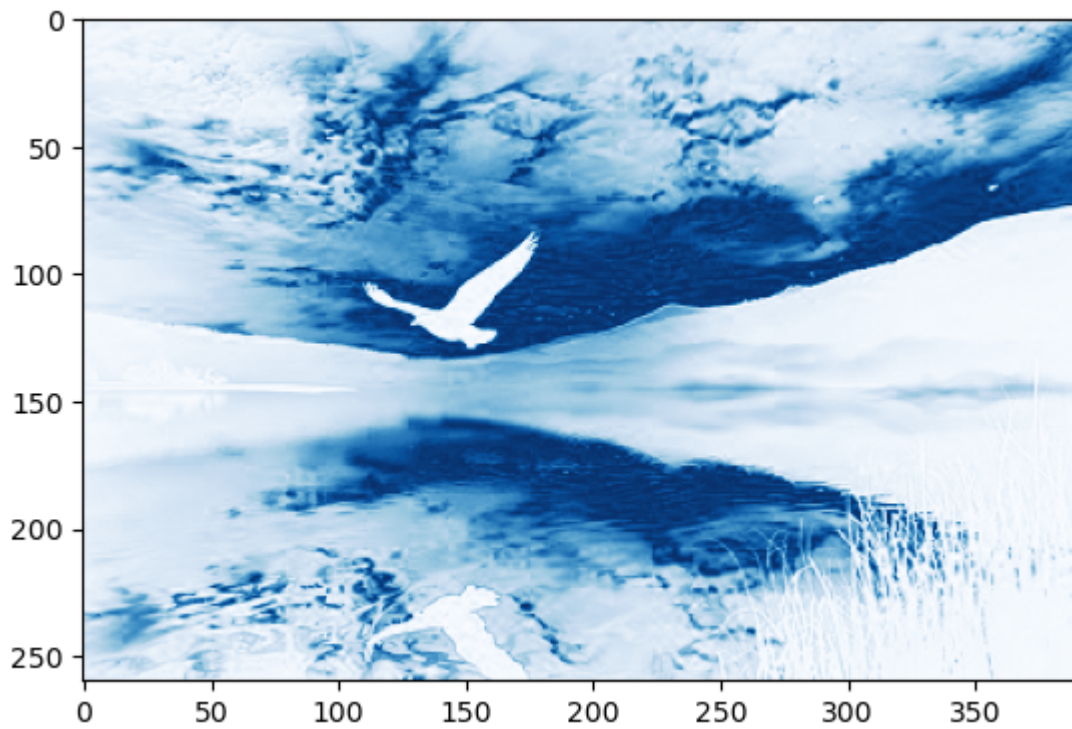
```
In [61]: plt.imshow(pht_arr[:, :, 0], cmap='gray')
```

```
Out[61]: <matplotlib.image.AxesImage at 0x1923d5604a0>
```



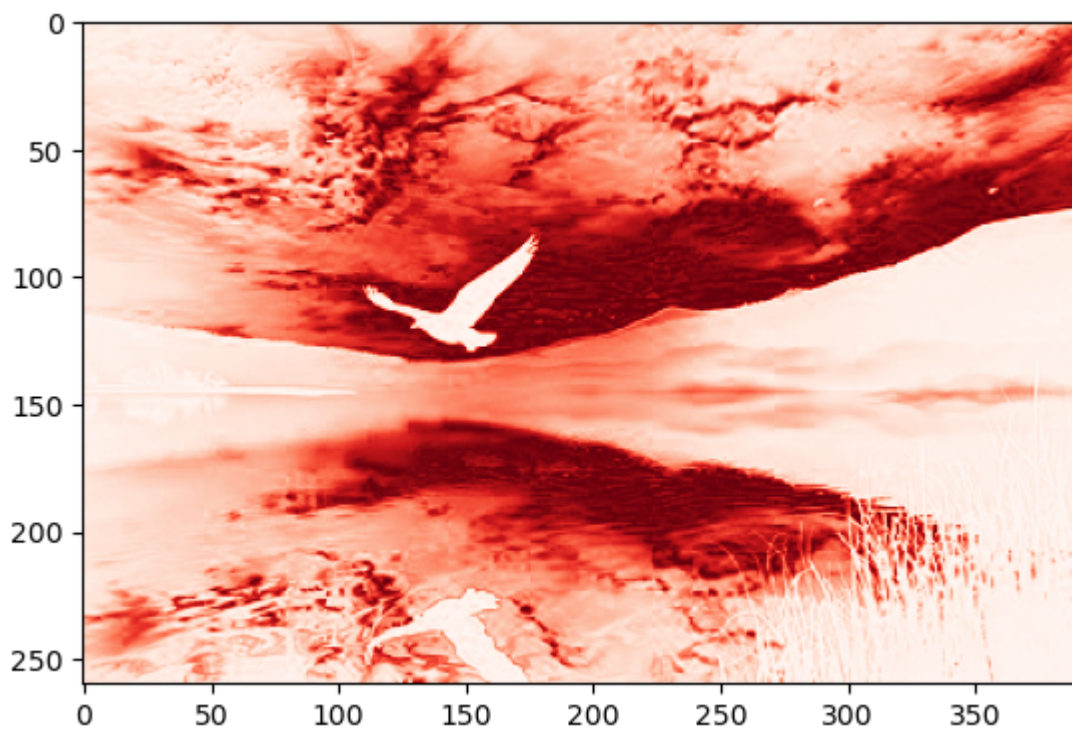
```
In [63]: plt.imshow(pht_arr[:, :, 0], cmap='Blues')
```


Out[63]: <matplotlib.image.AxesImage at 0x1923d723590>



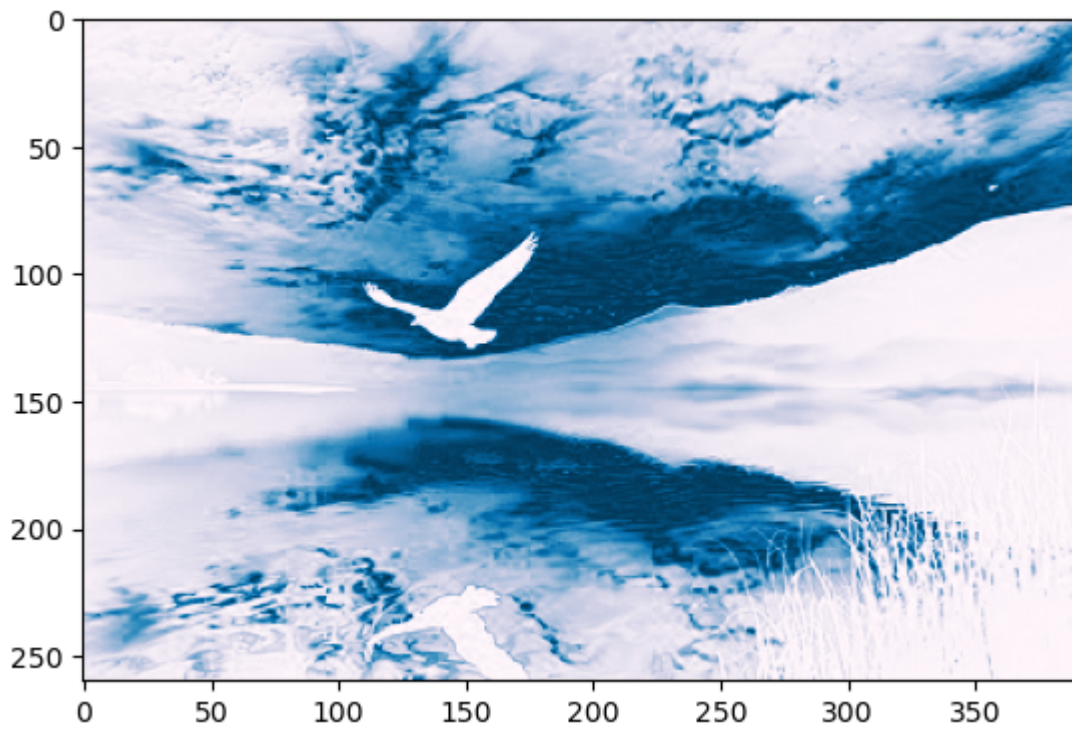
```
In [65]: plt.imshow(pht_arr[:, :, 0], cmap='Reds')
```

Out[65]: <matplotlib.image.AxesImage at 0x1923d78ae70>



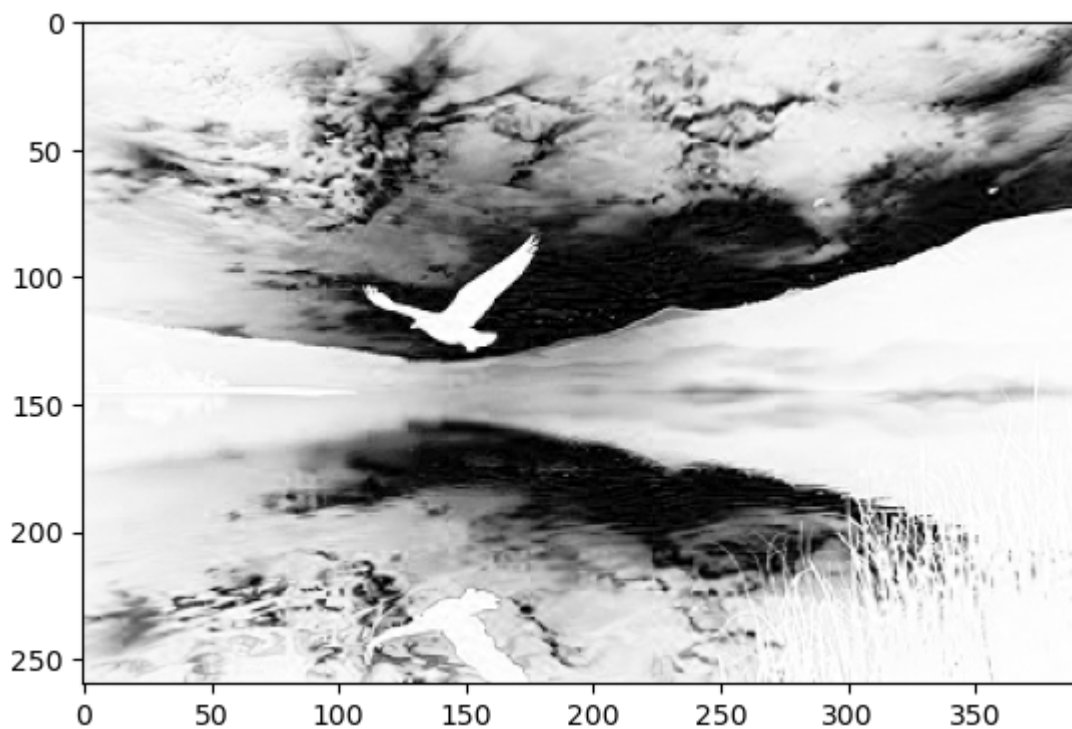
```
In [67]: plt.imshow(pht_arr[:, :, 0], cmap='PuBu')
```

Out[67]: <matplotlib.image.AxesImage at 0x1923d78a720>



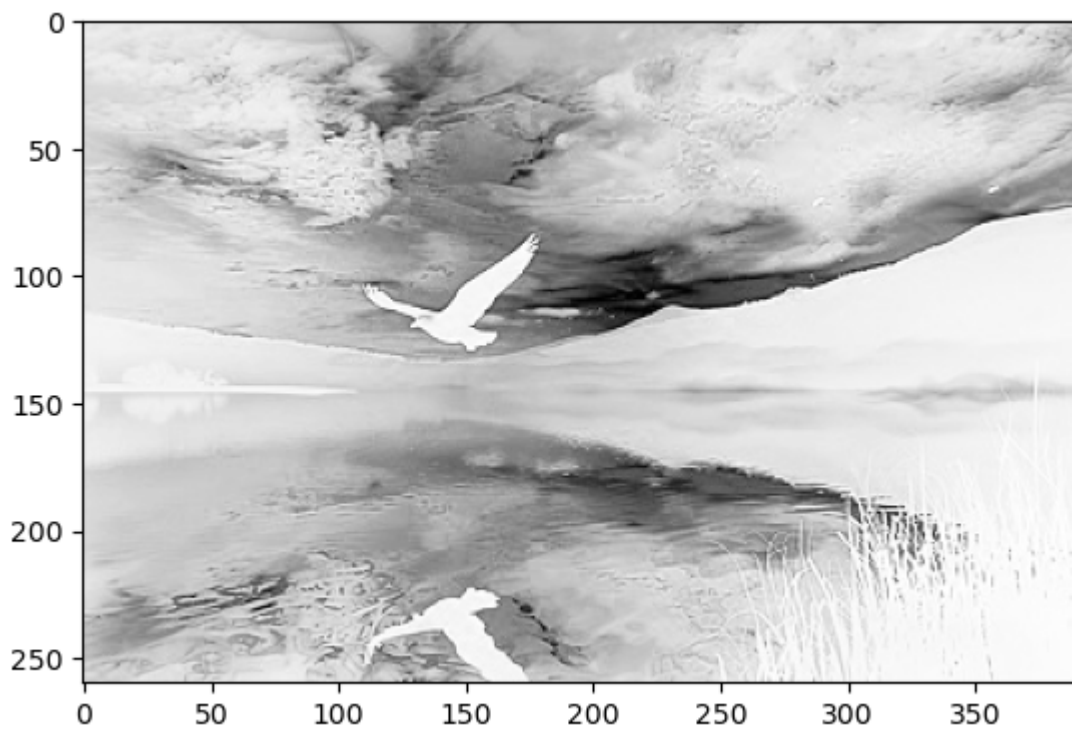
```
In [69]: plt.imshow(pht_arr[:, :, 0], cmap='Greys')
```

```
Out[69]: <matplotlib.image.AxesImage at 0x1923d888110>
```



```
In [71]: plt.imshow(pht_arr[:, :, 1], cmap='Greys')
```

```
Out[71]: <matplotlib.image.AxesImage at 0x1923e8b8950>
```



```
In [73]: plt.imshow(pht_arr[:, :, 2], cmap='Greys')
```

```
Out[73]: <matplotlib.image.AxesImage at 0x1923e90b6b0>
```



```
In [75]: plt.imshow(pht_arr[:, :, 2], cmap='gray')
```

```
Out[75]: <matplotlib.image.AxesImage at 0x1923d5ae5d0>
```




```
In [77]: plt.imshow(pht_arr[:, :, 1], cmap='gray')
```

```
Out[77]: <matplotlib.image.AxesImage at 0x1923d5ce870>
```



```
In [79]: pht_arr[:, :, 0]
```

```
Out[79]: array([[ 0,  2,  4, ..., 83, 108, 121],
                [ 5,  6,  5, ..., 98, 110, 110],
                [ 6,  6,  7, ..., 101, 98, 112],
                ...,
                [18, 16, 14, ...,  3,  2,  2],
                [26, 26, 28, ...,  2,  3,  3],
                [20, 22, 27, ...,  2,  3,  3]], dtype=uint8)
```

```
In [81]: pht_arr[:, :, 1]
```

```
Out[81]: array([[35, 39, 41, ..., 63, 80, 89],
               [39, 40, 39, ..., 76, 84, 81],
               [40, 40, 41, ..., 72, 65, 77],
               ...,
               [61, 59, 57, ..., 7, 6, 6],
               [69, 69, 71, ..., 6, 7, 7],
               [63, 65, 70, ..., 6, 7, 7]], dtype=uint8)
```

```
In [83]: pht_arr[:, :, 2]
```

```
Out[83]: array([[43, 47, 49, ..., 52, 69, 78],
               [48, 49, 48, ..., 62, 69, 67],
               [49, 49, 50, ..., 56, 48, 58],
               ...,
               [70, 68, 66, ..., 19, 17, 17],
               [78, 78, 80, ..., 18, 18, 18],
               [70, 72, 77, ..., 18, 18, 18]], dtype=uint8)
```

```
In [89]: pht_red[:, :, 1] = 0
```

```
In [93]: pht_red[:, :, 1]
```

```
Out[93]: array([[0, 0, 0, ..., 0, 0, 0],
               [0, 0, 0, ..., 0, 0, 0],
               [0, 0, 0, ..., 0, 0, 0],
               ...,
               [0, 0, 0, ..., 0, 0, 0],
               [0, 0, 0, ..., 0, 0, 0],
               [0, 0, 0, ..., 0, 0, 0]], dtype=uint8)
```

```
In [95]: plt.imshow(pht_red)
```

```
Out[95]: <matplotlib.image.AxesImage at 0x1923d7fb980>
```

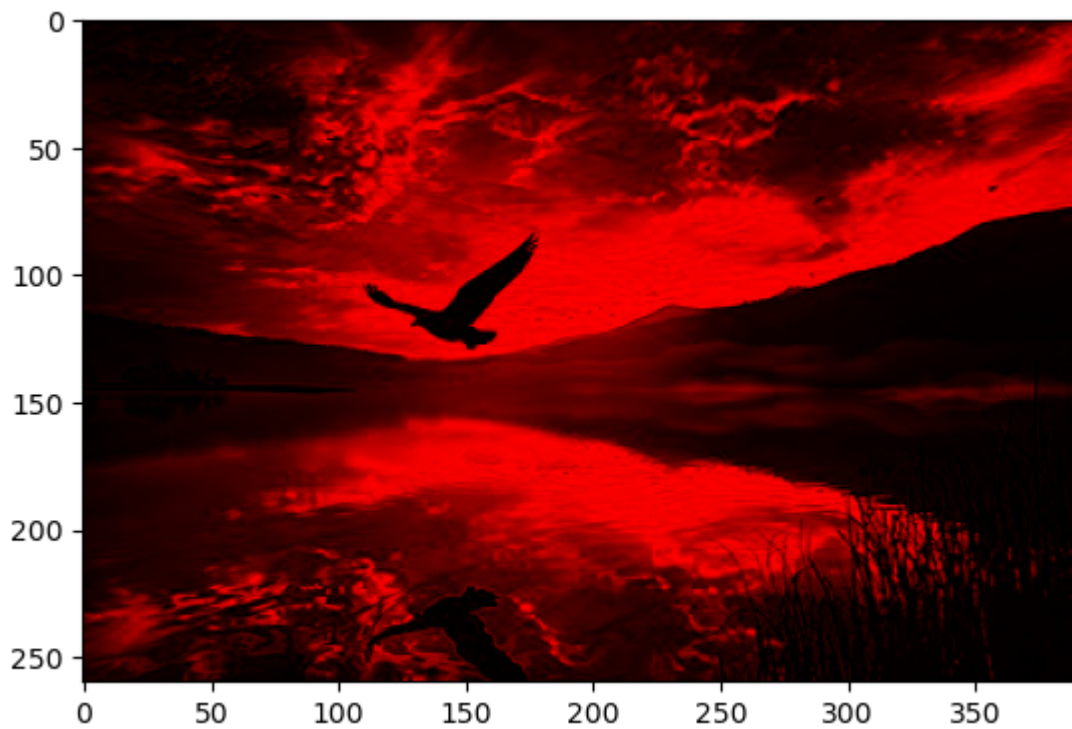


```
In [97]: pht_red[:, :, 2]=0  
pht_red[:, :, 2]
```

```
Out[97]: array([[0, 0, 0, ..., 0, 0, 0],  
               [0, 0, 0, ..., 0, 0, 0],  
               [0, 0, 0, ..., 0, 0, 0],  
               ...,  
               [0, 0, 0, ..., 0, 0, 0],  
               [0, 0, 0, ..., 0, 0, 0],  
               [0, 0, 0, ..., 0, 0, 0]], dtype=uint8)
```

```
In [101... plt.imshow(pht_red)
```

```
Out[101... <matplotlib.image.AxesImage at 0x1923ea64860>
```



```
In [103... pht_arr
```



```

Out[103... array([[ 0, 35, 43],
                  [ 2, 39, 47],
                  [ 4, 41, 49],
                  ...,
                  [ 83, 63, 52],
                  [108, 80, 69],
                  [121, 89, 78]],

                [[ 5, 39, 48],
                  [ 6, 40, 49],
                  [ 5, 39, 48],
                  ...,
                  [ 98, 76, 62],
                  [110, 84, 69],
                  [110, 81, 67]],

                [[ 6, 40, 49],
                  [ 6, 40, 49],
                  [ 7, 41, 50],
                  ...,
                  [101, 72, 56],
                  [ 98, 65, 48],
                  [112, 77, 58]],

                ...,

                [[ 18, 61, 70],
                  [ 16, 59, 68],
                  [ 14, 57, 66],
                  ...,
                  [ 3, 7, 19],
                  [ 2, 6, 17],
                  [ 2, 6, 17]],

                [[ 26, 69, 78],
                  [ 26, 69, 78],
                  [ 28, 71, 80],
                  ...,
                  [ 2, 6, 18],
                  [ 3, 7, 18],
                  [ 3, 7, 18]],

                [[ 20, 63, 70],
                  [ 22, 65, 72],
                  [ 27, 70, 77],
                  ...,
                  [ 2, 6, 18],
                  [ 3, 7, 18],
                  [ 3, 7, 18]]], dtype=uint8)

```

In [105... pht_red

```

Out[105... array([[ 0,  0,  0],
                  [ 2,  0,  0],
                  [ 4,  0,  0],
                  ...,
                  [ 83,  0,  0],
                  [108,  0,  0],
                  [121,  0,  0]],

                [[ 5,  0,  0],
                  [ 6,  0,  0],
                  [ 5,  0,  0],
                  ...,
                  [ 98,  0,  0],
                  [110,  0,  0],
                  [110,  0,  0]],

                [[ 6,  0,  0],
                  [ 6,  0,  0],
                  [ 7,  0,  0],
                  ...,
                  [101,  0,  0],
                  [ 98,  0,  0],
                  [112,  0,  0]],

                ...,

                [[ 18,  0,  0],
                  [ 16,  0,  0],
                  [ 14,  0,  0],
                  ...,
                  [ 3,  0,  0],
                  [ 2,  0,  0],
                  [ 2,  0,  0]],

                [[ 26,  0,  0],
                  [ 26,  0,  0],
                  [ 28,  0,  0],
                  ...,
                  [ 2,  0,  0],
                  [ 3,  0,  0],
                  [ 3,  0,  0]],

                [[ 20,  0,  0],
                  [ 22,  0,  0],
                  [ 27,  0,  0],
                  ...,
                  [ 2,  0,  0],
                  [ 3,  0,  0],
                  [ 3,  0,  0]]], dtype=uint8)

```

In [107... pht_img

Out[107...



In [109... `arr1=np.asarray(pht_img)`

In [111... `arr1`

```

Out[111...] array([[ 0, 35, 43],
                  [ 2, 39, 47],
                  [ 4, 41, 49],
                  ...,
                  [ 83, 63, 52],
                  [108, 80, 69],
                  [121, 89, 78]],

                [[ 5, 39, 48],
                  [ 6, 40, 49],
                  [ 5, 39, 48],
                  ...,
                  [ 98, 76, 62],
                  [110, 84, 69],
                  [110, 81, 67]],

                [[ 6, 40, 49],
                  [ 6, 40, 49],
                  [ 7, 41, 50],
                  ...,
                  [101, 72, 56],
                  [ 98, 65, 48],
                  [112, 77, 58]],

                ...,

                [[ 18, 61, 70],
                  [ 16, 59, 68],
                  [ 14, 57, 66],
                  ...,
                  [ 3, 7, 19],
                  [ 2, 6, 17],
                  [ 2, 6, 17]],

                [[ 26, 69, 78],
                  [ 26, 69, 78],
                  [ 28, 71, 80],
                  ...,
                  [ 2, 6, 18],
                  [ 3, 7, 18],
                  [ 3, 7, 18]],

                [[ 20, 63, 70],
                  [ 22, 65, 72],
                  [ 27, 70, 77],
                  ...,
                  [ 2, 6, 18],
                  [ 3, 7, 18],
                  [ 3, 7, 18]]], dtype=uint8)

```

```
In [113...] arr1.shape
```

```
Out[113...] (260, 390, 3)
```

```
In [115...] plt.imshow(arr1)
```

```
Out[115...] <matplotlib.image.AxesImage at 0x1923ec07ec0>
```



In [117... `pht_img1=arr1.copy()`

In [119... `pht_img1[:, :, 0]=0`
`plt.imshow(pht_img1)`

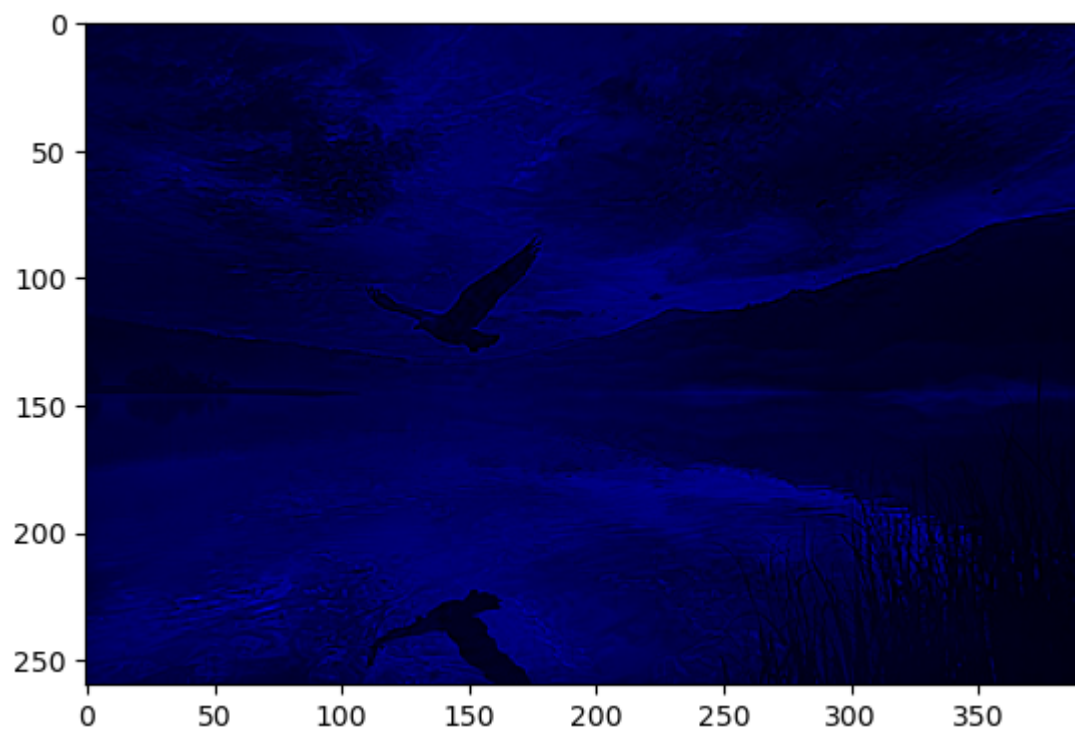
Out[119... `<matplotlib.image.AxesImage at 0x1923ecba720>`



In [123... `pht_img1[:, :, 1] =0`

In [125... `plt.imshow(pht_img1)`

Out[125... `<matplotlib.image.AxesImage at 0x1923ecdd9a0>`



In []: