In [3]: ```python
import numpy as np
```

In [4]: ```python
import matplotlib.pyplot as plt
```
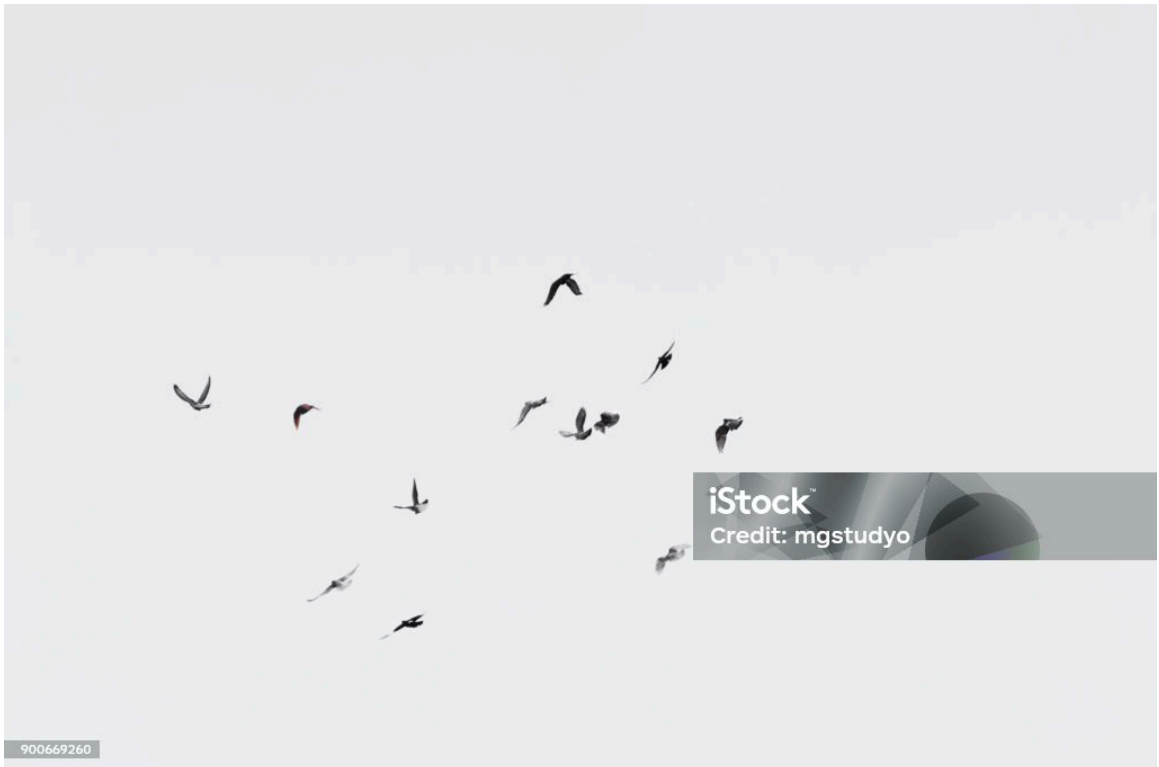
In [5]: ```python
%matplotlib inline
```

In [6]: ```python
from PIL import Image
```

In [7]: ```python
bird_img=Image.open(r"C:\Users\ruchi\Downloads\istockphoto-900669260-1024x1024.j
```

In [8]: ```python
bird_img
```

Out[8]:

In [9]: ```python
type(bird_img)
```

Out[9]:  PIL.JpegImagePlugin.JpegImageFile

In [10]: ```python
bird_arr = np.asarray(bird_img)
bird_arr
```

```
Out[10]: array([[[232, 232, 234],
                  [232, 232, 234],
                  [232, 232, 234],
                  ...,
                  [232, 232, 232],
                  [232, 232, 232],
                  [232, 232, 232]],

                 [[232, 232, 234],
                  [232, 232, 234],
                  [232, 232, 234],
                  ...,
                  [232, 232, 232],
                  [232, 232, 232],
                  [232, 232, 232]],

                 [[232, 232, 234],
                  [232, 232, 234],
                  [232, 232, 234],
                  ...,
                  [232, 232, 232],
                  [232, 232, 232],
                  [232, 232, 232]],

                 ...,

                 [[236, 237, 239],
                  [236, 237, 239],
                  [236, 237, 239],
                  ...,
                  [235, 236, 238],
                  [235, 236, 238],
                  [235, 236, 238]],

                 [[236, 237, 239],
                  [236, 237, 239],
                  [236, 237, 239],
                  ...,
                  [235, 236, 238],
                  [235, 236, 238],
                  [235, 236, 238]],

                 [[236, 237, 239],
                  [236, 237, 239],
                  [236, 237, 239],
                  ...,
                  [235, 236, 238],
                  [235, 236, 238],
                  [235, 236, 238]]], dtype=uint8)
```
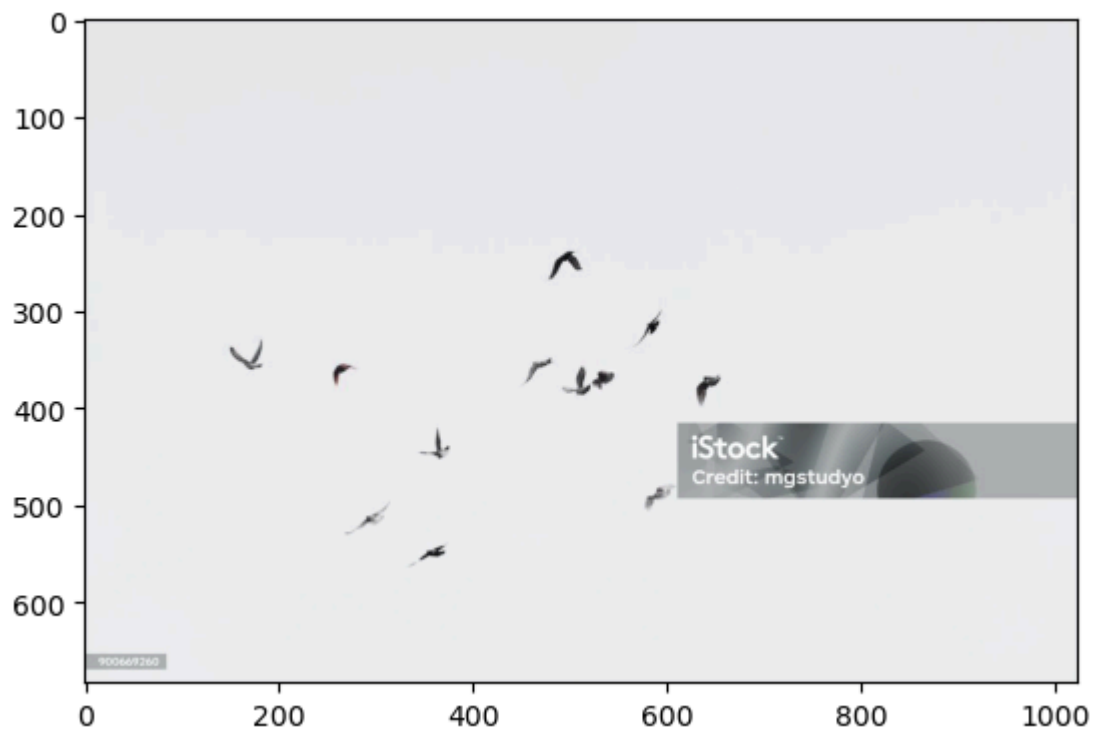
```
In [11]: type(bird_arr)
```

```
Out[11]: numpy.ndarray
```

```
In [44]: plt.imshow(bird_arr)
         plt.show()
```

```
In [13]: bird_arr.shape
```

```
Out[13]: (683, 1024, 3)
```

```
In [14]: bird_red = bird_arr.copy()
```

```
In [15]: bird_red
```

```
Out[15]:  array([[[232, 232, 234],
                  [232, 232, 234],
                  [232, 232, 234],
                  ...,
                  [232, 232, 232],
                  [232, 232, 232],
                  [232, 232, 232]],

                 [[232, 232, 234],
                  [232, 232, 234],
                  [232, 232, 234],
                  ...,
                  [232, 232, 232],
                  [232, 232, 232],
                  [232, 232, 232]],

                 [[232, 232, 234],
                  [232, 232, 234],
                  [232, 232, 234],
                  ...,
                  [232, 232, 232],
                  [232, 232, 232],
                  [232, 232, 232]],

                 ...,

                 [[236, 237, 239],
                  [236, 237, 239],
                  [236, 237, 239],
                  ...,
                  [235, 236, 238],
                  [235, 236, 238],
                  [235, 236, 238]],

                 [[236, 237, 239],
                  [236, 237, 239],
                  [236, 237, 239],
                  ...,
                  [235, 236, 238],
                  [235, 236, 238],
                  [235, 236, 238]],

                 [[236, 237, 239],
                  [236, 237, 239],
                  [236, 237, 239],
                  ...,
                  [235, 236, 238],
                  [235, 236, 238],
                  [235, 236, 238]]], dtype=uint8)
```

```python
In [16]:  bird_arr == bird_red
```

```
Out[16]: 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 [17]: plt.imshow(bird_red)
```

```
Out[17]: <matplotlib.image.AxesImage at 0x1ec2712c8f0>
```

```
In [18]: bird_red.shape
```

```
Out[18]: (683, 1024, 3)
```

In [19]:
```python
plt.imshow(bird_red[:,:,0])
plt.show()
```

Out[19]: <matplotlib.image.AxesImage at 0x1ec271b50d0>

In [20]:
```python
bird_red[:,:,0]
```

Out[20]:
```
array([[232, 232, 232, ..., 232, 232, 232],
       [232, 232, 232, ..., 232, 232, 232],
       [232, 232, 232, ..., 232, 232, 232],
       ...,
       [236, 236, 236, ..., 235, 235, 235],
       [236, 236, 236, ..., 235, 235, 235],
       [236, 236, 236, ..., 235, 235, 235]], dtype=uint8)
```

In [21]:
```python
plt.imshow(bird_red[:,:,0],cmap='Greys')
```

Out[21]: <matplotlib.image.AxesImage at 0x1ec2717f740>

In [22]:
```python
plt.imshow(bird_red[:,:,1], cmap='YlGn')
```

Out[22]: <matplotlib.image.AxesImage at 0x1ec271ef560>

In [ ]: