Day_31_261123

January 23, 2024

[17]:
```
import matplotlib.pyplot as plt
import numpy as np
```

[18]:
```
!gdown 17tYTDPBU5hpby9t0kGd7w_-zBsbY7sEd
```

```
Downloading…
From: https://drive.google.com/uc?id=17tYTDPBU5hpby9t0kGd7w_-zBsbY7sEd
To: C:\Data\Data_science\Data Science RIA\3 Python\Codes\fruits.png

  0%|          | 0.00/4.71M [00:00<?, ?B/s]
 11%|#1        | 524k/4.71M [00:00<00:01, 2.62MB/s]
 33%|###3      | 1.57M/4.71M [00:00<00:00, 5.61MB/s]
 56%|#####5    | 2.62M/4.71M [00:00<00:00, 6.80MB/s]
 78%|#######7  | 3.67M/4.71M [00:00<00:00, 7.80MB/s]
100%|##########| 4.71M/4.71M [00:00<00:00, 7.39MB/s]
```

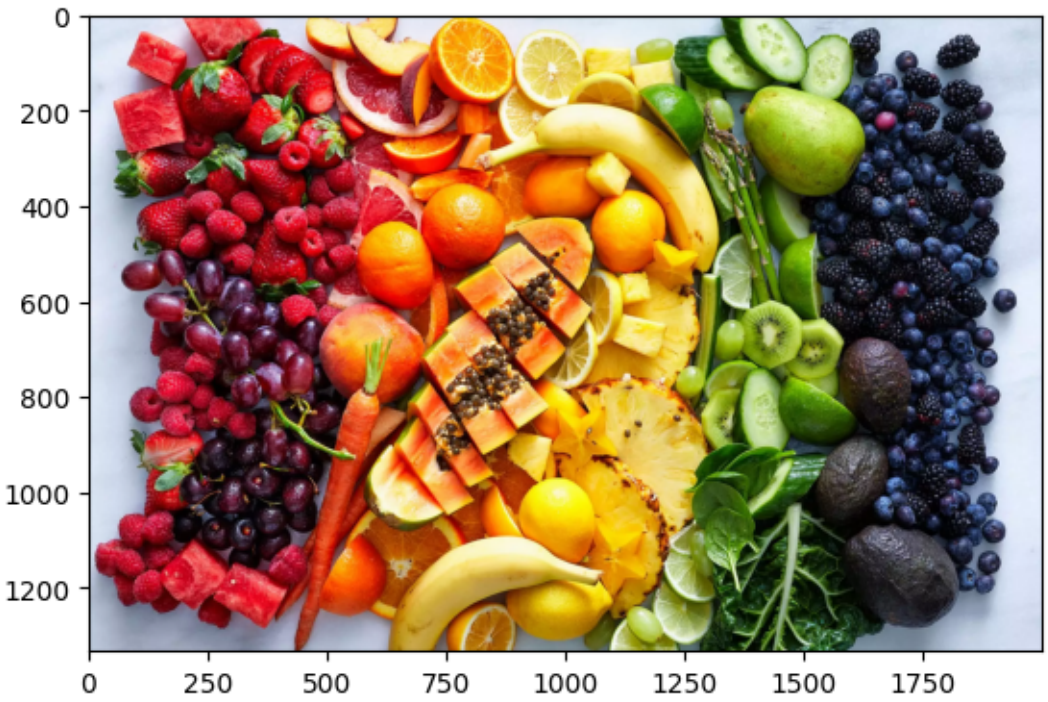
1 Standard Colors - R G B

- In these RGB they ranges from 0 to 255
- (0, 0, 0) is Black
- (255, 255, 255) is White

2 Reading Image

[19]:
```
img = plt.imread("fruits.png")
plt.imshow(img)
```

[19]:
```
<matplotlib.image.AxesImage at 0x2d70078f770>
```



3 3D Array of Fruits Image

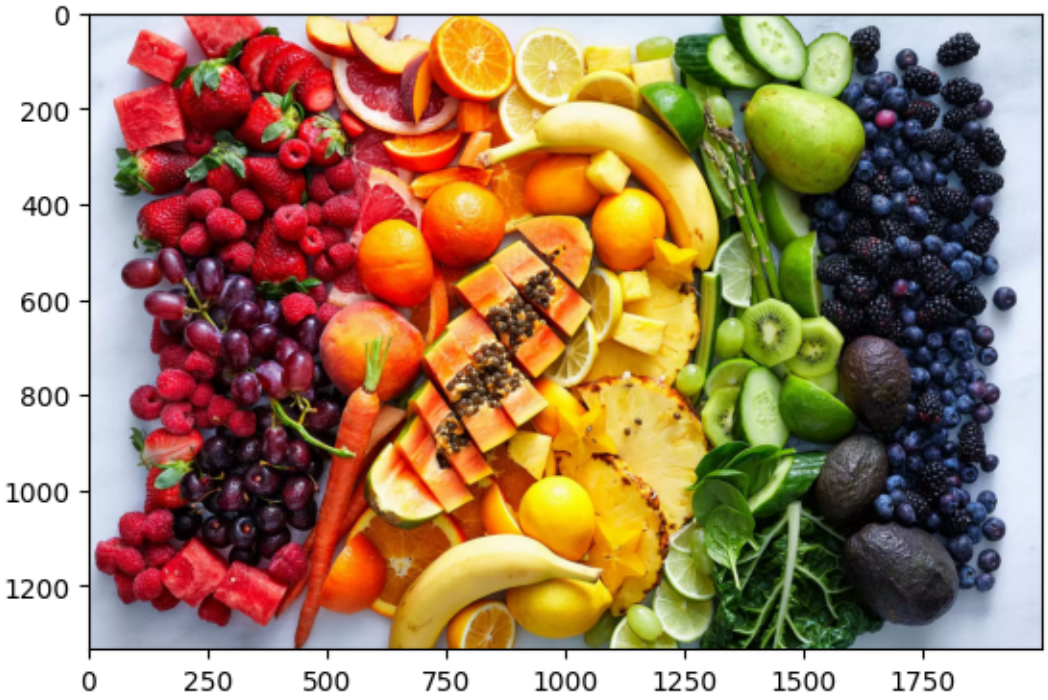
[20]:
```
img
```

[20]:
```
array([[[0.8784314 , 0.9137255 , 0.972549  ],
        [0.8784314 , 0.9137255 , 0.972549  ],
        [0.8784314 , 0.9137255 , 0.972549  ],
        …,
        [0.8       , 0.85490197, 0.9098039 ],
        [0.8       , 0.85490197, 0.9098039 ],
        [0.8       , 0.85490197, 0.9098039 ]],

       [[0.8784314 , 0.9137255 , 0.972549  ],
        [0.8784314 , 0.9137255 , 0.972549  ],
        [0.8784314 , 0.9137255 , 0.972549  ],
        …,
        [0.8       , 0.85490197, 0.9098039 ],
        [0.8       , 0.85490197, 0.9098039 ],
        [0.8       , 0.85490197, 0.9098039 ]],

       [[0.8784314 , 0.9137255 , 0.972549  ],
        [0.8784314 , 0.9137255 , 0.972549  ],
        [0.8784314 , 0.9137255 , 0.972549  ],
```

```
       …,
       [0.8039216 , 0.85882354, 0.9137255 ],
       [0.8039216 , 0.85882354, 0.9137255 ],
       [0.8039216 , 0.85882354, 0.9137255 ]],

      …,

      [[0.74509805, 0.79607844, 0.87058824],
       [0.74509805, 0.79607844, 0.87058824],
       [0.74509805, 0.79607844, 0.87058824],
       …,
       [0.83137256, 0.8627451 , 0.9411765 ],
       [0.83137256, 0.8627451 , 0.9411765 ],
       [0.83137256, 0.8627451 , 0.9411765 ]],

      [[0.74509805, 0.79607844, 0.87058824],
       [0.74509805, 0.79607844, 0.87058824],
       [0.74509805, 0.79607844, 0.87058824],
       …,
       [0.83137256, 0.8627451 , 0.9411765 ],
       [0.83137256, 0.8627451 , 0.9411765 ],
       [0.83137256, 0.8627451 , 0.9411765 ]],

      [[0.74509805, 0.79607844, 0.87058824],
       [0.74509805, 0.79607844, 0.87058824],
       [0.74509805, 0.79607844, 0.87058824],
       …,
       [0.83137256, 0.8627451 , 0.9411765 ],
       [0.83137256, 0.8627451 , 0.9411765 ],
       [0.83137256, 0.8627451 , 0.9411765 ]]], dtype=float32)
```

[21]:
```
img_r = img.copy()
plt.imshow(img_r)
```

[21]:
```
<matplotlib.image.AxesImage at 0x2d700635d00>
```



[22]:
```
img_r.shape
```

[22]: (1333, 2000, 3)

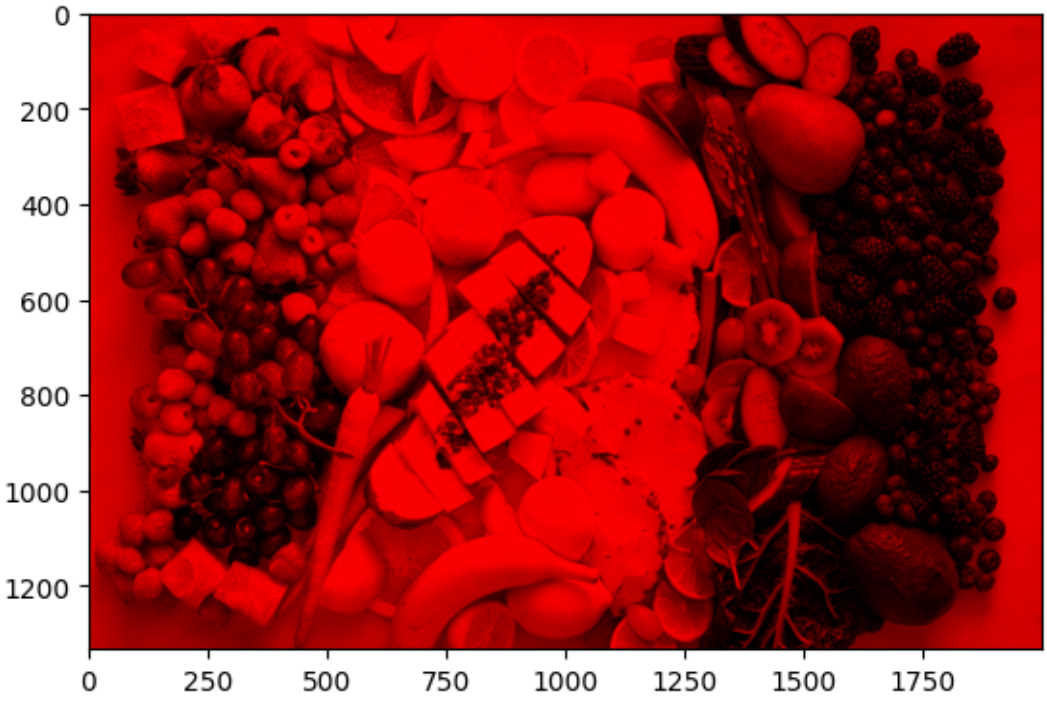
[23]:
```
img_r.ndim
```

[23]: 3

4 Changing Image colors

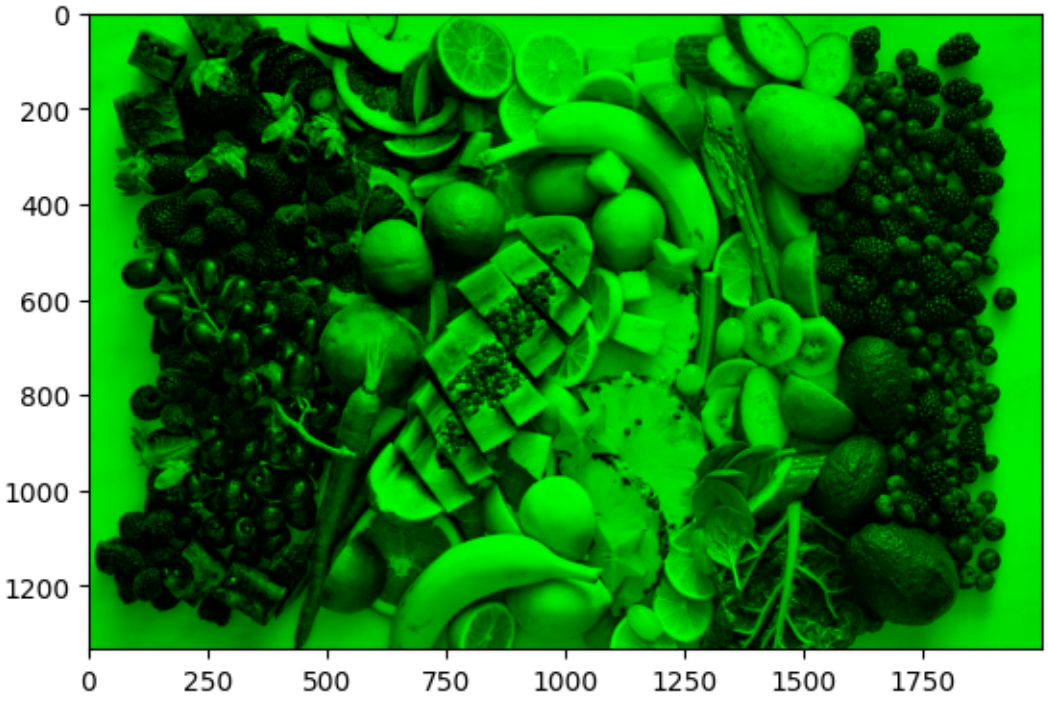
[24]:
```
img_r = img.copy()
img_r[:,:,(1,2)] = 0
plt.imshow(img_r)
```

[24]: <matplotlib.image.AxesImage at 0x2d7009c4530>



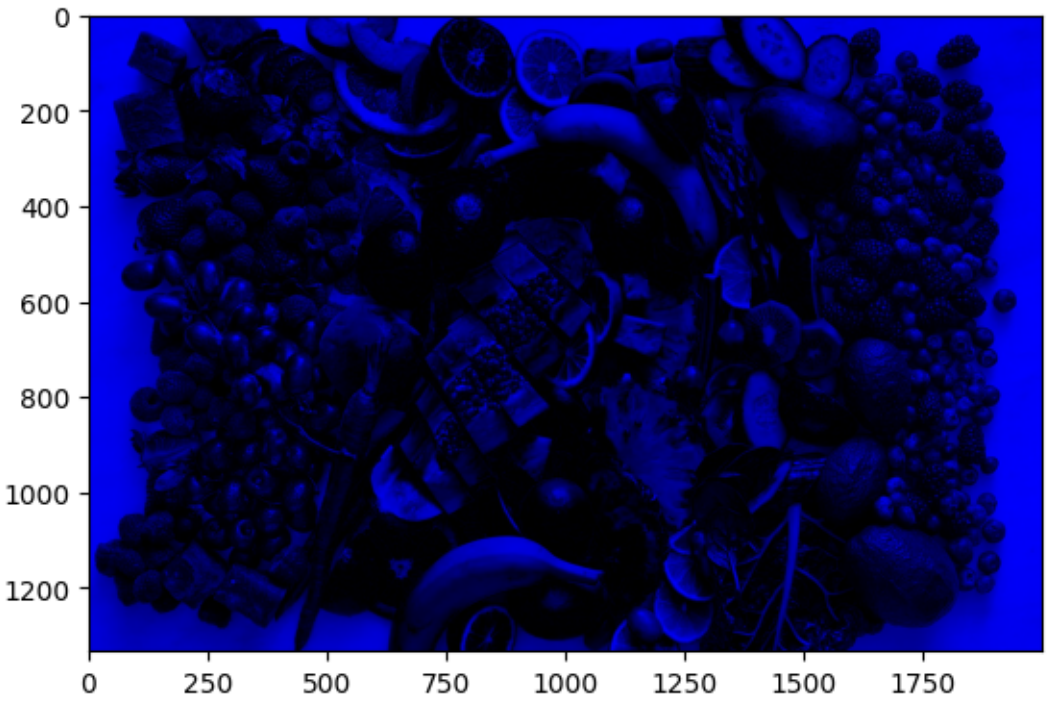
[25]:
```
img_g = img.copy()
img_g[:,:,(0,2)] = 0
plt.imshow(img_g)
```

[25]: <matplotlib.image.AxesImage at 0x2d700689610>



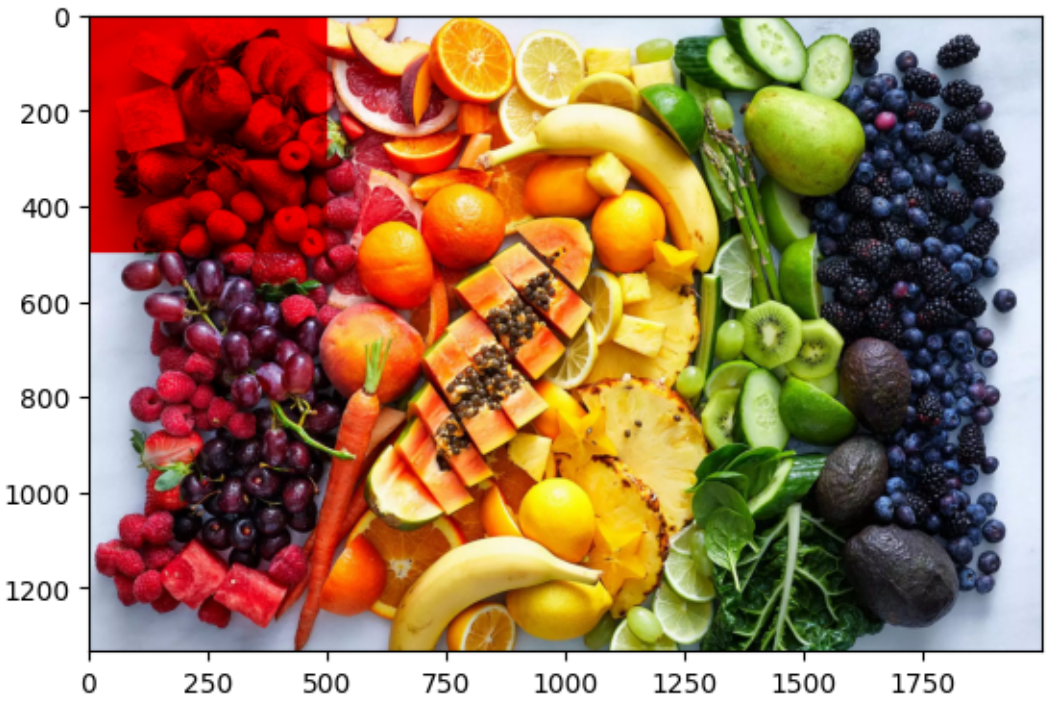
[26]:
```
img_b = img.copy()
img_b[:,:,(0,1)] = 0
plt.imshow(img_b)
```

[26]: <matplotlib.image.AxesImage at 0x2d700a7f530>



[27]:
```
img_m = img.copy()
img_m[:500,:500,(1,2)] = 0
plt.imshow(img_m)
```

[27]: <matplotlib.image.AxesImage at 0x2d700ae5280>

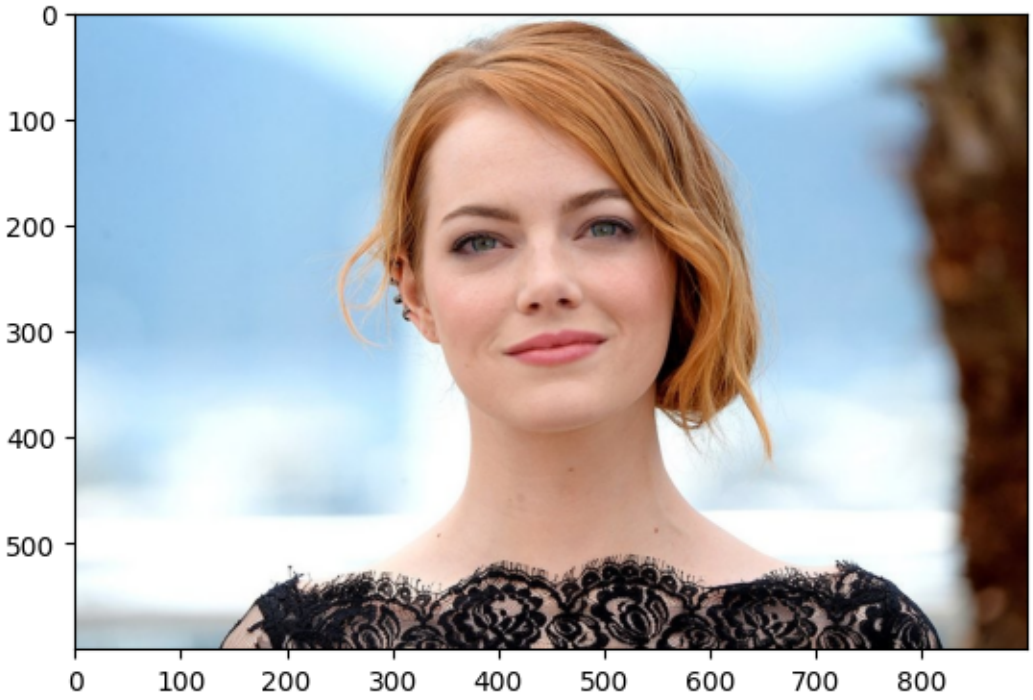


[28]:
```
!gdown 1o-8yqdTM7cfz_mAaNCi2nH0urFu7pcqI
```

```
Downloading…
From: https://drive.google.com/uc?id=1o-8yqdTM7cfz_mAaNCi2nH0urFu7pcqI
To: C:\Data\Data_science\Data Science RIA\3 Python\Codes\emma_stone.jpeg

  0%|          | 0.00/80.3k [00:00<?, ?B/s]
100%|##########| 80.3k/80.3k [00:00<00:00, 1.25MB/s]
```

[29]:
```
img_emma = plt.imread("emma_stone.jpeg")
plt.imshow(img_emma)
```

[29]:
```
<matplotlib.image.AxesImage at 0x2d700b51f40>
```



5 Rotating Image

[30]:
```
img_rotated = np.transpose(img_emma,(1,0,2))
plt.imshow(img_rotated)
```

[30]:
```
<matplotlib.image.AxesImage at 0x2d700f823f0>
```

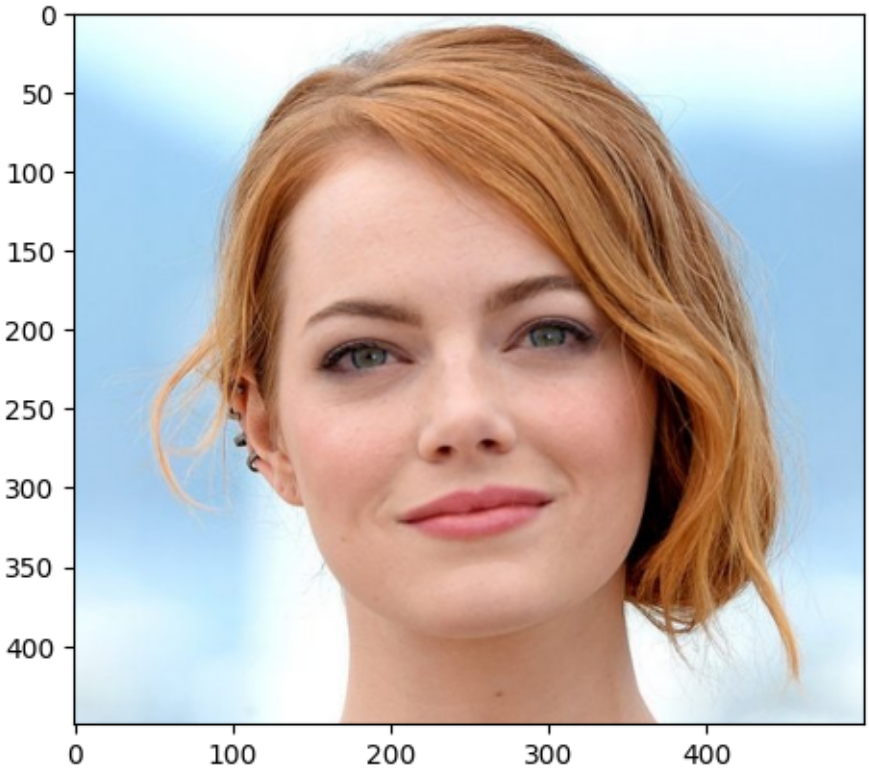
6 Flexible Rotation

[ ]:

7 Cropping Image

[31]:
```
img_cropped = img_emma[0:450,200:700]
plt.imshow(img_cropped)
```

[31]: <matplotlib.image.AxesImage at 0x2d700706450>



8 Saving the Image

[32]:
```
plt.imsave("emma_crop.jpg",img_cropped)
```