

```
In [32]: import numpy as np
```

```
In [34]: ones_arr = np.ones((5,5),dtype=int)
```

```
In [35]: ones_arr
```

```
Out[35]: 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 [36]: ones_arr * 255
```

```
Out[36]: 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 [37]: import matplotlib.pyplot as plt
```

```
In [38]: #!/matplotlib inline # all the graph should keep inside the line
```

```
In [39]: from PIL import Image # python imaging library
```

```
In [42]: #WhiteHorses_img = Image.open('C:\Users\Admin\Downloads\White Horses.jpg')
```

```
In [43]: WhiteHorses_img = Image.open(r'C:\Users\Admin\Downloads\White Horses.jpg')
WhiteHorses_img
```

```
Out[43]:
```



```
In [45]: RedPanda_img = Image.open(r'C:\Users\Admin\Downloads\Red Panda.jpg')
```

```
In [46]: RedPanda_img
```

```
Out[46]:
```



```
In [48]: #pic = Image.open(r'C:\Users\Admin\Downloads\White Horses.jpg')
```

```
In [49]: #pic
```

```
In [50]: #RedPanda_img = Image.open(r'C:\Users\Admin\Downloads\Red Panda.jpg')
```

```
In [51]: #RedPanda_img
```

```
In [52]: type(RedPanda_img)
```

```
Out[52]: PIL.JpegImagePlugin.JpegImageFile
```

```
In [53]: RedPanda_arr = np.asarray(RedPanda_img)
RedPanda_arr
```

```

Out[53]: array([[[251, 221, 97],
                  [252, 225, 110],
                  [255, 231, 131],
                  ...,
                  [ 35, 47, 47],
                  [ 35, 47, 47],
                  [ 36, 48, 48]],

                [[252, 220, 97],
                  [252, 225, 110],
                  [255, 231, 131],
                  ...,
                  [ 36, 48, 48],
                  [ 35, 47, 47],
                  [ 36, 48, 48]],

                [[251, 219, 96],
                  [254, 224, 110],
                  [254, 230, 130],
                  ...,
                  [ 36, 48, 48],
                  [ 36, 48, 48],
                  [ 35, 47, 47]],

                ...,

                [[177, 136, 114],
                  [141, 103, 80],
                  [101, 65, 43],
                  ...,
                  [245, 236, 181],
                  [237, 228, 173],
                  [242, 233, 178]],

                [[207, 165, 141],
                  [178, 138, 113],
                  [123, 85, 64],
                  ...,
                  [246, 237, 182],
                  [240, 231, 176],
                  [242, 233, 178]],

                [[224, 182, 157],
                  [210, 168, 144],
                  [138, 100, 77],
                  ...,
                  [246, 237, 182],
                  [244, 235, 180],
                  [242, 233, 178]]], dtype=uint8)

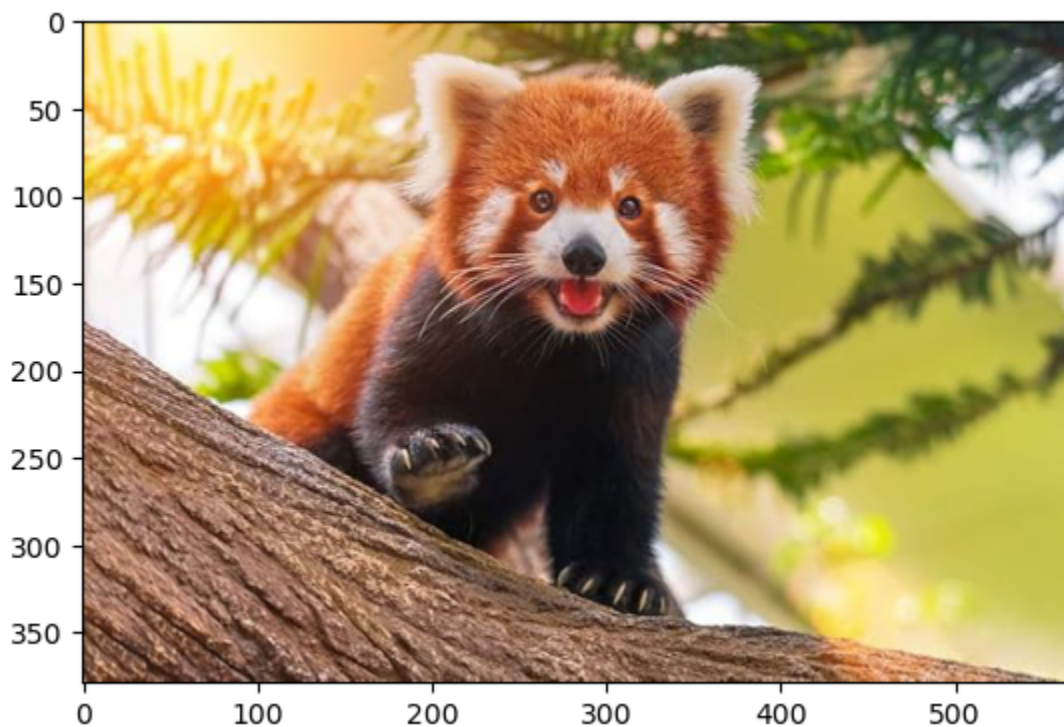
```

```
In [54]: type(RedPanda_arr)
```

```
Out[54]: numpy.ndarray
```

```
In [55]: plt.imshow(RedPanda_arr)
         #plt.show(RedPanda_arr) new os
```

```
Out[55]: <matplotlib.image.AxesImage at 0x20207fd1af0>
```



```
In [56]: RedPanda_arr.shape
```

```
Out[56]: (379, 569, 3)
```

```
In [57]: RedPanda_red = RedPanda_arr.copy()
```

```
In [58]: RedPanda_red
```

```

Out[58]: array([[[251, 221, 97],
                  [252, 225, 110],
                  [255, 231, 131],
                  ...,
                  [ 35, 47, 47],
                  [ 35, 47, 47],
                  [ 36, 48, 48]],

                [[252, 220, 97],
                  [252, 225, 110],
                  [255, 231, 131],
                  ...,
                  [ 36, 48, 48],
                  [ 35, 47, 47],
                  [ 36, 48, 48]],

                [[251, 219, 96],
                  [254, 224, 110],
                  [254, 230, 130],
                  ...,
                  [ 36, 48, 48],
                  [ 36, 48, 48],
                  [ 35, 47, 47]],

                ...,

                [[177, 136, 114],
                  [141, 103, 80],
                  [101, 65, 43],
                  ...,
                  [245, 236, 181],
                  [237, 228, 173],
                  [242, 233, 178]],

                [[207, 165, 141],
                  [178, 138, 113],
                  [123, 85, 64],
                  ...,
                  [246, 237, 182],
                  [240, 231, 176],
                  [242, 233, 178]],

                [[224, 182, 157],
                  [210, 168, 144],
                  [138, 100, 77],
                  ...,
                  [246, 237, 182],
                  [244, 235, 180],
                  [242, 233, 178]]], dtype=uint8)

```

```

In [59]: RedPanda_arr == RedPanda_red

```

```

Out[59]: 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]]])

```

```

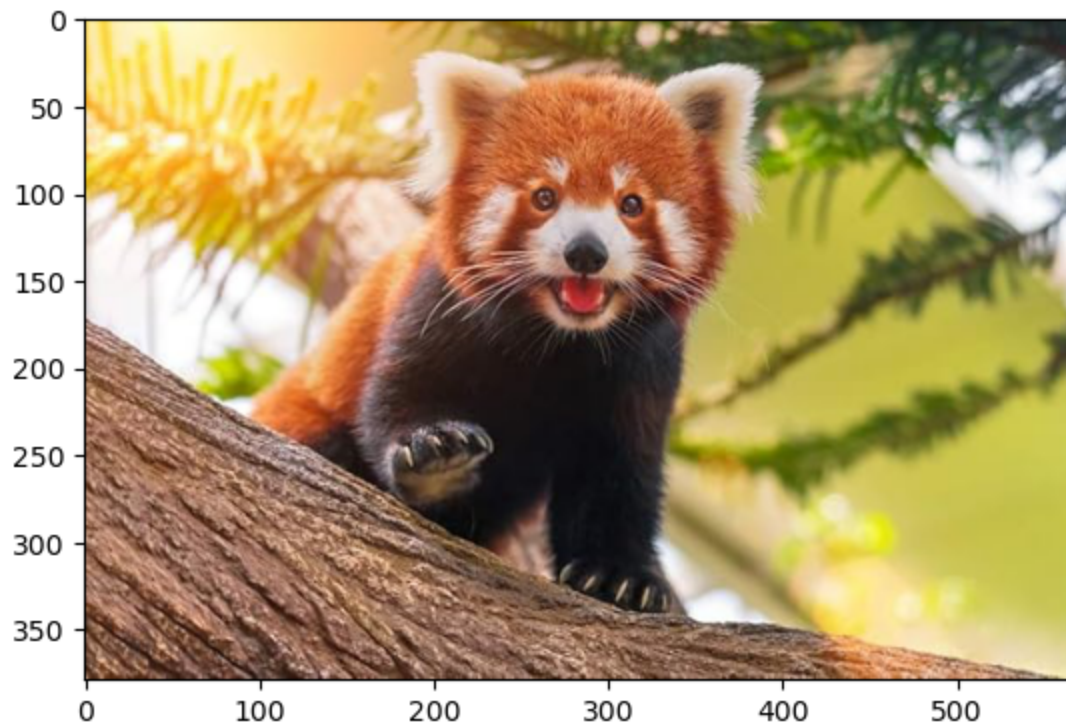
In [60]: plt.imshow(RedPanda_red)

```

```

Out[60]: <matplotlib.image.AxesImage at 0x2020829e1e0>

```

```
In [61]: RedPanda_red.shape
```

```
Out[61]: (379, 569, 3)
```

```
In [62]: # R G B  
plt.imshow(RedPanda_red[:, :, 0])
```

```
Out[62]: <matplotlib.image.AxesImage at 0x2020a5c8530>
```

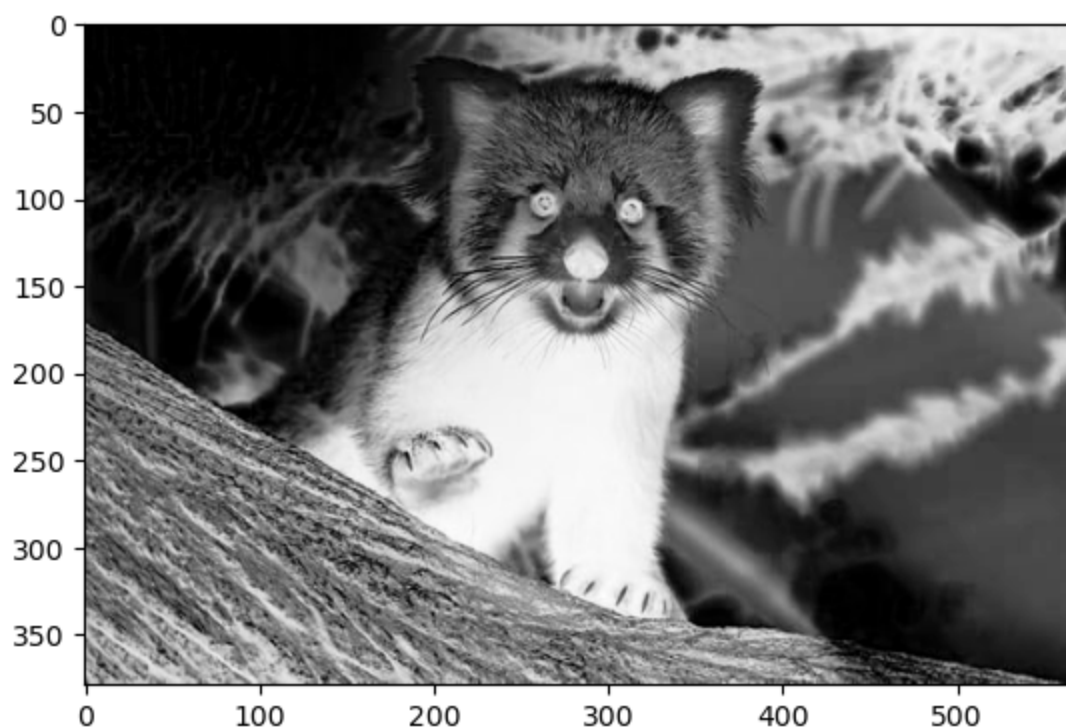


```
In [63]: RedPanda_red[:, :, 0]
```

```
Out[63]: array([[251, 252, 255, ..., 35, 35, 36],
                [252, 252, 255, ..., 36, 35, 36],
                [251, 254, 254, ..., 36, 36, 35],
                ...,
                [177, 141, 101, ..., 245, 237, 242],
                [207, 178, 123, ..., 246, 240, 242],
                [224, 210, 138, ..., 246, 244, 242]], dtype=uint8)
```

```
In [64]: plt.imshow(RedPanda_red[:, :, 0], cmap='Greys')
```

```
Out[64]: <matplotlib.image.AxesImage at 0x2020a5b6b10>
```

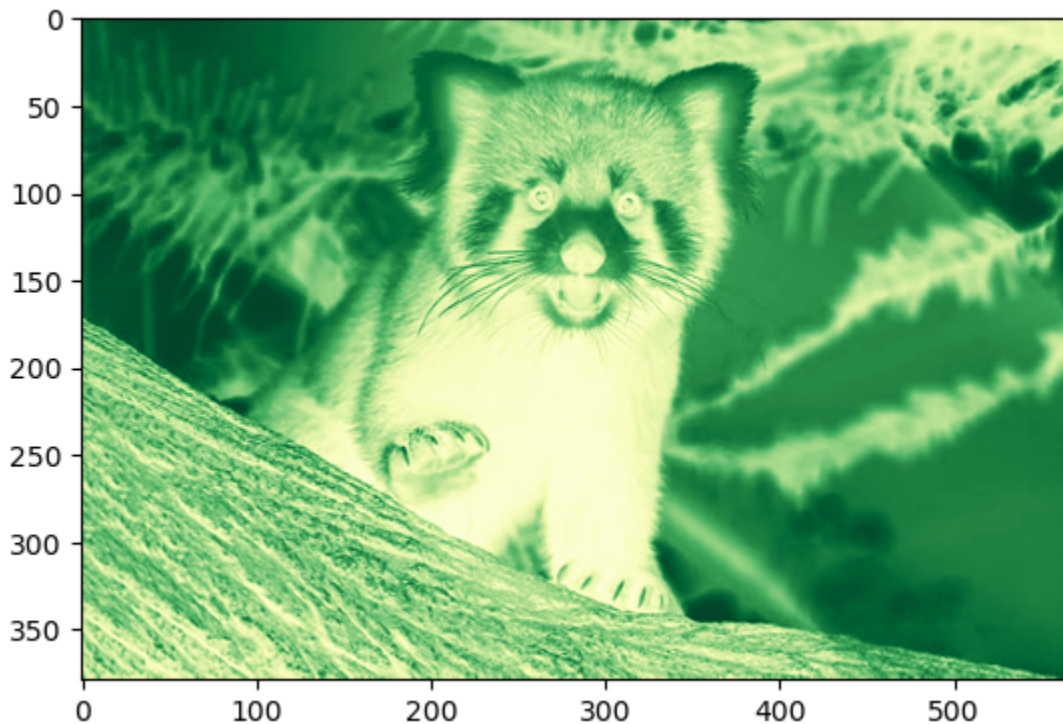
```
In [65]: plt.imshow(RedPanda_red[:, :, 1], cmap='grey')
```

```
Out[65]: <matplotlib.image.AxesImage at 0x2020a7bb590>
```



```
In [66]: plt.imshow(RedPanda_red[:, :, 1], cmap='YlGn')
          #plt.show()
```

Out[66]: <matplotlib.image.AxesImage at 0x2020a7fa9c0>



In [67]: `RedPanda_red[:, :, 0]`

Out[67]: `array([[251, 252, 255, ..., 35, 35, 36],
 [252, 252, 255, ..., 36, 35, 36],
 [251, 254, 254, ..., 36, 36, 35],
 ...,
 [177, 141, 101, ..., 245, 237, 242],
 [207, 178, 123, ..., 246, 240, 242],
 [224, 210, 138, ..., 246, 244, 242]], dtype=uint8)`

In [68]: `RedPanda_red[:, :, 1]`

Out[68]: `array([[221, 225, 231, ..., 47, 47, 48],
 [220, 225, 231, ..., 48, 47, 48],
 [219, 224, 230, ..., 48, 48, 47],
 ...,
 [136, 103, 65, ..., 236, 228, 233],
 [165, 138, 85, ..., 237, 231, 233],
 [182, 168, 100, ..., 237, 235, 233]], dtype=uint8)`

In [69]: `RedPanda_red[:, :, 2]`

Out[69]: `array([[97, 110, 131, ..., 47, 47, 48],
 [97, 110, 131, ..., 48, 47, 48],
 [96, 110, 130, ..., 48, 48, 47],
 ...,
 [114, 80, 43, ..., 181, 173, 178],
 [141, 113, 64, ..., 182, 176, 178],
 [157, 144, 77, ..., 182, 180, 178]], dtype=uint8)`

```
In [70]: RedPanda_red[:, :, 1] = 0
```

```
In [71]: RedPanda_red[:, :, 1]
```

```
Out[71]: 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 [72]: plt.imshow(RedPanda_red)
```

```
Out[72]: <matplotlib.image.AxesImage at 0x2020ccab590>
```



```
In [73]: RedPanda_red[:, :, 2]
```

```
Out[73]: array([[ 97, 110, 131, ...,  47,  47,  48],
               [ 97, 110, 131, ...,  48,  47,  48],
               [ 96, 110, 130, ...,  48,  48,  47],
               ...,
               [114,  80,  43, ..., 181, 173, 178],
               [141, 113,  64, ..., 182, 176, 178],
               [157, 144,  77, ..., 182, 180, 178]], dtype=uint8)
```

```
In [74]: RedPanda_red[:, :, 2] = 0
```

```
In [75]: RedPanda_red[:, :, 2]
```

```
Out[75]: 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 [76]: plt.imshow(RedPanda_red)
```

```
Out[76]: <matplotlib.image.AxesImage at 0x2020cd13590>
```



```
In [77]: RedPanda_arr
```

```

Out[77]: array([[[251, 221, 97],
                  [252, 225, 110],
                  [255, 231, 131],
                  ...,
                  [ 35, 47, 47],
                  [ 35, 47, 47],
                  [ 36, 48, 48]],

                [[252, 220, 97],
                  [252, 225, 110],
                  [255, 231, 131],
                  ...,
                  [ 36, 48, 48],
                  [ 35, 47, 47],
                  [ 36, 48, 48]],

                [[251, 219, 96],
                  [254, 224, 110],
                  [254, 230, 130],
                  ...,
                  [ 36, 48, 48],
                  [ 36, 48, 48],
                  [ 35, 47, 47]],

                ...,

                [[177, 136, 114],
                  [141, 103, 80],
                  [101, 65, 43],
                  ...,
                  [245, 236, 181],
                  [237, 228, 173],
                  [242, 233, 178]],

                [[207, 165, 141],
                  [178, 138, 113],
                  [123, 85, 64],
                  ...,
                  [246, 237, 182],
                  [240, 231, 176],
                  [242, 233, 178]],

                [[224, 182, 157],
                  [210, 168, 144],
                  [138, 100, 77],
                  ...,
                  [246, 237, 182],
                  [244, 235, 180],
                  [242, 233, 178]]], dtype=uint8)

```

```
In [78]: RedPanda_red
```

```

Out[78]: array([[[251,  0,  0],
                  [252,  0,  0],
                  [255,  0,  0],
                  ...,
                  [ 35,  0,  0],
                  [ 35,  0,  0],
                  [ 36,  0,  0]],

                [[252,  0,  0],
                  [252,  0,  0],
                  [255,  0,  0],
                  ...,
                  [ 36,  0,  0],
                  [ 35,  0,  0],
                  [ 36,  0,  0]],

                [[251,  0,  0],
                  [254,  0,  0],
                  [254,  0,  0],
                  ...,
                  [ 36,  0,  0],
                  [ 36,  0,  0],
                  [ 35,  0,  0]],

                ...,

                [[177,  0,  0],
                  [141,  0,  0],
                  [101,  0,  0],
                  ...,
                  [245,  0,  0],
                  [237,  0,  0],
                  [242,  0,  0]],

                [[207,  0,  0],
                  [178,  0,  0],
                  [123,  0,  0],
                  ...,
                  [246,  0,  0],
                  [240,  0,  0],
                  [242,  0,  0]],

                [[224,  0,  0],
                  [210,  0,  0],
                  [138,  0,  0],
                  ...,
                  [246,  0,  0],
                  [244,  0,  0],
                  [242,  0,  0]]], dtype=uint8)

```

```
In [79]: RedPanda_img
```


Out[79]:



```
In [80]: arr1 = np.asarray(RedPanda_img)
```

```
In [81]: type(arr1)
```

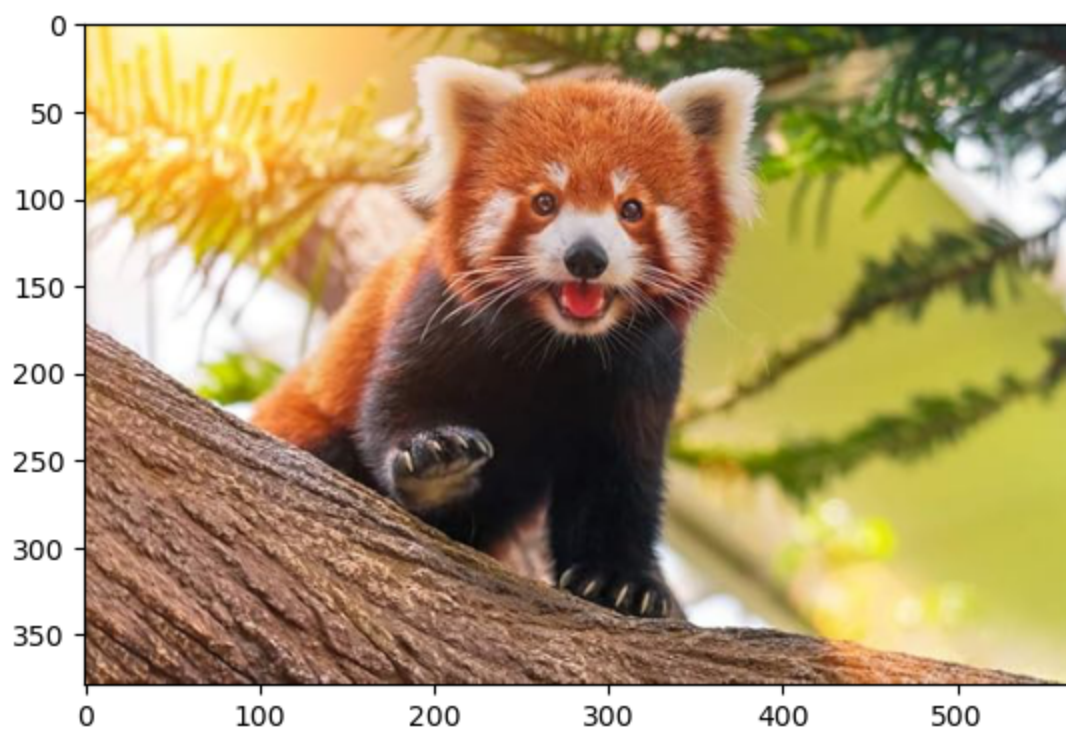
```
Out[81]: numpy.ndarray
```

```
In [82]: arr1.shape
```

```
Out[82]: (379, 569, 3)
```

```
In [83]: plt.imshow(arr1)
```

```
Out[83]: <matplotlib.image.AxesImage at 0x2020a620dd0>
```



```
In [84]: RedPanda_img1 = arr1.copy()
```

```
In [85]: RedPanda_img1[:, :, 0] = 0
```

```
In [86]: plt.imshow(RedPanda_img1)
```

```
Out[86]: <matplotlib.image.AxesImage at 0x2020a620d70>
```



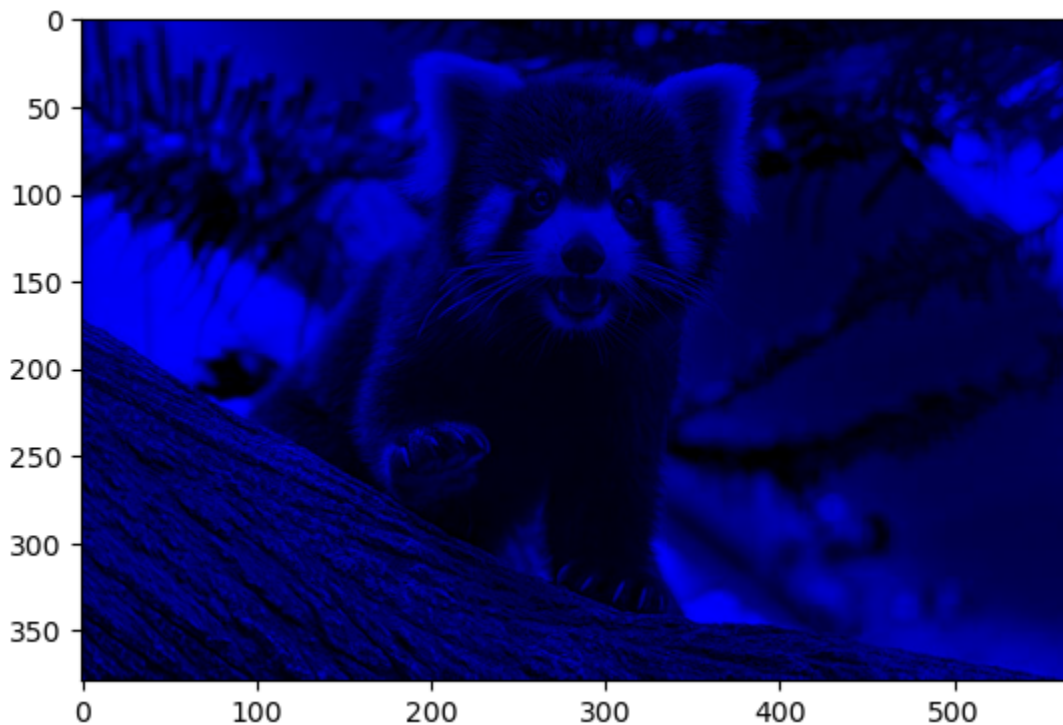
```
In [87]: RedPanda_img1[:, :, 1]
```

```
Out[87]: array([[221, 225, 231, ..., 47, 47, 48],
                [220, 225, 231, ..., 48, 47, 48],
                [219, 224, 230, ..., 48, 48, 47],
                ...,
                [136, 103, 65, ..., 236, 228, 233],
                [165, 138, 85, ..., 237, 231, 233],
                [182, 168, 100, ..., 237, 235, 233]], dtype=uint8)
```

```
In [88]: RedPanda_img1[:, :, 1] = 0
```

```
In [89]: plt.imshow(RedPanda_img1)
```

```
Out[89]: <matplotlib.image.AxesImage at 0x2020a620d40>
```



```
In [ ]:
```

```
In [ ]:
```