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

In [5]:
```
import matplotlib.pyplot as plt
```

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

In [7]:
```
lio = Image.open(r'C:\Users\swapn\Desktop\image\lion.jpg')
```

In [9]:
```
lio
```

Out[9]:

In [11]:
```
hors = Image.open(r'C:\Users\swapn\Desktop\image\horsh.jpg')
hors
```

Out[11]:

In [12]:
```
type(hors)
```

Out[12]:
```
PIL.JpegImagePlugin.JpegImageFile
```

In [14]:
```
horse_arr = np.asarray(hors)
horse_arr
```

Out[14]:
```
array([[[ 97, 110, 100],
        [ 95, 108,  98],
        [ 93, 106,  96],
        ...,
        [  3,   5,   2],
        [  4,   4,   2],
        [  4,   4,   2]],

       [[190, 203, 193],
        [189, 202, 192],
        [187, 200, 190],
        ...,
        [  4,   6,   3],
        [  5,   5,   3],
        [  4,   4,   2]],

       [[184, 200, 189],
        [183, 199, 188],
        [181, 197, 186],
        ...,
        [  5,   7,   4],
        [  6,   6,   4],
        [  5,   5,   3]],

       ...,

       [[151, 112,  55],
        [144, 105,  46],
        [141, 102,  43],
        ...,
        [114,  88,  29],
        [114,  88,  27],
        [113,  89,  27]],

       [[150, 110,  51],
        [146, 106,  47],
        [146, 107,  48],
        ...,
        [113,  87,  26],
        [113,  87,  26],
        [113,  89,  27]],

       [[152, 112,  53],
        [151, 111,  52],
        [153, 113,  54],
        ...,
        [112,  86,  25],
        [113,  88,  24],
        [113,  89,  25]]], dtype=uint8)
```

In [15]:
```
type(horse_arr)
```

Out[15]:
```
numpy.ndarray
```

In [18]:
```
plt.imshow(hors)
```

Out[18]: <matplotlib.image.AxesImage at 0x2808d540380>

In [19]:
```
horse_arr.shape
```

Out[19]: (654, 477, 3)

In [20]:
```
horse_red = horse_arr.copy()
```

In [21]:
```
horse_red
```

Out[21]:
```
array([[[ 97, 110, 100],
        [ 95, 108,  98],
        [ 93, 106,  96],
        ...,
        [  3,   5,   2],
        [  4,   4,   2],
        [  4,   4,   2]],

       [[190, 203, 193],
        [189, 202, 192],
        [187, 200, 190],
        ...,
        [  4,   6,   3],
        [  5,   5,   3],
        [  4,   4,   2]],

       [[184, 200, 189],
        [183, 199, 188],
        [181, 197, 186],
        ...,
        [  5,   7,   4],
        [  6,   6,   4],
        [  5,   5,   3]],

       ...,

       [[151, 112,  55],
        [144, 105,  46],
        [141, 102,  43],
        ...,
        [114,  88,  29],
        [114,  88,  27],
        [113,  89,  27]],

       [[150, 110,  51],
        [146, 106,  47],
        [146, 107,  48],
        ...,
        [113,  87,  26],
        [113,  87,  26],
        [113,  89,  27]],

       [[152, 112,  53],
        [151, 111,  52],
        [153, 113,  54],
        ...,
        [112,  86,  25],
        [113,  88,  24],
        [113,  89,  25]]], dtype=uint8)
```

In [22]:
```
horse_arr == horse_red
```

Out[22]:
```
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 [23]:
```
plt.imshow(horse_red)
```

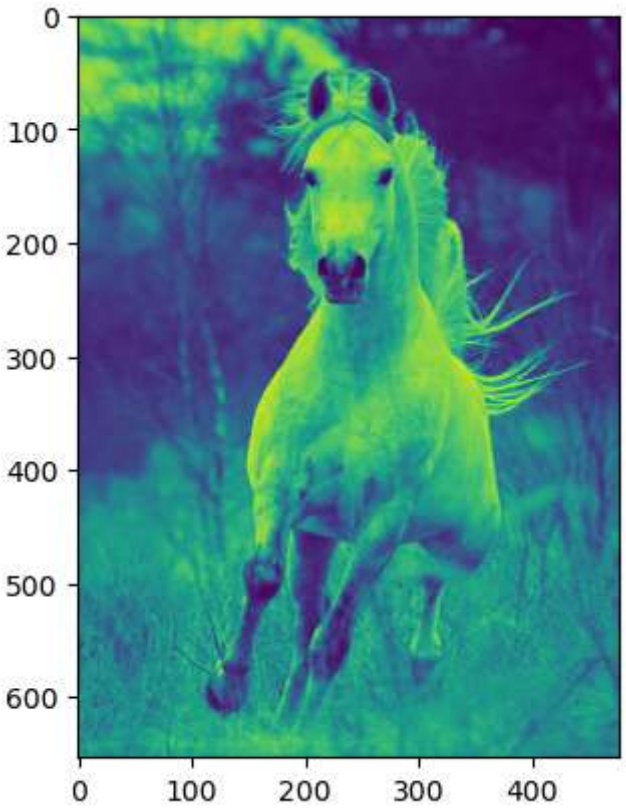
Out[23]:
```
<matplotlib.image.AxesImage at 0x28090dabce0>
```

In [24]:
```
horse_red.shape
```

Out[24]:
```
(654, 477, 3)
```

In [25]:
```
# R G B
plt.imshow(horse_red[:,:,0])
```

Out[25]:
```
<matplotlib.image.AxesImage at 0x28090e00bf0>
```

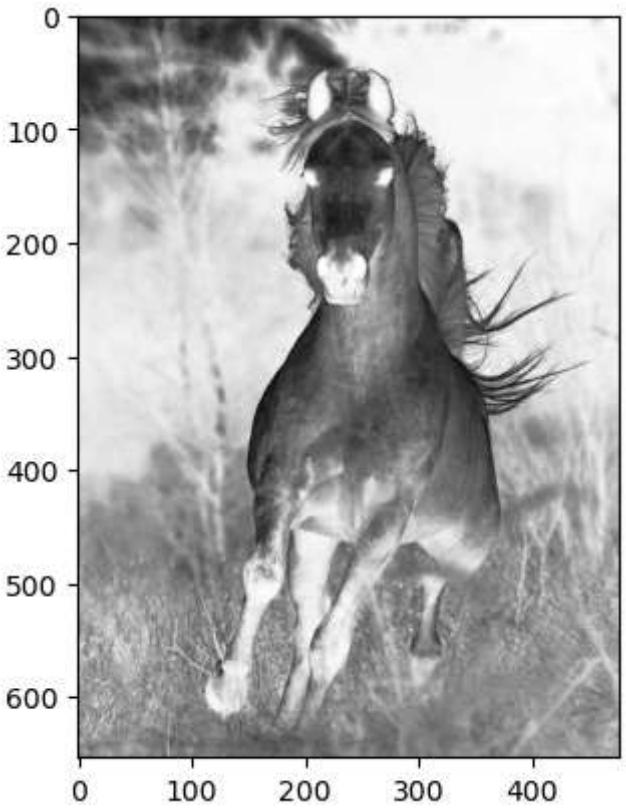


In [26]:
```
horse_red[:,:,0]
```

Out[26]:
```
array([[ 97,  95,  93, ...,   3,   4,   4],
       [190, 189, 187, ...,   4,   5,   4],
       [184, 183, 181, ...,   5,   6,   5],
       ...,
       [151, 144, 141, ..., 114, 114, 113],
       [150, 146, 146, ..., 113, 113, 113],
       [152, 151, 153, ..., 112, 113, 113]], dtype=uint8)
```

In [29]:
```
plt.imshow(horse_red[:,:,0], cmap='Greys')
```

Out[29]:
```
<matplotlib.image.AxesImage at 0x280954e33e0>
```

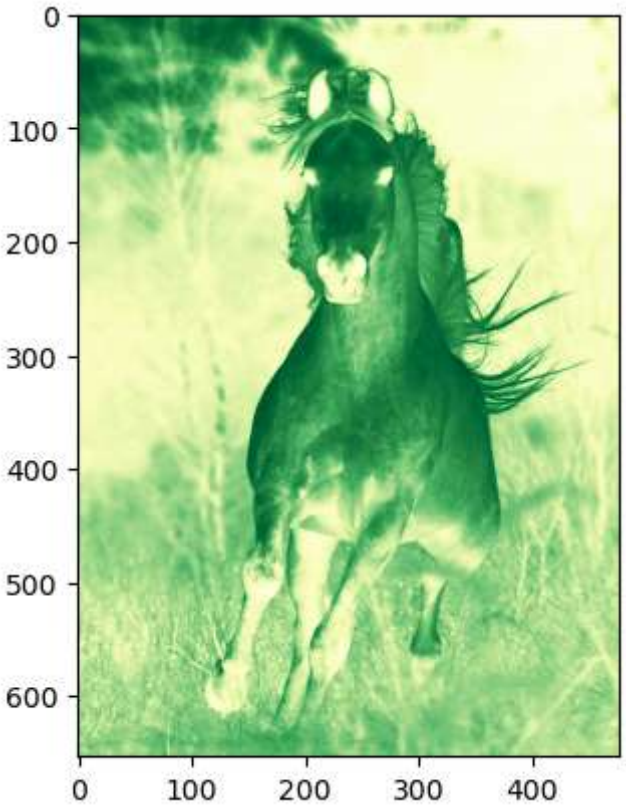


In [30]:
```
plt.imshow(horse_red[:,:,1], cmap='grey')
```

Out[30]: <matplotlib.image.AxesImage at 0x28095558bf0>

In [31]:
```
plt.imshow(horse_red[:,:,1], cmap='YlGn')
```

Out[31]: <matplotlib.image.AxesImage at 0x280955c3b90>



In [32]:
```
horse_red[:,:,0]
```

Out[32]:
```
array([[ 97,  95,  93, ...,   3,   4,   4],
       [190, 189, 187, ...,   4,   5,   4],
       [184, 183, 181, ...,   5,   6,   5],
       ...,
       [151, 144, 141, ..., 114, 114, 113],
       [150, 146, 146, ..., 113, 113, 113],
       [152, 151, 153, ..., 112, 113, 113]], dtype=uint8)
```

In [ ]:
```

```

In [33]:
```
horse_red[:,:,1]
```

Out[33]:
```
array([[110, 108, 106, ...,   5,   4,   4],
       [203, 202, 200, ...,   6,   5,   4],
       [200, 199, 197, ...,   7,   6,   5],
       ...,
       [112, 105, 102, ...,  88,  88,  89],
       [110, 106, 107, ...,  87,  87,  89],
       [112, 111, 113, ...,  86,  88,  89]], dtype=uint8)
```

In [34]:
```
horse_red[:,:,2]
```

Out[34]:
```
array([[100,  98,  96, ...,   2,   2,   2],
       [193, 192, 190, ...,   3,   3,   2],
       [189, 188, 186, ...,   4,   4,   3],
       ...,
       [ 55,  46,  43, ...,  29,  27,  27],
       [ 51,  47,  48, ...,  26,  26,  27],
       [ 53,  52,  54, ...,  25,  24,  25]], dtype=uint8)
```

In [37]:
```
horse_red[:,:,1] = 0
```

In [38]:
```

```

Out[38]:
```
array([[100,  98,  96, ...,   2,   2,   2],
       [193, 192, 190, ...,   3,   3,   2],
       [189, 188, 186, ...,   4,   4,   3],
       ...,
       [ 55,  46,  43, ...,  29,  27,  27],
       [ 51,  47,  48, ...,  26,  26,  27],
       [ 53,  52,  54, ...,  25,  24,  25]], dtype=uint8)
```

In [39]:
```
horse_red[:,:,1]
```

Out[39]:
```
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 [40]:
```
plt.imshow(horse_red)
```

Out[40]:
```
<matplotlib.image.AxesImage at 0x280954ce240>
```

In [41]:
```
horse_red[:,:,2]
```

Out[41]:
```
array([[100,  98,  96, ...,   2,   2,   2],
       [193, 192, 190, ...,   3,   3,   2],
       [189, 188, 186, ...,   4,   4,   3],
       ...,
       [ 55,  46,  43, ...,  29,  27,  27],
       [ 51,  47,  48, ...,  26,  26,  27],
       [ 53,  52,  54, ...,  25,  24,  25]], dtype=uint8)
```

In [42]:
```
horse_red[:,:,2]  = 0
```

In [43]:
```
horse_red[:,:,2]
```

Out[43]:
```
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 [44]:
```
plt.imshow(horse_red)
```

Out[44]:
```
<matplotlib.image.AxesImage at 0x28095658860>
```

In [45]:
```
horse_arr
```

Out[45]:
```
array([[[ 97, 110, 100],
        [ 95, 108,  98],
        [ 93, 106,  96],
        ...,
        [  3,   5,   2],
        [  4,   4,   2],
        [  4,   4,   2]],

       [[190, 203, 193],
        [189, 202, 192],
        [187, 200, 190],
        ...,
        [  4,   6,   3],
        [  5,   5,   3],
        [  4,   4,   2]],

       [[184, 200, 189],
        [183, 199, 188],
        [181, 197, 186],
        ...,
        [  5,   7,   4],
        [  6,   6,   4],
        [  5,   5,   3]],

       ...,

       [[151, 112,  55],
        [144, 105,  46],
        [141, 102,  43],
        ...,
        [114,  88,  29],
        [114,  88,  27],
        [113,  89,  27]],

       [[150, 110,  51],
        [146, 106,  47],
        [146, 107,  48],
        ...,
        [113,  87,  26],
        [113,  87,  26],
        [113,  89,  27]],

       [[152, 112,  53],
        [151, 111,  52],
        [153, 113,  54],
        ...,
        [112,  86,  25],
        [113,  88,  24],
        [113,  89,  25]]], dtype=uint8)
```

In [46]:
```
horse_red
```

Out[46]:
```
array([[[ 97,   0,   0],
        [ 95,   0,   0],
        [ 93,   0,   0],
        ...,
        [  3,   0,   0],
        [  4,   0,   0],
        [  4,   0,   0]],

       [[190,   0,   0],
        [189,   0,   0],
        [187,   0,   0],
        ...,
        [  4,   0,   0],
        [  5,   0,   0],
        [  4,   0,   0]],

       [[184,   0,   0],
        [183,   0,   0],
        [181,   0,   0],
        ...,
        [  5,   0,   0],
        [  6,   0,   0],
        [  5,   0,   0]],

       ...,

       [[151,   0,   0],
        [144,   0,   0],
        [141,   0,   0],
        ...,
        [114,   0,   0],
        [114,   0,   0],
        [113,   0,   0]],

       [[150,   0,   0],
        [146,   0,   0],
        [146,   0,   0],
        ...,
        [113,   0,   0],
        [113,   0,   0],
        [113,   0,   0]],

       [[152,   0,   0],
        [151,   0,   0],
        [153,   0,   0],
        ...,
        [112,   0,   0],
        [113,   0,   0],
        [113,   0,   0]]], dtype=uint8)
```

In [47]:
```
hors
```

Out[47]:

In [48]:
```
arr1 = np.asarray(hors)
```

In [49]:
```
type(arr1)
```

Out[49]: numpy.ndarray

In [50]:
```
arr1.shape
```

Out[50]: (654, 477, 3)

In [51]:
```
plt.imshow(arr1)
```

Out[51]: <matplotlib.image.AxesImage at 0x280955591f0>

In [53]:
```
horse_img1 = arr1.copy()
```

In [54]:
```
horse_img1[:,:,0] = 0
```

In [55]:
```
plt.imshow(horse_img1)
```

Out[55]: <matplotlib.image.AxesImage at 0x2809558bce0>

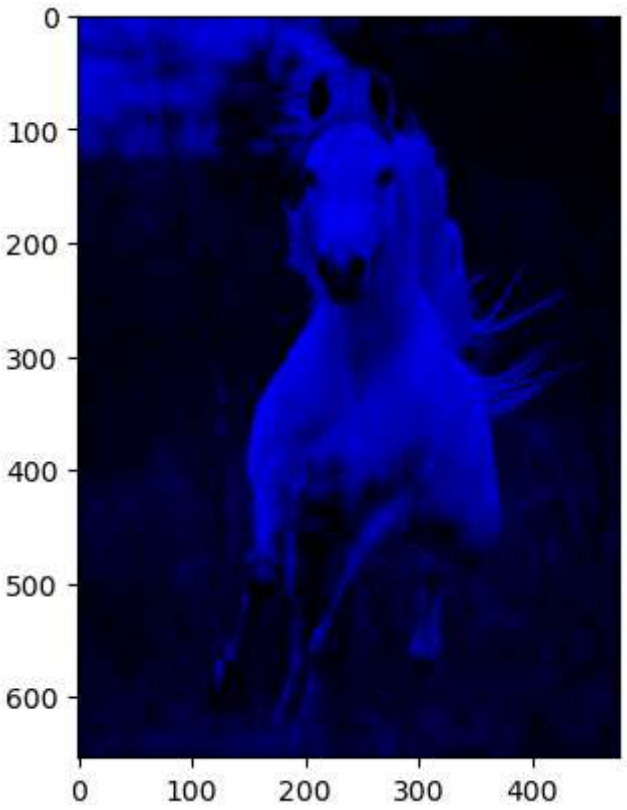
In [56]:
```
horse_img1[:,:,1]
```

Out[56]:
```
array([[110, 108, 106, ...,   5,   4,   4],
       [203, 202, 200, ...,   6,   5,   4],
       [200, 199, 197, ...,   7,   6,   5],
       ...,
       [112, 105, 102, ...,  88,  88,  89],
       [110, 106, 107, ...,  87,  87,  89],
       [112, 111, 113, ...,  86,  88,  89]], dtype=uint8)
```

In [57]:
```
horse_img1[:,:,1] = 0
```

In [58]:
```
plt.imshow(horse_img1)
```

Out[58]:
```
<matplotlib.image.AxesImage at 0x280954bb3e0>
```



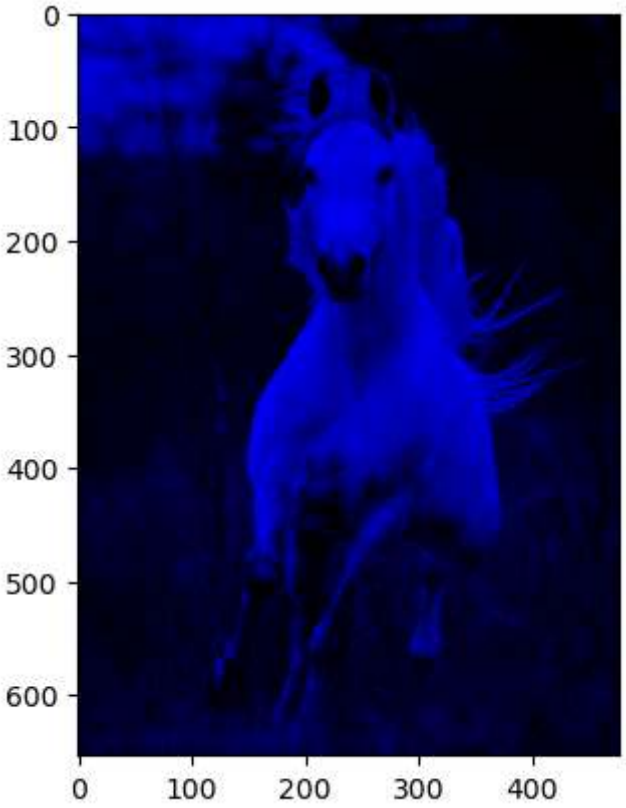
In [59]:
```
horse_img1[:,:,1]
```

Out[59]:
```
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 [60]:
```
horse_img1[:,:,1] = 0
```

In [61]:
```
plt.imshow(horse_img1)
```

Out[61]:
```
<matplotlib.image.AxesImage at 0x28095842ab0>
```



completed