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

In [3]:
```
ones_arr = np.ones((3,3)) #IT CREATES BY DEFAULT FLOAT
ones_arr
```

Out[3]:
```
array([[1., 1., 1.],
       [1., 1., 1.],
       [1., 1., 1.]])
```

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

Out[7]:
```
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 [8]:
```
ones_arr * 255
```

Out[8]:
```
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 [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 [10]:
```
import matplotlib.pyplot as plt
%matplotlib inline
from PIL import Image # python imaging library
```

In [12]:
```
image=Image.open(r'C:\Users\user\Downloads\HORSE.jpg')
image
```

Out[12]:

In [14]:
```
type(image)
```

Out[14]:
```
PIL.JpegImagePlugin.JpegImageFile
```

In [15]:
```
horse_arr = np.asarray(image)
horse_arr
```

Out[15]:
```
array([[[189, 213, 241],
        [189, 213, 241],
        [188, 212, 240],
        ...,
        [202, 223, 240],
        [202, 223, 240],
        [203, 224, 241]],

       [[188, 212, 240],
        [188, 212, 240],
        [187, 211, 239],
        ...,
        [203, 224, 241],
        [203, 224, 241],
        [203, 224, 241]],

       [[187, 211, 239],
        [187, 211, 239],
        [186, 210, 238],
        ...,
        [204, 225, 242],
        [204, 225, 242],
        [203, 224, 241]],

       ...,

       [[ 31,  46,   7],
        [ 30,  45,   6],
        [ 29,  43,   7],
        ...,
        [ 37,  50,   4],
        [ 40,  53,   7],
        [ 41,  57,   8]],

       [[ 33,  48,   9],
        [ 32,  47,   8],
        [ 31,  46,   7],
        ...,
        [ 40,  53,   7],
        [ 43,  56,  10],
        [ 43,  59,  10]],

       [[ 35,  50,  11],
        [ 34,  49,  10],
        [ 32,  47,   8],
        ...,
        [ 44,  57,  11],
        [ 46,  59,  13],
        [ 40,  56,   7]]], dtype=uint8)
```

In [16]:
```
type(horse_arr)
```

Out[16]:
```
numpy.ndarray
```

In [18]:
```
plt.imshow(horse_arr)
plt.show()
```

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

Out[19]:
```
(2712, 4065, 3)
```

In [22]:
```
horse_red = horse_arr.copy()
horse_red
```

Out[22]:
```
array([[[189, 213, 241],
        [189, 213, 241],
        [188, 212, 240],
        ...,
        [202, 223, 240],
        [202, 223, 240],
        [203, 224, 241]],

       [[188, 212, 240],
        [188, 212, 240],
        [187, 211, 239],
        ...,
        [203, 224, 241],
        [203, 224, 241],
        [203, 224, 241]],

       [[187, 211, 239],
        [187, 211, 239],
        [186, 210, 238],
        ...,
        [204, 225, 242],
        [204, 225, 242],
        [203, 224, 241]],

       ...,

       [[ 31,  46,   7],
        [ 30,  45,   6],
        [ 29,  43,   7],
        ...,
        [ 37,  50,   4],
        [ 40,  53,   7],
        [ 41,  57,   8]],

       [[ 33,  48,   9],
        [ 32,  47,   8],
        [ 31,  46,   7],
        ...,
        [ 40,  53,   7],
        [ 43,  56,  10],
        [ 43,  59,  10]],

       [[ 35,  50,  11],
        [ 34,  49,  10],
        [ 32,  47,   8],
        ...,
        [ 44,  57,  11],
        [ 46,  59,  13],
        [ 40,  56,   7]]], dtype=uint8)
```

In [23]:
```
horse_arr == horse_red
```

Out[23]:
```
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 [24]:
```
plt.imshow(horse_red)
plt.show()
```

In [25]:
```
horse_red.shape
```

Out[25]: (2712, 4065, 3)

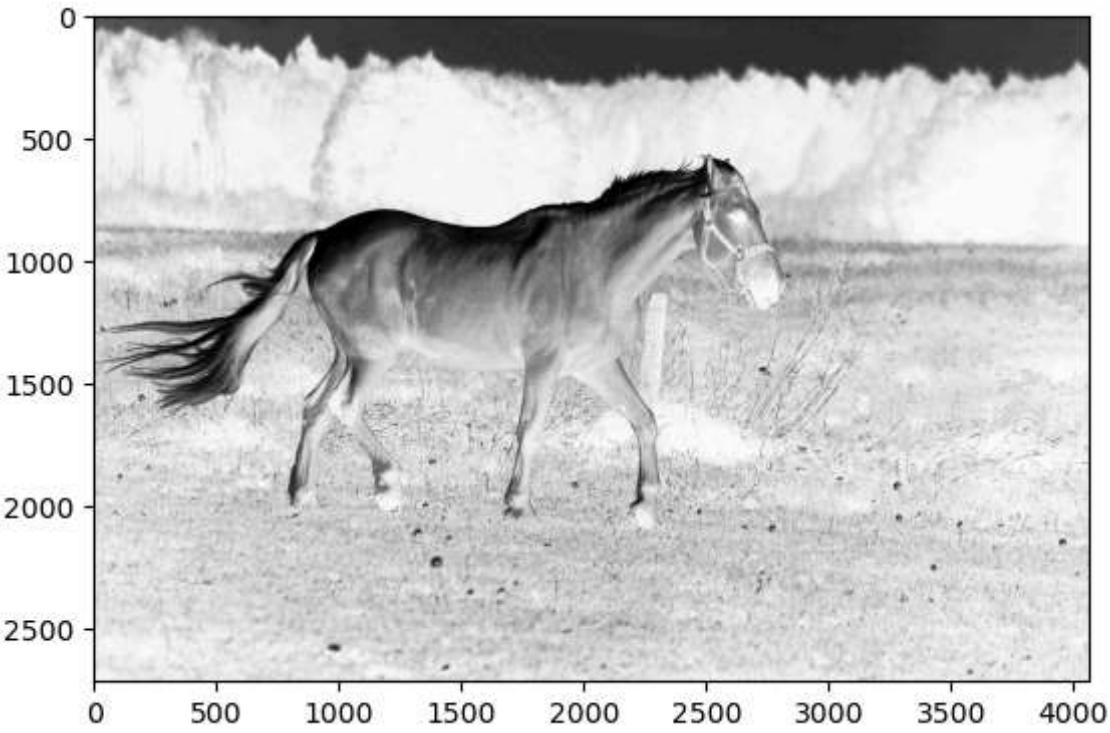
In [29]:
```
# R G B

plt.imshow(horse_red[:,:,0])
plt.show()
```

In [30]:
```
horse_red[:,:,0]
```

Out[30]:
```
array([[189, 189, 188, ..., 202, 202, 203],
       [188, 188, 187, ..., 203, 203, 203],
       [187, 187, 186, ..., 204, 204, 203],
       ...,
       [ 31,  30,  29, ...,  37,  40,  41],
       [ 33,  32,  31, ...,  40,  43,  43],
       [ 35,  34,  32, ...,  44,  46,  40]], dtype=uint8)
```

In [32]:
```
plt.imshow(horse_red[:,:,0], cmap='Greys')
plt.show()
```



In [33]:
```
plt.imshow(horse_red[:,:,1], cmap='grey')
plt.show()
```

In [34]:
```
plt.imshow(horse_red[:,:,1], cmap='YlGn')
plt.show()
```

In [35]:
```
horse_red[:,:,0]
```

Out[35]:
```
array([[189, 189, 188, ..., 202, 202, 203],
       [188, 188, 187, ..., 203, 203, 203],
       [187, 187, 186, ..., 204, 204, 203],
       ...,
       [ 31,  30,  29, ...,  37,  40,  41],
       [ 33,  32,  31, ...,  40,  43,  43],
       [ 35,  34,  32, ...,  44,  46,  40]], dtype=uint8)
```

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

Out[37]:
```
array([[213, 213, 212, ..., 223, 223, 224],
       [212, 212, 211, ..., 224, 224, 224],
       [211, 211, 210, ..., 225, 225, 224],
       ...,
       [ 46,  45,  43, ...,  50,  53,  57],
       [ 48,  47,  46, ...,  53,  56,  59],
       [ 50,  49,  47, ...,  57,  59,  56]], dtype=uint8)
```

In [38]:
```
horse_red[:,:,2]
```

Out[38]:
```
array([[241, 241, 240, ..., 240, 240, 241],
       [240, 240, 239, ..., 241, 241, 241],
       [239, 239, 238, ..., 242, 242, 241],
       ...,
       [  7,   6,   7, ...,   4,   7,   8],
       [  9,   8,   7, ...,   7,  10,  10],
       [ 11,  10,   8, ...,  11,  13,   7]], dtype=uint8)
```

In [40]:
```
horse_red[:,:,1] = 0
```

In [41]:
```
horse_red[:,:,1]
```

Out[41]:
```
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)
plt.show()
```

In [45]:
```
horse_red[:,:,2]
```

Out[45]:
```
array([[241, 241, 240, ..., 240, 240, 241],
       [240, 240, 239, ..., 241, 241, 241],
       [239, 239, 238, ..., 242, 242, 241],
       ...,
       [  7,   6,   7, ...,   4,   7,   8],
       [  9,   8,   7, ...,   7,  10,  10],
       [ 11,  10,   8, ...,  11,  13,   7]], dtype=uint8)
```

In [46]:
```
horse_red[:,:,2]  = 0
```

In [47]:
```
horse_red[:,:,2]
```

Out[47]:
```
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 [49]:
```
plt.imshow(horse_red)
plt.show()
```

In [50]:
```
horse_arr
```

Out[50]:
```
array([[[189, 213, 241],
        [189, 213, 241],
        [188, 212, 240],
        ...,
        [202, 223, 240],
        [202, 223, 240],
        [203, 224, 241]],

       [[188, 212, 240],
        [188, 212, 240],
        [187, 211, 239],
        ...,
        [203, 224, 241],
        [203, 224, 241],
        [203, 224, 241]],

       [[187, 211, 239],
        [187, 211, 239],
        [186, 210, 238],
        ...,
        [204, 225, 242],
        [204, 225, 242],
        [203, 224, 241]],

       ...,

       [[ 31,  46,   7],
        [ 30,  45,   6],
        [ 29,  43,   7],
        ...,
        [ 37,  50,   4],
        [ 40,  53,   7],
        [ 41,  57,   8]],

       [[ 33,  48,   9],
        [ 32,  47,   8],
        [ 31,  46,   7],
        ...,
        [ 40,  53,   7],
        [ 43,  56,  10],
        [ 43,  59,  10]],

       [[ 35,  50,  11],
        [ 34,  49,  10],
        [ 32,  47,   8],
        ...,
        [ 44,  57,  11],
        [ 46,  59,  13],
        [ 40,  56,   7]]], dtype=uint8)
```

In [51]:
```
horse_red
```

Out[51]:
```
array([[[189,   0,   0],
        [189,   0,   0],
        [188,   0,   0],
        ...,
        [202,   0,   0],
        [202,   0,   0],
        [203,   0,   0]],

       [[188,   0,   0],
        [188,   0,   0],
        [187,   0,   0],
        ...,
        [203,   0,   0],
        [203,   0,   0],
        [203,   0,   0]],

       [[187,   0,   0],
        [187,   0,   0],
        [186,   0,   0],
        ...,
        [204,   0,   0],
        [204,   0,   0],
        [203,   0,   0]],

       ...,

       [[ 31,   0,   0],
        [ 30,   0,   0],
        [ 29,   0,   0],
        ...,
        [ 37,   0,   0],
        [ 40,   0,   0],
        [ 41,   0,   0]],

       [[ 33,   0,   0],
        [ 32,   0,   0],
        [ 31,   0,   0],
        ...,
        [ 40,   0,   0],
        [ 43,   0,   0],
        [ 43,   0,   0]],

       [[ 35,   0,   0],
        [ 34,   0,   0],
        [ 32,   0,   0],
        ...,
        [ 44,   0,   0],
        [ 46,   0,   0],
        [ 40,   0,   0]]], dtype=uint8)
```

In [54]:
```
image
```

Out[54]:

In [55]:
```
arr1 = np.asarray(image)
```

In [56]:
```
type(arr1)
```

Out[56]:
```
numpy.ndarray
```

In [57]:
```
arr1.shape
```

Out[57]:
```
(2712, 4065, 3)
```

In [58]:
```
plt.imshow(arr1)
plt.show()
```

In [59]:
```
horse_img1 = arr1.copy()
```

In [60]:
```
horse_img1[:,:,0] = 0
```

In [62]:
```
plt.imshow(horse_img1)
plt.show()
```

In [63]:
```
plt.imshow(horse_img1)
plt.show()
```

In [64]:
```
horse_img1[:,:,1]
```

Out[64]:
```
array([[213, 213, 212, ..., 223, 223, 224],
       [212, 212, 211, ..., 224, 224, 224],
       [211, 211, 210, ..., 225, 225, 224],
       ...,
       [ 46,  45,  43, ...,  50,  53,  57],
       [ 48,  47,  46, ...,  53,  56,  59],
       [ 50,  49,  47, ...,  57,  59,  56]], dtype=uint8)
```

In [65]:
```
horse_img1[:,:,1] = 0
```

In [67]:
```
plt.imshow(horse_img1)
plt.show()
```

In [ ]: