

```
import numpy as np
```

```
ones_arr=np.ones((5,5),dtype=int)
```

```
ones_arr
```

```
↗ 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]])
```

```
ones_arr*255
```

```
↗ 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]])
```

```
from PIL import Image
```

```
horse_image=Image.open(r'C:\Users\LAHARI\Downloads\horse image.jpeg')
```

```
horse_image
```



```
type(horse_image)
```

```
↗ PIL.JpegImagePlugin.JpegImageFile
```

```
horse_arr=np.asarray(horse_image)
```

```
horse_arr
```

```
↗ array([[ 21,  18,  25],
         [ 19,  19,  21],
         [ 14,  16,  11],
         ...,
         [ 79,  66,  49],
         [ 59,  50,  35],
         [ 38,  29,  20]],

        [[ 19,  17,  22],
         [ 18,  16,  19],
         [ 15,  16,  10],
         ...,
         [ 94,  81,  64],
         [ 51,  42,  27],
         [ 45,  37,  26]],

        [[ 21,  16,  20],
         [ 16,  15,  13],
         [ 15,  16,   8],
         ...,
         [ 86,  73,  56],
         [ 40,  28,  14],
         [ 43,  35,  24]],

        ...,

        [[ 93, 126,  57],
         [ 40,  69,  11],
         [ 49,  76,  23],
         ...,
         [ 68,  89,  30],
         [ 94, 117,  61],
         [ 80, 107,  52]],

        [[ 78, 119,  43],
         [ 49,  85,  11],
         [ 43,  79,   9],
         ...,
         [ 92, 114,  49],
         [ 78, 102,  40]],
```

```
[ 82, 112, 48]],
[[ 57, 103, 41],
[ 35, 77, 0],
[ 82, 122, 33],
...,
[158, 179, 122],
[ 59, 82, 26],
[ 67, 97, 37]]], dtype=uint8)
```

```
type(horse_arr)
```

```
→ numpy.ndarray
```

```
import matplotlib.pyplot as plt
```

```
plt.imshow(horse_arr)
```

```
→ <matplotlib.image.AxesImage at 0x132ff35e7e0>
```



```
horse_arr.shape
```

```
→ (121, 182, 3)
```

```
horse_red=horse_arr.copy()
```

```
horse_red
```

```
→ array([[[ 21, 18, 25],
[ 19, 19, 21],
[ 14, 16, 11],
...,
[ 79, 66, 49],
[ 59, 50, 35],
[ 38, 29, 20]],

[[ 19, 17, 22],
[ 18, 16, 19],
[ 15, 16, 10],
...,
[ 94, 81, 64],
[ 51, 42, 27],
[ 45, 37, 26]],

[[ 21, 16, 20],
[ 16, 15, 13],
[ 15, 16, 8],
...,
[ 86, 73, 56],
[ 40, 28, 14],
[ 43, 35, 24]],

...,

[[ 93, 126, 57],
[ 40, 69, 11],
[ 49, 76, 23],
...,
[ 68, 89, 30],
[ 94, 117, 61],
[ 80, 107, 52]],

[[ 78, 119, 43],
```

```
[ 49, 85, 11],
[ 43, 79, 9],
...,
[ 92, 114, 49],
[ 78, 102, 40],
[ 82, 112, 48]],

[[ 57, 103, 41],
[ 35, 77, 0],
[ 82, 122, 33],
...,
[158, 179, 122],
[ 59, 82, 26],
[ 67, 97, 37]]], dtype=uint8)
```

```
horse_arr==horse_red
```

```
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]]])
```

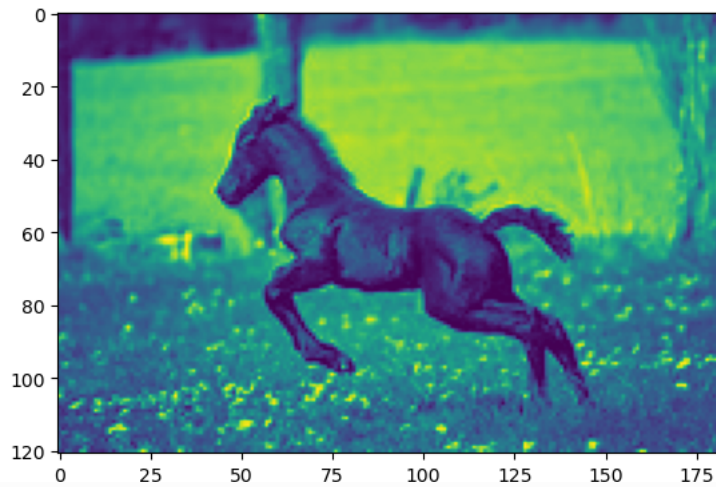
```
plt.imshow(horse_red)
```

 <matplotlib.image.AxesImage at 0x132ff3b3b90>



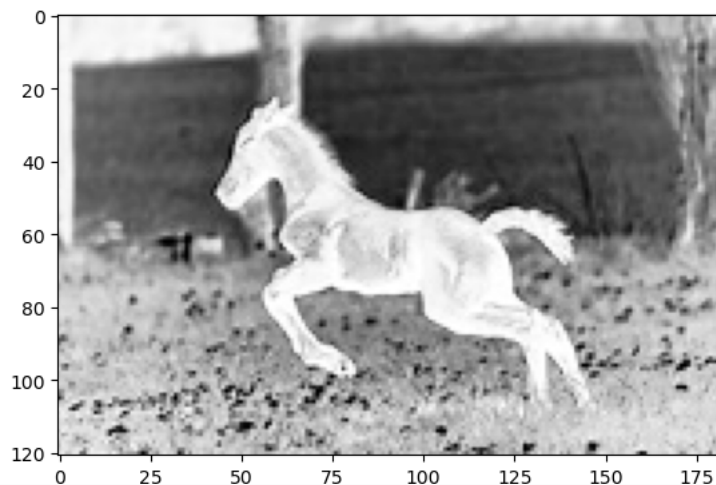
```
plt.imshow(horse_red[:, :, 0])
```

 <matplotlib.image.AxesImage at 0x132ff4429f0>



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

 <matplotlib.image.AxesImage at 0x132ff3bff20>




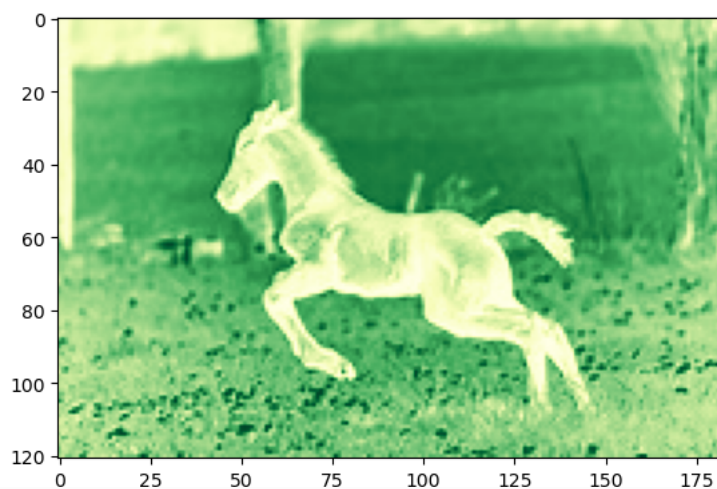
```
plt.imshow(horse_red[:, :, 1], cmap='grey')
```

 <matplotlib.image.AxesImage at 0x132fed2f680>




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


 <matplotlib.image.AxesImage at 0x132857caae0>



```
horse_red[:, :, 0]
```


 array([[ 21, 19, 14, ..., 79, 59, 38],  
[ 19, 18, 15, ..., 94, 51, 45],  
[ 21, 16, 15, ..., 86, 40, 43],  
...,  
[ 93, 40, 49, ..., 68, 94, 80],  
[ 78, 49, 43, ..., 92, 78, 82],  
[ 57, 35, 82, ..., 158, 59, 67]], dtype=uint8)

```
horse_red[:, :, 2]
```

 array([[ 25, 21, 11, ..., 49, 35, 20],  
[ 22, 19, 10, ..., 64, 27, 26],  
[ 20, 13, 8, ..., 56, 14, 24],  
...,  
[ 57, 11, 23, ..., 30, 61, 52],  
[ 43, 11, 9, ..., 49, 40, 48],  
[ 41, 0, 33, ..., 122, 26, 37]], dtype=uint8)

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

```
horse_red[:, :, 1]
```

 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)

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

```
horse_red[:, :, 2]
```

```
↵ 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)
```

```
plt.imshow(horse_red)
```

```
↵ <matplotlib.image.AxesImage at 0x132857797f0>
```



```
horse_arr
```

```
↵ array([[[ 21, 18, 25],
          [ 19, 19, 21],
          [ 14, 16, 11],
          ...,
          [ 79, 66, 49],
          [ 59, 50, 35],
          [ 38, 29, 20]],

        [[ 19, 17, 22],
          [ 18, 16, 19],
          [ 15, 16, 10],
          ...,
          [ 94, 81, 64],
          [ 51, 42, 27],
          [ 45, 37, 26]],

        [[ 21, 16, 20],
          [ 16, 15, 13],
          [ 15, 16, 8],
          ...,
          [ 86, 73, 56],
          [ 40, 28, 14],
          [ 43, 35, 24]],

        ...,

        [[ 93, 126, 57],
          [ 40, 69, 11],
          [ 49, 76, 23],
          ...,
          [ 68, 89, 30],
          [ 94, 117, 61],
          [ 80, 107, 52]],

        [[ 78, 119, 43],
          [ 49, 85, 11],
          [ 43, 79, 9],
          ...,
          [ 92, 114, 49],
          [ 78, 102, 40],
          [ 82, 112, 48]],

        [[ 57, 103, 41],
          [ 35, 77, 0],
          [ 82, 122, 33],
          ...,
          [158, 179, 122],
          [ 59, 82, 26],
          [ 67, 97, 37]]], dtype=uint8)
```

horse\_red

```

array([[[ 0, 0, 0],
        [ 0, 0, 0],
        [14, 0, 0],
        ...,
        [79, 0, 0],
        [59, 0, 0],
        [38, 0, 0]],

       [[ 0, 0, 0],
        [ 0, 0, 0],
        [15, 0, 0],
        ...,
        [94, 0, 0],
        [51, 0, 0],
        [45, 0, 0]],

       [[ 0, 0, 0],
        [ 0, 0, 0],
        [15, 0, 0],
        ...,
        [86, 0, 0],
        [40, 0, 0],
        [43, 0, 0]],

       ...,

       [[ 0, 0, 0],
        [ 0, 0, 0],
        [49, 0, 0],
        ...,
        [68, 0, 0],
        [94, 0, 0],
        [80, 0, 0]],

       [[ 0, 0, 0],
        [ 0, 0, 0],
        [43, 0, 0],
        ...,
        [92, 0, 0],
        [78, 0, 0],
        [82, 0, 0]],

       [[ 0, 0, 0],
        [ 0, 0, 0],
        [82, 0, 0],
        ...,
        [158, 0, 0],
        [59, 0, 0],
        [67, 0, 0]]], dtype=uint8)

```

horse\_image



```
arr1=np.asarray(horse_image)
```

```
type(arr1)
```

```
numpy.ndarray
```

```
arr1.shape
```

```
(121, 182, 3)
```

```
plt.imshow(arr1)
```

```
<matplotlib.image.AxesImage at 0x13281029880>
```



```
horse_image1=arr1.copy()
```



```
horse_image1[:, :, 0] = 0
```



```
plt.imshow(horse_image1)
```

```
<matplotlib.image.AxesImage at 0x132858429f0>
```



```
horse_image1[:, :, 1]
```

```
array([[ 18,  19,  16, ...,  66,  50,  29],
       [ 17,  16,  16, ...,  81,  42,  37],
       [ 16,  15,  16, ...,  73,  28,  35],
       ...,
       [126,  69,  76, ...,  89, 117, 107],
       [119,  85,  79, ..., 114, 102, 112],
       [103,  77, 122, ..., 179,  82,  97]], dtype=uint8)
```

```
horse_image1[:, :, 1] = 0
```

```
plt.imshow(horse_image1)
```

```
<matplotlib.image.AxesImage at 0x13285a422a0>
```

