In [327…
```
import numpy as np
```

In [329…
```
ones_arr=np.ones((5,5))
ones_arr
```

Out[329…
```
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 [331…
```
ones_arr=np.ones((5,5),dtype=int)
ones_arr
```

Out[331…
```
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 [333…
```
zeros_arr=np.zeros((3,3),dtype=int)
zeros_arr
```

Out[333…
```
array([[0, 0, 0],
       [0, 0, 0],
       [0, 0, 0]])
```

In [335…
```
ones_arr * 255
```

Out[335…
```
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 [337…
```
import matplotlib.pyplot as plt
```

In [339…
```
#all the  pictures keep inside the graph
%matplotlib inline
```

In [341…
```
from PIL import Image   #PIL-Python Image Library
```

In [343…
```
horse_img=Image.open(r'C:\Users\pandu\OneDrive\Documents\Desktop\horse.jpeg')
horse_img
```

Out[343…

In [345…

```
type(horse_img)
```

Out[345… PIL.JpegImagePlugin.JpegImageFile

In [347…

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

Out[347…

```
array([[[ 15,  19,  30],
        [ 14,  18,  29],
        [ 13,  17,  28],
        ...,
        [ 23,  33,  35],
        [ 28,  38,  40],
        [ 29,  39,  41]],

       [[ 15,  19,  30],
        [ 15,  19,  30],
        [ 14,  18,  29],
        ...,
        [ 22,  32,  34],
        [ 26,  36,  38],
        [ 26,  36,  38]],

       [[ 16,  20,  31],
        [ 15,  19,  30],
        [ 15,  19,  30],
        ...,
        [ 21,  29,  32],
        [ 23,  31,  34],
        [ 23,  31,  34]],

       ...,

       [[ 82,  47,  27],
        [ 92,  57,  37],
        [103,  68,  48],
        ...,
        [ 27,  37,  38],
        [ 29,  39,  40],
        [ 30,  40,  41]],

       [[ 94,  61,  42],
        [115,  82,  63],
        [117,  84,  65],
        ...,
        [ 16,  30,  30],
        [ 17,  31,  31],
        [ 19,  33,  33]],

       [[ 66,  37,  21],
        [ 92,  63,  47],
        [ 91,  62,  46],
        ...,
        [ 19,  33,  33],
        [ 21,  35,  35],
        [ 22,  36,  36]]], dtype=uint8)
```

In [349…

```
type(horse_arr)
```

Out[349…

```
numpy.ndarray
```

In [351…

```
horse_arr.shape
```

Out[351… (333, 500, 3)

In [353…
```
plt.imshow(horse_arr)
plt.show()
```

In [355…
```
horse_red=horse_arr.copy()
horse_red
```

Out[355…

```
array([[[ 15,  19,  30],
        [ 14,  18,  29],
        [ 13,  17,  28],
        ...,
        [ 23,  33,  35],
        [ 28,  38,  40],
        [ 29,  39,  41]],

       [[ 15,  19,  30],
        [ 15,  19,  30],
        [ 14,  18,  29],
        ...,
        [ 22,  32,  34],
        [ 26,  36,  38],
        [ 26,  36,  38]],

       [[ 16,  20,  31],
        [ 15,  19,  30],
        [ 15,  19,  30],
        ...,
        [ 21,  29,  32],
        [ 23,  31,  34],
        [ 23,  31,  34]],

       ...,

       [[ 82,  47,  27],
        [ 92,  57,  37],
        [103,  68,  48],
        ...,
        [ 27,  37,  38],
        [ 29,  39,  40],
        [ 30,  40,  41]],

       [[ 94,  61,  42],
        [115,  82,  63],
        [117,  84,  65],
        ...,
        [ 16,  30,  30],
        [ 17,  31,  31],
        [ 19,  33,  33]],

       [[ 66,  37,  21],
        [ 92,  63,  47],
        [ 91,  62,  46],
        ...,
        [ 19,  33,  33],
        [ 21,  35,  35],
        [ 22,  36,  36]]], dtype=uint8)
```

In [357…

```
horse_arr == horse_red
```

Out[357…

```
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 [359…

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

In [361…
```
horse_red.shape
```

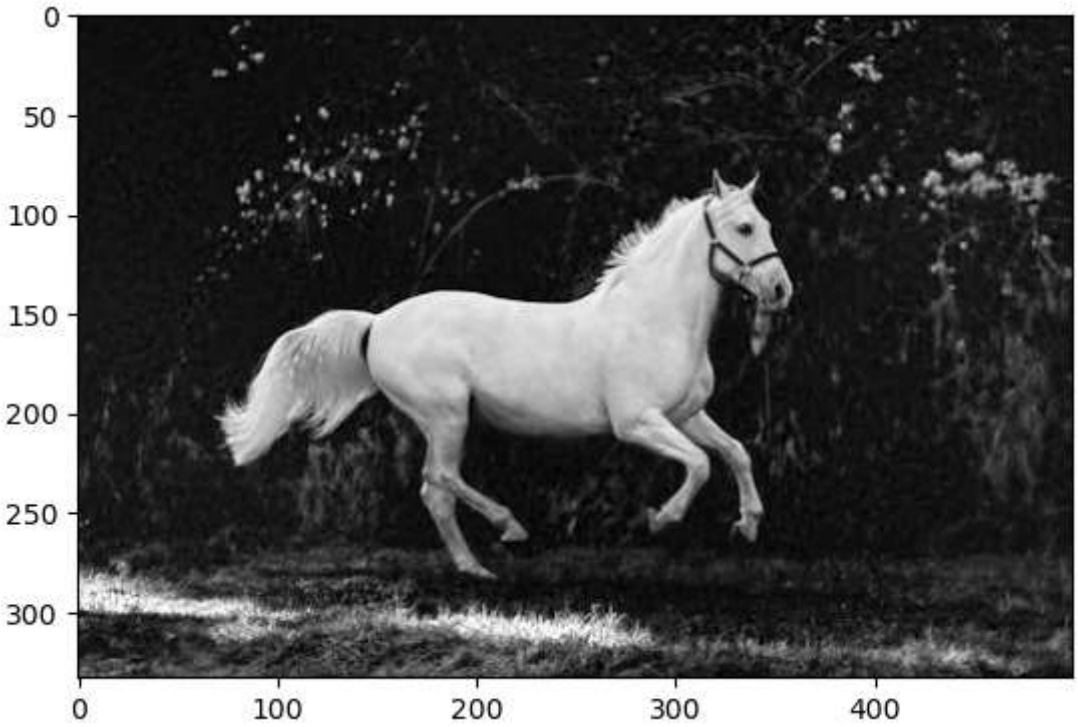
Out[361…
```
(333, 500, 3)
```

In [363…
```
# R G B
plt.imshow(horse_red[:,:,0])
plt.show()
```

In [365…
```
horse_red[:,:,0]
```

Out[365…
```
array([[ 15,  14,  13, ...,  23,  28,  29],
       [ 15,  15,  14, ...,  22,  26,  26],
       [ 16,  15,  15, ...,  21,  23,  23],
       ...,
       [ 82,  92, 103, ...,  27,  29,  30],
       [ 94, 115, 117, ...,  16,  17,  19],
       [ 66,  92,  91, ...,  19,  21,  22]], dtype=uint8)
```

In [367…
```
plt.imshow(horse_red[:,:,0],cmap='gray')
plt.show()
```



In [369…
```
plt.imshow(horse_red[:,:,0],cmap='Blues')
plt.show()
```

In [371…
```
plt.imshow(horse_red[:,:,0],cmap='Reds')
plt.show()
```

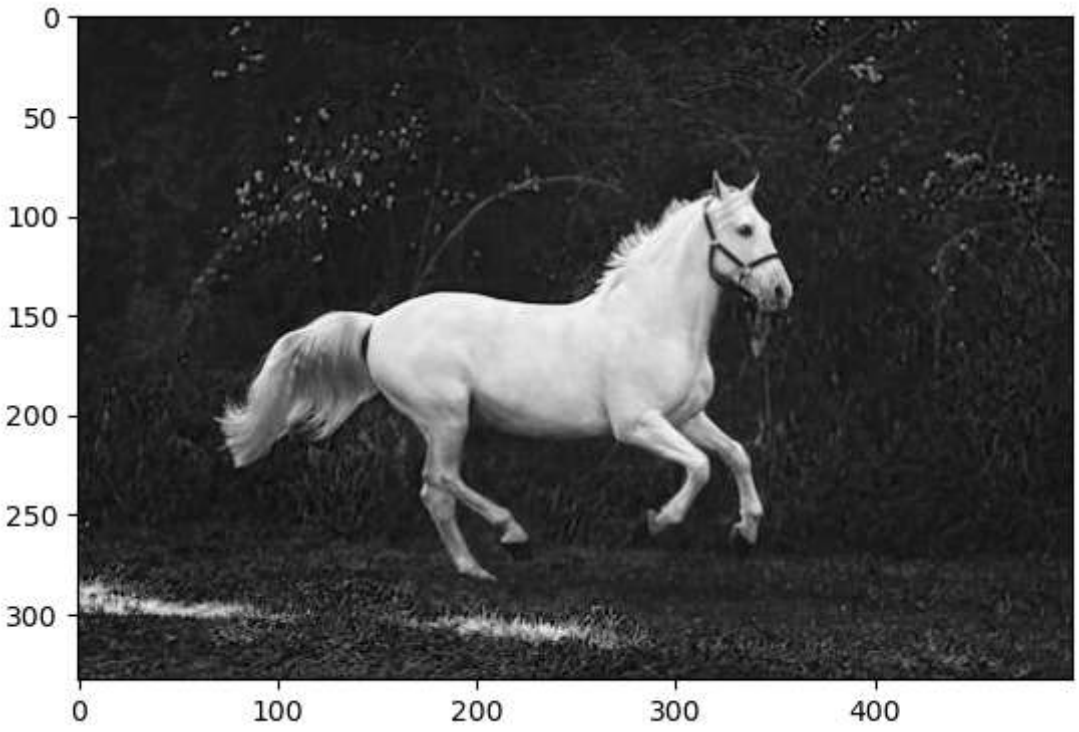
In [373…
```
plt.imshow(horse_red[:,:,0],cmap='PuBu')
plt.show()
```

In [375…
```
plt.imshow(horse_red[:,:,0],cmap='Greys')
plt.show()
```

In [377…
```
plt.imshow(horse_red[:,:,1],cmap='Greys')
plt.show()
```

In [379…
```
plt.imshow(horse_red[:,:,1],cmap='grey')
plt.show()
```

In [381…
```
plt.imshow(horse_red[:,:,2],cmap='grey')
plt.show()
```



In [383…
```
horse_red[:,:,0]
```

Out[383…
```
array([[ 15,  14,  13, ...,  23,  28,  29],
       [ 15,  15,  14, ...,  22,  26,  26],
       [ 16,  15,  15, ...,  21,  23,  23],
       ...,
       [ 82,  92, 103, ...,  27,  29,  30],
       [ 94, 115, 117, ...,  16,  17,  19],
       [ 66,  92,  91, ...,  19,  21,  22]], dtype=uint8)
```

In [385…
```
horse_red[:,:,1]
```

Out[385…
```
array([[19, 18, 17, ..., 33, 38, 39],
       [19, 19, 18, ..., 32, 36, 36],
       [20, 19, 19, ..., 29, 31, 31],
       ...,
       [47, 57, 68, ..., 37, 39, 40],
       [61, 82, 84, ..., 30, 31, 33],
       [37, 63, 62, ..., 33, 35, 36]], dtype=uint8)
```

In [387…
```
horse_red[:,:,2]
```

Out[387…
```
array([[30, 29, 28, ..., 35, 40, 41],
       [30, 30, 29, ..., 34, 38, 38],
       [31, 30, 30, ..., 32, 34, 34],
       ...,
       [27, 37, 48, ..., 38, 40, 41],
       [42, 63, 65, ..., 30, 31, 33],
       [21, 47, 46, ..., 33, 35, 36]], dtype=uint8)
```

In [389…
```
horse_red[:,:,1]=0
```

In [391…
```
horse_red[:,:,1]
```

Out[391…
```
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 [393…
```
plt.imshow(horse_red)
plt.show()
```

In [395…
```
horse_red[:,:,2]=0
```

In [397…
```
horse_red[:,:,2]
```

Out[397…
```
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 [399…
```
plt.imshow(horse_red)
plt.show()
```

In [402…

```
horse_arr
```

Out[402…

```
array([[[ 15,  19,  30],
        [ 14,  18,  29],
        [ 13,  17,  28],
        ...,
        [ 23,  33,  35],
        [ 28,  38,  40],
        [ 29,  39,  41]],

       [[ 15,  19,  30],
        [ 15,  19,  30],
        [ 14,  18,  29],
        ...,
        [ 22,  32,  34],
        [ 26,  36,  38],
        [ 26,  36,  38]],

       [[ 16,  20,  31],
        [ 15,  19,  30],
        [ 15,  19,  30],
        ...,
        [ 21,  29,  32],
        [ 23,  31,  34],
        [ 23,  31,  34]],

       ...,

       [[ 82,  47,  27],
        [ 92,  57,  37],
        [103,  68,  48],
        ...,
        [ 27,  37,  38],
        [ 29,  39,  40],
        [ 30,  40,  41]],

       [[ 94,  61,  42],
        [115,  82,  63],
        [117,  84,  65],
        ...,
        [ 16,  30,  30],
        [ 17,  31,  31],
        [ 19,  33,  33]],

       [[ 66,  37,  21],
        [ 92,  63,  47],
        [ 91,  62,  46],
        ...,
        [ 19,  33,  33],
        [ 21,  35,  35],
        [ 22,  36,  36]]], dtype=uint8)
```

In [404…

```
horse_red
```

Out[404…

```
array([[[ 15,   0,   0],
        [ 14,   0,   0],
        [ 13,   0,   0],
        ...,
        [ 23,   0,   0],
        [ 28,   0,   0],
        [ 29,   0,   0]],

       [[ 15,   0,   0],
        [ 15,   0,   0],
        [ 14,   0,   0],
        ...,
        [ 22,   0,   0],
        [ 26,   0,   0],
        [ 26,   0,   0]],

       [[ 16,   0,   0],
        [ 15,   0,   0],
        [ 15,   0,   0],
        ...,
        [ 21,   0,   0],
        [ 23,   0,   0],
        [ 23,   0,   0]],

       ...,

       [[ 82,   0,   0],
        [ 92,   0,   0],
        [103,   0,   0],
        ...,
        [ 27,   0,   0],
        [ 29,   0,   0],
        [ 30,   0,   0]],

       [[ 94,   0,   0],
        [115,   0,   0],
        [117,   0,   0],
        ...,
        [ 16,   0,   0],
        [ 17,   0,   0],
        [ 19,   0,   0]],

       [[ 66,   0,   0],
        [ 92,   0,   0],
        [ 91,   0,   0],
        ...,
        [ 19,   0,   0],
        [ 21,   0,   0],
        [ 22,   0,   0]]], dtype=uint8)
```

In [406…

```
horse_img
```

Out[406…

In [410…

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

Out[410…

```
array([[[ 15,  19,  30],
        [ 14,  18,  29],
        [ 13,  17,  28],
        ...,
        [ 23,  33,  35],
        [ 28,  38,  40],
        [ 29,  39,  41]],

       [[ 15,  19,  30],
        [ 15,  19,  30],
        [ 14,  18,  29],
        ...,
        [ 22,  32,  34],
        [ 26,  36,  38],
        [ 26,  36,  38]],

       [[ 16,  20,  31],
        [ 15,  19,  30],
        [ 15,  19,  30],
        ...,
        [ 21,  29,  32],
        [ 23,  31,  34],
        [ 23,  31,  34]],

       ...,

       [[ 82,  47,  27],
        [ 92,  57,  37],
        [103,  68,  48],
        ...,
        [ 27,  37,  38],
        [ 29,  39,  40],
        [ 30,  40,  41]],

       [[ 94,  61,  42],
        [115,  82,  63],
        [117,  84,  65],
        ...,
        [ 16,  30,  30],
        [ 17,  31,  31],
        [ 19,  33,  33]],

       [[ 66,  37,  21],
        [ 92,  63,  47],
        [ 91,  62,  46],
        ...,
        [ 19,  33,  33],
        [ 21,  35,  35],
        [ 22,  36,  36]]], dtype=uint8)
```

In [412…

```
type(arr1)
```

Out[412…

```
numpy.ndarray
```

In [414…

```
arr1.shape
```

Out[414… (333, 500, 3)

In [416…
```
plt.imshow(arr1)
plt.show()
```

In [418…
```
horse_img1=arr1.copy()
horse_img
```

Out[418…

In [422…
```
horse_img1[:,:,0]=0
```

In [424…
```
plt.imshow(horse_img1)
```

```
plt.show()
```

In [426…
```
horse_img1[:,:,1]
```

Out[426…
```
array([[19, 18, 17, ..., 33, 38, 39],
       [19, 19, 18, ..., 32, 36, 36],
       [20, 19, 19, ..., 29, 31, 31],
       ...,
       [47, 57, 68, ..., 37, 39, 40],
       [61, 82, 84, ..., 30, 31, 33],
       [37, 63, 62, ..., 33, 35, 36]], dtype=uint8)
```

In [428…
```
horse_img1[:,:,1]=0
```

In [430…
```
horse_img1[:,:,1]
```

Out[430…
```
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 [432…
```
plt.imshow(horse_img1)
plt.show()
```

In [ ]: